

**SOCIAL SUPPORT, OCCUPATIONAL HEALTH AND
WELL-BEING OF THE HEALTHCARE WORKERS DURING
COVID-19 PANDEMIC IN MIZORAM**

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
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DOCTOR OF PHILOSOPHY**

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COVID-19 PANDEMIC IN MIZORAM**

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**In partial fulfilment of the requirement of the Degree of Doctor of
Philosophy in Social Work of Mizoram University, Aizawl**

MIZORAM UNIVERSITY

JULY 2025

CERTIFICATE

This is to certify that the thesis “*Social Support, Occupational health and Well-being of the Healthcare workers during Covid-19 Pandemic in Mizoram*” submitted by Lalrinzuala for the award of the degree of Doctor of Philosophy in Social Work is carried out under my guidance and incorporates the student’s bonafide research and this has not been submitted for award of any degree in this or any other University or Institution of learning.

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DECLARATION

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I Lalrinzuala, hereby declare that the subject matter of this thesis is the record of work done by me, that the contents of this thesis did not form basis of the award of any previous degree to me or to the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any degree in any other University or Institute.

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LIST OF ABBREVIATION

Abbreviation	Full Form
ANM	Auxiliary Nurse Midwife
ANOVA	Analysis of Variance
ASHA	Accredited Social Health Activists
BBC-SWB	BBC Subjective Well-Being Scale
CDAS	Corona Disease Anxiety Scale
CCC	COVID Care Center
CCCC	Community COVID Care Center
COVID-19	Coronavirus Disease 2019
FHW	Frontline Healthcare Workers
GAS	General Adaptation Syndrome
GAD-7	Generalized Anxiety Disorder-7
HCWs	Healthcare Workers
ICMR	Indian Council of Medical Research
ICU	Intensive Care Units
IMA	Indian Medical Association
IPC	Infection Prevention and Control
ILO	International Labour Organization
LMICs	Low- and middle-income countries
NHM	National Health Mission
OHS	Occupational Health and Safety
PHCs	Primary Health Centers
PPE	Personal Protective Equipment
PTSD	Post-Traumatic Stress Disorder
SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus 2
SPSS	Statistical Package for Social Sciences
SSRS	Social Support Rate Scale
WHO	World Health Organization

YMA	Young Mizo Association
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INTRODUCTION

CHAPTER I INTRODUCTION

1.1. Overview of the study

The current study aims to understand the social support, occupational health, and overall well-being of healthcare workers (HCWs) during the COVID-19 pandemic in Mizoram. It will focus on healthcare professionals who played a crucial role in the prevention, protection, and treatment of COVID-19 within the state, particularly in the two districts of Aizawl and Lunglei. These districts have the largest and second-largest populations of healthcare workers in Mizoram and a significant number of COVID-19 patients during the pandemic.

Healthcare workers are vital to the effective functioning of the health system. They assess, diagnose, treat, and prevent various illnesses, injuries, and other physical and mental health conditions, addressing the needs of the communities they serve. These professionals possess a deep sense of compassion and utilize evidence-based medicine to handle patient care while upholding high moral and ethical standards to protect public health. They provide guidance and implement preventive, curative, and health promotion measures to improve health outcomes for individuals and populations. The term “healthcare workers” includes a wide range of professionals, such as those in psychiatry, social work, clerical support, sales, and service, in addition to medical and clinical healthcare workers (WHO Guidelines, 2013). It also encompasses individuals who offer care and services to the sick and ailing, both directly and indirectly, including laboratory personnel, technicians, nurses, assistants, and those who manage medical waste (Joseph & Joseph, 2016).

The roles of healthcare workers vary based on the nature of their work and practices. They exert immense effort in hospitals and medical units to care for and support patients with complex medical conditions. They must adhere to the principle of “medical neutrality,” which mandates treating patients regardless of their race, religion, or political affiliation. During times of conflict, healthcare workers can call for ceasefires to ensure that the ill and injured have safe access to medical care. They also advocate for the protection of healthcare services during pandemics, epidemics,

and wars. In situations of healthcare worker shortages, they train others to ensure adequate healthcare is provided to the population (Kumar & Kamath, 2024). The COVID-19 pandemic highlighted the critical importance of healthcare workers in sustaining public health. Their commitment to patient care, often under challenging and dangerous conditions, highlights their dedication and resilience. This study seeks to shed light on the social support systems, occupational health conditions, and overall well-being of these essential workers in Mizoram, providing insights that could help improve their working conditions and support mechanisms in future health crises.

The COVID-19 pandemic brought significant mental health challenges to healthcare workers across India. Many doctors, nurses, and frontline staff experienced stress, anxiety, and burnout due to heavy workloads and fear of infection (Mathias et al., 2023). Recognizing this urgent need, several programs were launched by the government, professional groups, NGOs, and private organizations to support their mental well-being.

The Government of India responded quickly by setting up helplines such as KIRAN and Tele-MANAS, offering round-the-clock psychological support for healthcare workers and the public (Ministry of Health and Family Welfare [MoHFW], 2022). These helplines, staffed by trained counsellors, received millions of calls, showing how important they were. The National Institute of Mental Health and Neurosciences (NIMHANS) also provided clear guidelines to healthcare facilities on how to support staff mental health during the pandemic (Press Trust of India [PTI], 2020). Additionally, online training helped healthcare workers learn how to manage stress and support one another (MoHFW, 2022). Professional organizations like the Indian Medical Association (IMA) created helplines and counselling services to help doctors deal with rising mental health problems. For instances like in Kerala's "Helping Hands" program offers free counselling to doctors struggling with stress and emotional challenges (Express News Service, 2024; Madhavan, 2020).

Non-government organizations and academic groups contributed as well. "Sangath" set up a well-being center and helpline providing counselling and peer

support in several languages. A collaboration in Mumbai created workshops and regular check-ins for healthcare workers to build resilience and cope better with their difficult roles (Schorow, 2021). The private sector also played a role. Mental health start-ups like “InnerHour” partnered with companies to offer free therapy and self-help tools to healthcare workers, making it easier for them to seek help without stigma (Athe et al., 2023).

These efforts have improved healthcare workers’ mental health support, but challenges remain in scaling, sustaining, and reducing stigma. Ongoing, tailored mental health care is vital to strengthen India’s health system.

1.2. Concepts

Occupational health focuses on keeping workers healthy by preventing and managing health risks at the workplace. It looks at workers’ physical, mental, and social well-being, aiming to protect them from harmful conditions like dangerous chemicals, heavy workloads, and stress (Saha, 2018). By addressing these risks, occupational health helps prevent work-related illnesses and injuries, which in turn boosts job satisfaction, productivity, and overall quality of life (World Health Organization, 2001). One important part of occupational health is identifying and reducing risks that could cause physical injuries or mental health issues, like burnout and anxiety (Maslach & Leiter, 2016). For healthcare workers, the COVID-19 pandemic made these challenges even worse, highlighting the need for better preparedness, a better strategy to mitigate the physical and mental strain of the HCWs and often received stigma from their colleagues, community and family on the initial stage of the pandemic (Jeleff et al., 2022). A strong occupational health system is crucial for ensuring workers’ long-term health and well-being, especially in high-pressure jobs. Occupational health is described as attaining the highest level of physical, mental, and social well-being of workers in all occupations (Saha, 2018). Occupational health promotes and maintains workers’ physical, mental, and social well-being, protects workers from hazardous working conditions, and assists workers in adapting to their physiological and psychological working environments (Saiyed et al., 2006). In recent times, there has been a need to address the health of healthcare workers. Healthcare workers have worked beyond their contracted hours, and there

have been a variety of psychological and mental challenges that have impacted the well-being of healthcare workers. Not only have healthcare workers encountered issues affecting their psychological and mental well-being, but they have also encountered issues affecting their physical health well-being. The safety of healthcare workers needs to be prioritized to prevent occupational issues.

Well-being refers to an individual's overall state of health, happiness, and life satisfaction, encompassing both physical and mental health. It is a comprehensive concept that integrates subjective experiences, personal achievements, and emotional fulfilment. Well-being is characterized by a holistic state of positive physical, mental, emotional, and social health, which enables individuals to function effectively, manage life's challenges, and experience a sense of satisfaction and purpose. Academically, well-being is understood as a multidimensional construct, comprising mental well-being (psychological health and resilience), social well-being (quality of interpersonal relationships and support systems), emotional well-being (capacity for emotional regulation), and subjective well-being (personal perceptions of happiness and overall life satisfaction). Physical well-being is often measured by an individual's ability to maintain a healthy body, which includes the absence of illness, disease prevention, and the ability to perform daily tasks without limitations. On the other hand, mental well-being focuses on emotional and psychological aspects, such as experiencing positive emotions, coping effectively with stress, and having a sense of purpose or fulfilment in life (Ryff, 1989). Social well-being refers to the strength and quality of an individual's social relationships, sense of belonging, and support networks (Keyes, 1998). Research has shown that well-being is linked to higher life satisfaction, greater resilience in the face of adversity, and a more productive life (Diener, 2000). Factors that contribute to well-being include genetic predispositions, lifestyle choices, social support, and the environment in which individuals live. Workplaces and healthcare systems, for example, play a significant role in fostering well-being by providing positive work environments, emotional support, and access to necessary resources (Huppert & So, 2013). Overall, well-being is a dynamic and multifaceted concept that varies between individuals and is influenced by a range of internal and external factors. Its

importance has been increasingly recognized in research and policy, particularly in the context of improving public health, reducing mental health issues, and promoting a higher quality of life (Diener & Seligman, 2004). Thus, well-being is the foundation of our health and overall happiness; when healthcare workers' well-being is disrupted, they are not productive in their work, the amount of contribution is reduced, and there is a risk of medical error on the part of the healthcare workers. Healthcare systems around the world have been overstretched, putting front-line workers under unprecedented strain. Work overload, fear of infection, frustration, discrimination, isolation, and limited contact with family have been common challenges faced by healthcare workers (HCWs). Evidence from previous epidemics and other extreme situations has emphasized the need to address the mental health and well-being of front-line workers. HCWs work long hours under extreme stress, often without adequate resources, face inherent risks, and are unclear about the scope of their duty of care (Vera San Juan et al., 2021). Well-being is described as the experience of positive emotions like happiness and contentment, along with developing one's potential, having control over life, a sense of purpose, and positive relationships. Positive mental health is synonymous with subjective well-being. The World Health Organization (WHO) has defined positive mental health as "a state of well-being in which the individual realizes his or her abilities, can cope with the normal stresses of life, can work productively, and fruitfully, and can make a contribution to his or her community". Thus, this definition of happiness goes beyond the absence of mental illness to include the feeling that life is going well (Ruggeri et al., 2020). Furthermore, it has been shown that positive well-being is positively correlated with success in one's career, personal life, and relationships with others. Those who are well adjusted also tend to be more productive at work, acquire more knowledge, be more creative, and have more positive behavioural traits.

Social support is a multifaceted concept that involves the emotional, instrumental, informational, and appraisal assistance provided by others, particularly in times of stress or adversity. It is fundamental to an individual's ability to cope with challenges and is crucial for maintaining mental health and overall well-being,

especially in high-stress environments like healthcare (Cohen & Wills, 1985). The dimension of social support that this study will focus on are emotional support, instrumental support, informational support, appraisal support.

- a. *Emotional Support* refers to the expressions of empathy, care, love, and reassurance offered to an individual. This type of support is crucial during stressful or difficult times, as it helps to reduce feelings of loneliness, anxiety, and emotional distress (House, 1981). For healthcare workers, emotional support from family, colleagues, and friends can significantly alleviate the emotional burden caused by work-related stress and patient care challenges (Koh & et al., 2020).
- b. *Instrumental Support* is the provision of tangible help or resources to meet practical needs. This may include financial assistance, help with household tasks, or physical resources such as food or transportation. Instrumental support can provide immediate relief in stressful situations, making it easier for individuals to focus on their primary responsibilities without being overwhelmed by everyday challenges (Cohen & Wills, 1985).
- c. *Informational Support* involves providing advice, guidance, and knowledge that helps individuals make informed decisions or solve problems. During the COVID-19 pandemic, healthcare workers heavily relied on informational support to stay updated on treatment protocols, personal protective equipment (PPE) usage, and new health guidelines. Having access to accurate and timely information can reduce uncertainty and enhance coping strategies (Smith & Judd, 2020).
- d. *Appraisal Support* is feedback that helps individuals evaluate their situation and assess their coping abilities. It involves providing constructive feedback, validation, and encouragement. For healthcare workers, appraisal support can come from supervisors or peers who offer positive reinforcement and acknowledge their contributions, which helps maintain motivation and morale (Matta et al., 2021).

1.3. Consequences and Impact of COVID-19 pandemic

The SARS-CoV-2 virus, responsible for the COVID-19 pandemic, was initially detected in Wuhan, China, in December 2019. It quickly spread worldwide, severely disrupting economies, social life, and healthcare systems. The World Health Organization (WHO) formally declared COVID-19 a global pandemic in March 2020 as a result of the virus's quick spread and high rates of infection and fatality (World Health Organization, 2020). Over 770 million people had been infected by the pandemic as of September 2023, and over 6.9 million people had died as a result of it worldwide (Johns Hopkins University, 2023). The global impact of this phenomenon resulted in significant strain on healthcare systems across the globe, as medical practitioners encountered excessive workloads, inadequate personal protective equipment (PPE), and extreme psychological and physical strain (Lai et al., 2020). The pandemic caused a global shortage of healthcare professionals, many of whom experienced burnout, anxiety, and depression as a result of their struggles to meet the surge in demand for medical services (Smith & Judd, 2020). To prevent the virus's spread, several governments implemented travel bans, nationwide lockdowns, and public health initiatives like mask laws and social distancing. The healthcare sector was forced to adapt quickly, with hospitals stressed by a surge in patients, intensive care units (ICUs) at full capacity, and the implementation of telemedicine and other technological solutions to reduce in-person contact (Smith & Judd, 2020). The pandemic revealed the weaknesses in healthcare systems in spite of these efforts, particularly in low- and middle-income nations where resources were already scarce before the crisis (Sachs et al., 2021). Countries adopted various approaches to combat the spread of COVID-19, with some focussing on strict lockdowns and mass testing and others taking a more relaxed approach (Petersen et al., 2020). For example, early lockdowns and strict border controls helped New Zealand contain its outbreak, but inconsistent public health measures and delayed response caused major problems for other countries, including the United States (Baker et al., 2020). Also, trade, travel, and employment were all disrupted by the pandemic, which caused worldwide economic downfall. In 2020, the International Monetary Fund (IMF) predicted that the world economy would decline by 4.4% (IMF, 2021). Low-income countries, in particular, were severely impacted financially by the lack of social security systems and healthcare infrastructure (Nicola et al., 2020). Furthermore,

during the pandemic, inequality increased, with disadvantaged groups suffering disproportionately from both economic and health consequences (Dorn et al., 2020). Particularly, women experienced disproportionately high rates of job loss and caregiving responsibilities (Alon et al., 2020). In addition, the pandemic made existing gaps in global health worse. Developing nations had more difficulty obtaining immunizations, medical supplies, and an adequate healthcare infrastructure. There are differences in vaccination rates and overall pandemic outcomes between high-income and low-income regions as a result of the Global North's ability to accelerate vaccine development and distribution, especially in wealthier nations (Murray & Piot, 2021). The COVID-19 pandemic primarily brought to light the importance of having strong healthcare systems, adequate social support for medical professionals, and international cooperation when managing public health emergencies.

Global Scenario on COVID-19

The COVID-19 pandemic, originating in Wuhan, China, in late 2019, drastically impacted the lives of global publics and healthcare workers (HCWs). This unprecedented health crisis brought significant hardships to HCWs, affecting their physical and mental well-being, reducing their productivity at work, and diminishing their motivation and commitment to their careers. The surge in patient intake, combined with a shortage of healthcare staff, compelled HCWs to work extended hours. This overburdened schedule led to reduced time with their families, no opportunity for rest and recreation, and disrupted sleeping and eating habits (Hall, 2020). Globally, the COVID-19 pandemic has had a substantial impact on medical professionals, the increased patient loads, shortage of resources, and heightened risk of infection have created a highly stressful work environment. The psychological toll of the pandemic on HCWs has been immense, with high levels of stress, anxiety, and depression reported across different countries. Ensuring the mental health needs of healthcare workers is crucial to protecting their wellbeing and the efficiency of healthcare systems both during and after the pandemic.

Healthcare workers are particularly vulnerable to emotional, mental, and physical challenges due to their close interaction with patients and frequent exposure

to difficult and unpleasant situations (Shaukat et al., 2020). During the pandemic, HCWs faced numerous obstacles at work, including a lack of personal protective equipment (PPE), shortages of oxygen and ventilators, fear of contracting the virus, exposure to violence, and the psychological toll of regularly witnessing patient deaths (Chhablani & Choudhari, 2022). Elevated stress and anxiety levels among HCWs led to an increase in drug addiction and suicidal thoughts (Gupta et al., 2021). In Jordan, a study invited healthcare workers to complete a self-administered questionnaire about COVID-19-related information, working conditions, and their levels of depression, anxiety, and stress using the Stress Scale-21 items. Out of 683 respondents, 38.1% were sceptical about the COVID-19 vaccine, despite its availability. Over half of the participants reported experiencing stress, anxiety, or depression, with frontline workers, particularly nurses and medical specialists, exhibiting higher levels of these mental health issues (Alhourri et al., 2023). In the United States, an online cross-sectional survey among healthcare workers found that frontline workers reported high levels of anxiety, as measured by the Generalized Anxiety Disorder-7 (GAD-7) scale. The irregular sleep schedules of healthcare professionals, who often slept for only a few hours, compounded their difficulties in focusing at work. Sleep disorders were widespread among healthcare workers during the pandemic (Biber et al., 2022). Comparative studies showed similar patterns across different countries. In India, a cross-sectional survey of healthcare workers in Karnataka revealed that anxiety and depressive disorders were especially prevalent among doctors and nurses. Frontline healthcare workers with clinical responsibilities had higher levels of depression and anxiety compared to supportive staff (Parthasarathy et al., 2021).

The findings from Jordan, India, and the United States underscore the global nature of these challenges. Despite differences in healthcare systems and resources, HCWs in all three countries reported high levels of stress, anxiety, and depression. The consistent reports of mental health issues among HCWs highlight the urgent need for interventions to support their mental well-being. Meeting the mental health needs of healthcare workers is vital for ensuring a functional and efficient healthcare system. Providing adequate PPE, ensuring sufficient staffing levels, and offering

mental health support services are essential steps to mitigate the impact of the pandemic on HCWs. Furthermore, addressing problems like workplace violence and creating a supportive work environment can help healthcare professionals feel less stressed and more satisfied with their jobs.

National Scenario on COVID-19

The Indian healthcare system, which was already strained before the pandemic, struggled to manage the overwhelming surge in cases. The public health infrastructure in India was ill-prepared for a crisis of such magnitude. Large urban centres like Delhi, Mumbai, and Bengaluru were hit hard, and hospitals in these cities faced extreme pressure due to overcrowding and shortages in medical supplies (Kapoor et al., 2023). The COVID-19 pandemic not only affected the general population but also put an immense strain on frontline healthcare workers. Healthcare workers, including doctors, nurses, and paramedics, were at the highest risk of exposure to the virus. According to studies, a significant number of healthcare workers in India contracted the virus, and many lost their lives while serving on the frontlines (Debbarma, 2023).

The healthcare system in India, however, demonstrated remarkable resilience. Despite the overwhelming crisis, many healthcare workers worked tirelessly to treat COVID-19 patients, and several innovative approaches were adopted to tackle the shortage of medical supplies. India successfully ramped up its vaccine production capacity, with companies like Serum Institute of India and Bharat Biotech developing vaccines at an unprecedented scale. This led to a large-scale vaccination drive, which was crucial in controlling the spread of the virus and preventing further fatalities (Sharma et al., 2020). Beyond the immediate health crisis, COVID-19 had a significant social impact in India. The pandemic led to an increase in inequality, with vulnerable groups such as migrant workers, daily wage earners, and informal sector workers facing severe hardships (Saha, 2023). The national lockdowns and restrictions on movement meant that millions of people lost their livelihoods. Many

migrant workers, who were employed in cities, were forced to return to their home villages due to the lack of work, resulting in a large-scale migration crisis. The lockdowns also resulted in the closure of schools, universities, and educational institutions, leading to an educational crisis. Students from economically disadvantaged backgrounds, particularly those in rural areas, faced challenges in accessing online education due to a lack of internet connectivity and digital devices. This digital divide further exacerbated existing educational inequalities, leaving many students without access to the tools needed to continue their (Patel et al., 2020). The pandemic also had a profound impact on mental health in India. The fear of contracting the virus, coupled with social isolation, job loss, and financial stress, this resulted in a rise in mental health issues, including anxiety, depression, and PTSD among the population. Healthcare workers were particularly vulnerable to mental health challenges, experiencing high levels of burnout, stress, and emotional fatigue. Mental health support services, although available, were often inadequate in meeting the demand (Mukherjee et al., 2021).

The economic impact of COVID-19 in India has been profound, with the country experiencing its worst economic contraction in decades. According to the Reserve Bank of India (2020), the GDP of India contracted by 7.3% in the fiscal year 2020-2021, marking the first contraction since India's independence. The pandemic disrupted supply chains, halted production in various sectors, and led to a significant decline in consumer demand. The service sector, especially industries like tourism, hospitality, and retail, faced massive losses. In particular, the hospitality industry, which employs millions of workers, was severely impacted by the closure of hotels, restaurants, and travel restrictions. The informal sector, which employs a substantial portion of the Indian workforce, was hit the hardest. Workers in this sector, such as street vendors and small business owners, saw their incomes vanish overnight. The lack of social security for informal workers left them without a safety net. In response, the government announced several economic stimulus packages, such as the Pradhan Mantri Garib Kalyan Yojana (PMGKY), which aimed to provide financial support to vulnerable groups. However, the effectiveness of these measures was often questioned due to delays in implementation and the insufficient coverage

of the informal workforce (Mondal & Chakraborty, 2022). The agricultural sector, which is a major part of India's economy, was also affected, although to a lesser extent. The pandemic disrupted the movement of agricultural labour, and transportation restrictions hindered the supply of goods to markets. Despite these challenges, India managed to maintain positive growth in agriculture, largely due to the resilience of farmers and the agricultural supply chain.

India faced significant challenges during the COVID-19 pandemic, and handling the situation became more difficult because of the country's large population and varied socioeconomic circumstances. On January 30, 2020, the state of Kerala reported the first confirmed case of COVID-19 in India (Andrews et al., 2020). The virus spread quickly over the ensuing months, causing significant disruptions to the economy and healthcare system. A devastating second wave struck India by April 2021, marked by an unprecedented increase in cases and a major strain on hospital beds, oxygen supplies, and intensive care units (ICUs). To curb the spread of the virus, the Indian government imposed a nationwide lockdown starting on March 24, 2020 (Ministry of Health and Family Welfare [MoHFW], 2020). The lockdown caused severe economic hardships, especially for migrant workers and those in the unorganized sector, even though it helped slow the spread of COVID-19. The pandemic revealed weaknesses in India's healthcare system, including a lack of medical supplies, restricted access to testing, and an overworked healthcare workforce (Nikore et al., 2023). One of the biggest vaccination campaigns in the world was started in January 2021 in India. India made significant progress in immunizing its population despite early obstacles like vaccine hesitancy and logistical issues (MoHFW, 2021). Over 800 million vaccination doses had been given nationwide by September 2021, which helped to gradually lower the number of cases and lessen the severity of infections (Raman et al., 2021). When faced with difficult working conditions, inadequate personal protective equipment (PPE), and psychological stress, India's healthcare workers proved to be resilient during the pandemic (Chatterjee et al., 2020). In response, a number of state governments as well as healthcare organizations implemented risk allowances and mental health support initiatives to assist medical professionals in this unprecedented period.

India's 2017 National Health Policy (NHP) called for strengthening the current medical education system and developing a cadre of mid-level healthcare providers. The current COVID-19 pandemic has highlighted India's healthcare system's severe shortage of healthcare workers. According to recent research, there are several areas of concern regarding the Indian health workforce. Studies indicate a notable scarcity of physicians and nurses, as well as an insufficient blend of competencies within the labour pool. The shortage of trained nurses in India is caused by a lack of an adequate number of institutions providing nursing training, as well as international migration of nurses from India (Karan et al., 2021).

However, even though India made great efforts to contain the pandemic, the experience highlighted the need for enhanced state-to-state coordination, better public health infrastructure, and more robust social support networks for vulnerable populations and healthcare workers. The Indian government's response to the COVID-19 pandemic involved a range of measures, including nationwide lockdowns, the establishment of COVID-19 care centres, and large-scale vaccination efforts. The initial lockdown in March 2020 was one of the strictest in the world and aimed to prevent the rapid spread of the virus. In the second half of 2020, the government shifted its focus to managing the economic fallout and providing relief to the most affected sectors. The Atmanirbhar Bharat Abhiyan (Self-Reliant India Campaign) was introduced, focusing on promoting domestic industries, increasing exports, and boosting manufacturing. The government also scaled up its efforts in vaccine production, distribution, and deployment, with India being one of the largest producers of vaccines globally.

Regional Scenario on COVID-19

Mizoram had also experienced COVID-19 cases, much like the other North-eastern states. On March 22, 2020, Mizoram was placed under lockdown, in line with the countrywide lockdown enforced by the Indian central government. The first COVID-19 case was later reported in Mizoram on March 25, 2020; generally, the virus spread at a slower pace in Mizoram than in other regions of the nation. This benefit, though, was insufficient to completely protect the state from the pandemic's effects. As the pandemic spread, the state experienced a flood of people returning

from overseas and other parts of India, many of whom were left behind because of the lockdown. Initially, to meet the needs of the people and control the spread of the virus, the state government established quarantine facilities and a testing centre in Aizawl, the capital city.

Mizoram's COVID-19 response was noteworthy for its close coordination of government initiatives and community participation. Recognizing the importance of strict measures, the state government established task forces at all levels such as state, district, and community to monitor the situation and enforce safety protocols. In August 2020, 723 government, community, and privately-run quarantine facilities had been set up around the state, helping to separate returnees and stop the spread of disease within the community. The community played an important role, with the Young Mizo Association (YMA) leading efforts in border security, supply distribution, and quarantine management, while volunteers from various backgrounds helped the state implement pandemic control measures. Churches even offered their halls for quarantine purposes, reflecting the spirit of cooperation that defined Mizoram's approach. Despite proactive efforts, the state faced challenges due to its limited healthcare infrastructure, which necessitated early outsourcing of tests. However, by April 2020, Zoram Medical College in Aizawl began local testing, and a TrueNat laboratory was established in Lunglei by June, expanding testing capabilities. In spite of the fact that the majority of cases were connected to returnees, Mizoram's technique focused on testing, contact tracing, and quarantine in order to stop widespread community transmission. In the early stages of the virus's containment, strict lockdown protocols were greatly helpful. Nonetheless, risks remained, particularly the movement of paramilitary forces and the potential strain on the healthcare system. The experience of Mizoram emphasizes the vital role that community involvement plays, as demonstrated by the work of volunteers and organizations like the YMA, which could serve as a model for other areas dealing with public health crises (Zothantluanga et al., 2020).

Despite Mizoram's notable success in containing the virus and fostering collaboration between the government and NGOs, there was a lack of sufficient healthcare facilities to accommodate the growing number of COVID-19 patients. The

pandemic severely strained the state's healthcare infrastructure, particularly in Aizawl. Most COVID-19 care centers were concentrated in urban areas, especially Aizawl, leaving rural regions underserved. Facilities such as Dedicated COVID Hospitals (DCH), Dedicated COVID Health Centers (DCHC), COVID Care Centers (CCC), and Community COVID Care Centers (CCCC) were established, with Zoram Medical College, the only DCH, managing critical cases. However, other centers, particularly in rural areas, were not adequately equipped to handle severe cases, while urban areas had a higher concentration of facilities. Remote villages, on the other hand, struggled with poor access to healthcare due to challenging terrain and inadequate transport infrastructure (Biswas et al., 2022).

1.4. COVID-19 and Safety of Healthcare workers

Healthcare workers (HCWs) have been at the forefront of the fight against COVID-19, often working in high-risk environments that expose them to the virus. Healthcare workers are at significantly increased risk of contracting Covid-19 due to prolonged contact with infected patients, often without adequate personal protective equipment (PPE) (Kisely et al., 2020). The COVID-19 pandemic posed significant challenges to the healthcare workforce, particularly regarding workplace safety and the support systems necessary to protect their health and well-being. Healthcare workers were at the frontline, directly interacting with patients infected by the virus, which made them highly vulnerable to exposure. As such, ensuring their safety through proper workplace protocols and providing adequate support became essential to maintaining their physical and mental health. The World Health Organization (2020) reports that more than 1 million healthcare workers were infected worldwide in the first year of the pandemic, underscoring the urgent need for better safety measures. In addition to the direct risk of infection, health personnel's health is also negatively affected by increased workload and long working hours. A cross-sectional study by Labrague et al. (2021) found that healthcare workers reported increased levels of fatigue and burnout due to overworked patients and long shifts. This condition raises concerns about long-term health problems, including musculoskeletal disorders and chronic fatigue syndrome (Huang et al., 2021). Workplace safety for healthcare workers during the pandemic was largely dependent

on the availability of personal protective equipment (PPE), training, and institutional support. The World Health Organization (WHO, 2020) emphasized that the correct use of PPE, such as masks, gloves, gowns, and face shields, was critical to prevent the spread of COVID-19. However, many healthcare workers reported shortages and inadequate access to PPE, which heightened their anxiety and increased the risk of infection. Studies have shown that women, in particular, faced challenges due to PPE being designed predominantly for male body types, further complicating their ability to protect themselves effectively (Kaufman et al., 2020).

The pandemic has exposed huge gaps in occupational safety and support for healthcare workers. Inadequate access to personal protective equipment, inadequate training in infection control, and poor organizational support contributed to physical and psychological stress among healthcare workers. It was recommended that healthcare organizations prioritize safety measures and create a conducive work environment to increase the resilience of healthcare workers. Furthermore, it is very important to implement policies that promote work-life balance and medical facilities should adopt flexible scheduling methods and allow medical staff to use vacations to recover. These measures can help reduce burnout and increase overall job satisfaction (Chatzittofis et al., 2021; Ripp et al., 2020).

In addition to the physical safety measures, the mental health and well-being of healthcare workers were significantly impacted during the pandemic. The overwhelming workload, combined with the stress of dealing with COVID-19 patients and fear of exposure to the virus, took a toll on healthcare workers' mental health. Social support, both from colleagues and from institutions, played a crucial role in mitigating the mental strain. Healthcare organizations that offered counselling services, stress management programs, and peer support were found to have workers who coped better with the pressures of the pandemic. Moreover, regular communication from leadership about safety protocols and acknowledging workers' efforts were key to boosting morale and fostering a sense of security (Matta et al., 2021). Another critical aspect of healthcare workers' safety was the implementation of regular testing and health monitoring. Koh et al. (2020) found that healthcare institutions that provided frequent testing and symptom monitoring helped alleviate

the anxiety of workers by ensuring early detection and reducing the likelihood of transmission in the workplace. In some instances, however, delays in testing or lack of clear procedures led to confusion and further stress for healthcare workers. Despite the growing mental health challenges, many healthcare institutions and organizations made efforts to provide support to healthcare workers. Some hospitals introduced mental health services, including counselling, peer support groups, and stress management programs. A review by Kisely et al. (2020) highlighted the importance of institutional support, noting that healthcare systems that offered these resources saw improved mental health outcomes among workers. However, these services were often underutilized due to stigma or lack of awareness, and in many cases, mental health resources were not sufficient to meet the overwhelming demand. Additionally, coping strategies, such as social support from colleagues and family, were critical in helping healthcare workers manage the mental health burden. Peer support was particularly important for those working on the frontlines, as it provided an outlet for discussing the emotional challenges of the job (Koh et al., 2020).

Furthermore, ensuring adequate rest and work-life balance was essential to prevent burnout, which was a significant concern during the pandemic. Long working hours, especially in emergency rooms and intensive care units, left many healthcare workers feeling exhausted and overwhelmed. Policies to limit excessive work hours and allow for adequate rest and recovery time were crucial in sustaining workforce health (Li et al., 2020). However, many healthcare workers reported that such policies were not always implemented, contributing to physical and emotional exhaustion (Dutta et al., 2020). Surveys were conducted in 57 countries to determine the level of awareness and preparedness among healthcare workers since the start of the COVID-19 pandemic. Male healthcare workers and nurses' participants have higher levels of preparedness score compared to female participants and doctors; healthcare workers from different countries had significantly higher levels of awareness and preparedness; doctors and nurses felt confident handling suspected COVID-19 patients (Huy et al., 2021). The degree of knowledge, awareness, and preparedness among Libyan nurses and doctors who treated COVID-19 patients was assessed through a survey. In addition to having taken fewer COVID-19 courses and

receiving less training, the majority of healthcare workers were not adequately prepared and had not taken the necessary precautions to prevent aerosol transmission from COVID-19 patients. The preparedness of healthcare facilities was also extremely low (Elhadi et al., 2020).

A quick cross-sectional survey was carried out among Indian healthcare professionals in the early stages of the COVID-19 pandemic to determine their level of preparedness for using masks, hand sanitizer, and other safety precautions. The overall level of preparedness for preventive measures among healthcare workers was found to be low (Jamir et al., 2020). In contrast, a cross-sectional study conducted among healthcare workers in Brunei during the initial wave of the COVID-19 outbreak found that they had attended PPE awareness sessions within the previous year and had appropriately used safety equipment like gloves and PPE. When compared to private healthcare facilities, the level of preparedness was low and there were insufficient preparedness measures. As a result, the government health facilities had updated better training programs for the healthcare workers (Trivedi et al., 2022). The COVID-19 pandemic preparedness and response measure that healthcare workers in Makkah City, Saudi Arabia had to follow were examined and assessed in terms of their knowledge and awareness. The four domains-disease nature, disease transmission, handling of suspected, probable, and "confirmed" cases, and precautions taken by healthcare workers were used to assess the knowledge and awareness of the healthcare workers. Regarding the "transmission of diseases," the majority of HCWs showed a high level of awareness and knowledge; however, the level of awareness and knowledge regarding the nature of disease was found to be moderate. Regarding the precautionary measures, there was an impressive level of understanding, awareness, and knowledge when handling suspected, probable, and confirmed cases (Alrajhi et al., 2022).

The International Labour Organization (ILO) reported that millions of healthcare workers suffer from work-related diseases and accidents, and many die as a result of occupational hazards. Scholars and practitioners in the fields of healthcare and occupational health and safety (OHS) are working to raise public awareness about the risks and the importance of workplace health and safety among this

population (Che Huei et al., 2020). Healthcare workers (HCWs) are vital on the front lines, caring for patients who have been infected with this highly contagious disease. They are at a very high risk of occupational illness because they frequently come into contact with infected people. It is critical to have better awareness, a positive attitude, effective PPE, and adequate health practices to reduce the number of infected cases and deaths among healthcare workers (Casper, 2021).

Indeed, a safe work environment is essential for both the healthcare workers and the patients; the health and safety of healthcare workers are also important for patients; affecting the patients indirectly. So, many healthcare workers are vulnerable to the virus, which affects their health and safety. During pandemics, healthcare workers face social stigma as well as the fear of attack/social isolation, not only during the Covid-19 outbreak but also during the Ebola outbreak in West Africa and Severe Acute Respiratory Syndrome (SARS) outbreaks in China (P. V. & Varma, 2020). It is becoming clear that healthcare workers are under intense stress, have a demanding job, and are vulnerable to a wide range of health risks, ranging from musculoskeletal problems to depression and burnout. This burnout and dissatisfaction among health care workers must be addressed to improve health care workers' work lives and well-being (Loeppke et al., 2017).

1.5. Well-being of the Healthcare workers

The well-being of healthcare workers (HCWs) during the COVID-19 pandemic has been a global concern, with numerous studies documenting a sharp decline in their psychological health. Meta-analyses reveal alarming figures, with nearly half of HCWs screening positive for post-traumatic stress disorder (PTSD) (~49%), and high rates of anxiety (40%), depression (37%), and general distress (37%) (Saragih et al., 2021). A broader umbrella review found that 20-44% of healthcare workers globally suffered from mental health issues like burnout, anxiety, and depression, far exceeding pre-pandemic levels (Boucher et al., 2025). These challenges were consistent across job roles (doctors, nurses, etc.), regions (both high- and low-income countries), and genders, with some surveys revealing even higher prevalence. In United States of America CDC survey in 2020 found 53% of respondents had at least one mental health issue, and in Australia, nearly 60% of

frontline health workers experienced anxiety, depression, or burnout (Smallwood & Willis, 2021). Beyond the statistics, healthcare workers reported extreme fatigue, sleep issues, feelings of helplessness, and moral distress from witnessing high mortality rates or having to ration care. Many also dealt with the trauma of losing colleagues and the burden of being labelled as “heroes” while feeling vulnerable. The pandemic’s overwork, fear, and emotional toll created a widespread mental health crisis among HCWs, which, without intervention, could lead to long-term consequences like burnout, reduced care quality, and a weakened response to future health crises (Boucher et al., 2025).

Several interrelated stressors had a significant impact on healthcare workers’ (HCWs) well-being during the COVID-19 pandemic. The primary one of these was the excessive workload. The increase in COVID-19 cases, HCWs were compelled to work long hours with limited breaks, often in high-pressure environments. Due to staff shortages, many employees were forced to take on additional responsibilities, resulting in a record level of burnout, affecting up to 44% of workers. This burnout not only reduced their energy but also resulted in depression, anxiety, and a desire to quit (Boucher et al., 2025). Another major stressor was the ongoing fear of infection. Frontline workers were exposed to the virus on a daily basis, and many took extreme precautions, isolating themselves from their families and avoiding contact to protect their loved ones. Unfortunately, many healthcare workers contracted COVID-19, and some even lost their life, increasing the trauma for their colleagues. This was increased by a lack of adequate resources, such as personal protective equipment (PPE), ICU beds, and medical supplies. This scarcity forced workers to make crucial choices under moral pressure, putting a strain on their mental health (Aggarwal et al., 2024).

Social and personal factors also had an impact. HCWs, particularly younger and female workers, were more vulnerable to mental health problems due to the demands of their jobs and societal pressures. Some were stigmatized as potential contagion risks, while others experienced isolation, which exacerbated their stress. Support systems, including family and peer support, proved to be critical in mitigating these mental health issues. In addition to physical exhaustion and fear of

infection, healthcare workers faced emotional and ethical challenges, including moral injury. Witnessing widespread death, enforcing visitor restrictions, and being unable to save patients due to limited resources had an emotional impact. Some workers even had suicidal thoughts, which is far higher than the average among medical professionals (Smallwood & Willis, 2021). The pandemic highlighted the critical need to support HCWs' mental health, not only as a moral obligation, but also as a necessary component of ensuring the sustainability of healthcare systems during and after crises. Effective interventions such as appropriate PPE, adequate staffing, mental health resources, and strong organizational support can help healthcare workers deal with the huge obstacles that they face.

1. Mental Health Issues and Challenges

Healthcare workers' mental health has been significantly impacted by the Covid-19 pandemic (HCWs). HCWs experienced high levels of anxiety, depression, and post-traumatic stress disorder (PTSD) during the pandemic (Labrague et al., 2021; Saragih et al., 2021). The fear of contracting the virus, combined with the emotional burden of seeing patients suffer and die, has led to a mental health crisis among healthcare workers. Baskin and Bartlett (2021) highlight the need for mental health support among healthcare workers. They argue that organizations should implement strategies such as counselling services, peer support programs, and mental health resources to reduce the negative effects of work-related stress. Offering this kind of assistance is crucial for guaranteeing high-quality patient care as well as the health of healthcare workers.

The COVID-19 pandemic significantly affected the mental health of healthcare workers globally. As the pandemic progressed, healthcare professionals faced unprecedented levels of stress, anxiety, and burnout. They were not only responsible for providing medical care but also for managing the overwhelming number of patients, the fear of contracting the virus, and the emotional toll of caring for patients during a public health crisis. These challenges were exacerbated by long

working hours, exposure to traumatic situations, and a lack of sufficient mental health support, which significantly affected their well-being.

Healthcare workers have long been recognized as being at risk for stress and mental health issues due to the demanding nature of their work. The COVID-19 pandemic heightened these risks. Şahin et al. (2020) found that among 939 healthcare workers in Turkey, 77.6% experienced depression, 60.2% had anxiety, 50.4% suffered from insomnia, and 76.4% reported distress during the COVID-19 pandemic. Depression and insomnia were more common among frontline workers and nurses, with factors such as inadequate PPE, discrimination, and being perceived as virus carriers contributing to the severity of these symptoms. Tikka et al. (2025) found that among 300 healthcare workers in rural Telangana, India, 9.3% experienced depression, 13.7% had anxiety, and 38.9% suffered from insomnia during the COVID-19 pandemic. Significant predictors of these mental health issues included being under 35 years old, having family members who tested positive for COVID-19, and increased perceived stress. Anxiety levels were particularly high among frontline healthcare workers, who were directly involved in treating COVID-19 patients. Healthcare workers reported significant anxiety due to the constant fear of infection, particularly when adequate personal protective equipment (PPE) was in short supply. The psychological burden was further intensified by the loss of patients, which created a sense of helplessness and moral injury among many healthcare workers (Tan et al., 2020; Shanafelt et al., 2020).

Burnout, characterized by emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment, was another major concern for healthcare workers during the pandemic. The long hours, high patient volumes, and the emotional weight of caring for critically ill patients contributed to high levels of burnout. During the pandemic, healthcare workers faced significant burnout, particularly those employed in intensive care units (ICUs), who experienced the highest levels of stress and exhaustion. The constant pressure to perform at a high level in challenging circumstances, coupled with the emotional toll of seeing patients suffer and die from a virus with no clear cure, led to a significant decline in the well-being of healthcare workers. This was particularly true for nurses, who were not only

responsible for patient care but also had to provide emotional support to patients' families, further increasing their stress levels (Koh et al., 2020).

In addition to the direct psychological impact, healthcare workers also faced social isolation and stigma. The fear of transmission led many healthcare workers to experience social distancing from their families and communities, even after their shifts ended. According to a study by Pappa et al. (2020), healthcare workers experienced feelings of loneliness and isolation due to being separated from loved ones to prevent the spread of the virus. This isolation was compounded by the fear of being stigmatized for working in COVID-19 wards, as some members of the community viewed healthcare workers as potential carriers of the virus. The stigma surrounding COVID-19, particularly in the early days of the pandemic, led to healthcare workers being socially ostracized. In some cases, they reported being refused services or facing negative attitudes from the public, further exacerbating their mental health challenges (Pappa et al., 2020).

2. Gender and occupational health challenges

Occupational health exposure was never evaluated concerning gender or sex differences; research primarily concentrated on male employment in relation to occupational health. The entry of women into male-dominated occupations prompted an examination of gender differences. The physical dimensions of women, in comparison to men, have influenced the implementation of safety protocols in the workplace. PPE was not specifically designed for males and females, which has impacted its application, leading to many women being hesitant to wear it due to sizing issues. This has impacted the occupational health of healthcare workers across genders. However, women coincidentally reported greater compliance with the use of PPE compared to men, indicating a necessity for gender-specific initiatives to enhance PPE utilization (Schlünssen & Jones, 2023; Paolo Emilio Santoro et al., 2022).

The COVID-19 pandemic has increase existing gender inequalities in the workplace, particularly for women in healthcare. Many women faced increased exposure to the virus due to inadequate PPE designed mostly for men, as well as a heavier workload at both work and home, where caregiving responsibilities added to

their stress. Mental health challenges, including anxiety and burnout, were reported more frequently among women (Dutta et al., 2020; Koh et al., 2020). Even though women had a strong understanding of COVID-19 prevention and safety, many found PPE uncomfortable to wear, and incidents of workplace violence were more common among them (Matta et al., 2021). These challenges were further worsened by the economic strain, with women in low-paying and informal jobs facing greater job loss and financial instability (World Health Organization, 2020). To address these disparities, there is a clear need for policies that offer better-fitting PPE, mental health support, and recognition of the extra caregiving burdens women carry. In addition, promoting more women into leadership roles in healthcare can help ensure that their needs are better understood and addressed (Matta et al., 2021).

1.6. Social Support and Coping of the Healthcare workers

The COVID-19 pandemic has underscored the critical role of social support for healthcare workers, who were on the frontlines during the crisis. Social support, which includes emotional, practical, and informational assistance from social networks like family, friends, colleagues, and the broader community, is essential for healthcare workers to manage the immense pressures they faced, particularly during a global health emergency. Amid the pandemic, healthcare workers dealt with unparalleled stress, anxiety, and burnout, caused by a surge in COVID-19 cases, long working hours, and the fear of virus exposure. Research has indicated that healthcare workers who received social support reported improved mental health outcomes, as it helped them manage stress and served as a buffer against the emotional toll of their roles (Koh et al., 2020). Emotional support from family, friends, and colleagues alleviated feelings of isolation, while instrumental support—such as access to resources, time off, and childcare—allowed healthcare workers to balance their personal and professional responsibilities (Kaufman et al., 2020). Peer support, particularly in healthcare settings, fostered solidarity and collective coping, with healthcare workers who leaned on colleagues for emotional support feeling less overwhelmed by their responsibilities. This peer support was especially beneficial when healthcare workers were confronted with distress, anxiety, and feelings of

helplessness (Matta et al., 2021). In addition to support from personal networks, institutional and community-level support played a crucial role. Institutions that offered psychological services, such as counseling and mental health resources, were able to provide vital assistance to healthcare workers during the pandemic. Communities also supported healthcare workers through public recognition, which helped boost morale and emphasized the value of their work (World Health Organization [WHO], 2020). However, despite the availability of some forms of social support, many healthcare workers still encountered challenges in accessing adequate mental health services or finding time for social interaction due to their demanding work schedules. This highlights the need for systemic changes to ensure healthcare workers consistently receive effective support, not only from their immediate networks but also from their institutions and communities. Healthcare workers (HCWs) faced severe physical and psychological strain during the COVID-19 pandemic, leading to a range of mental health issues. HCWs had to contend with increased exposure risks, long hours, heavy patient loads, and, in many cases, limited resources like personal protective equipment (PPE), as they were frontline responders (Sasangohar et al., 2020). These stressors, combined with the physical separation from family, concerns about personal safety, and the high death rates they witnessed, contributed to heightened levels of anxiety, depression, burnout, and post-traumatic stress disorder (PTSD) among healthcare workers. Studies revealed that a significant percentage of healthcare workers suffered from mental health issues during the pandemic. The ongoing stressors, such as moral injury from patient loss and the fear of disease transmission, made healthcare workers particularly vulnerable to mental health problems (Pappa et al., 2020). To mitigate the effects of the COVID-19 pandemic on healthcare workers, various support programs were implemented by governments and healthcare systems to restore their health and enable peak performance. Several hospitals and healthcare organizations offered counseling services and professional support during particularly challenging times. For example, the National Health Service (NHS) in the United Kingdom introduced the “Wellbeing Support Service,” providing free counseling and crisis intervention for frontline workers (Greenberg et al., 2021). Additionally, peer support initiatives offered healthcare workers a dedicated space to share personal experiences and

challenges with colleagues, fostering empathy and mutual understanding. This was particularly valuable for those in high-stress roles, such as intensive care unit (ICU) staff (Sasangohar et al., 2020). Moreover, stress management and resilience training sessions were introduced across healthcare settings, equipping healthcare workers with coping strategies, mindfulness practices, and emotional regulation techniques to combat stress and burnout effectively (Pappa et al., 2020). Recognizing logistical challenges, many mental health resources, such as meditation apps, virtual support groups, and webinars, were made accessible online, allowing healthcare workers to access support at any time, especially those working irregular hours (Lai et al., 2020).

Social support encompasses assistance and protection provided to individuals, which can be tangible, such as financial aid, or intangible, such as emotional support. Protection refers to safeguarding individuals from the negative impacts of life stress (Langford et al., 1997). Social support is typically categorized into three dimensions: emotional, instrumental, and informational support. *Emotional support* involves expressing concern and care, fostering empathy, trust, and reassurance. It is considered foundational to social support, as it helps individuals feel understood and valued. *Instrumental support* refers to tangible help, such as physical assistance or resources, offered by others. *Informational support* involves providing advice, guidance, or useful information that can help solve problems (MaloneBeach & Zarit, 1995). Social support entails having reliable sources of assistance during times of need, enhancing self-image, and offering a broader perspective. Family support, which encompasses emotional, informational, and practical help from family members, is a crucial component of social support. It emphasizes the importance of promoting family values and goals, with family members supporting each other in meeting individual and collective needs (Kamaryati & Malathum, 2020).

The concept of social support and its role in coping with stress was extensively examined by Cohen and Wills in their seminal work in 1985. Their research led to the development of the *buffering hypothesis*, which posits that social support can mitigate the negative effects of stress, thereby protecting individuals from psychological and physical distress. Cohen and Wills categorized social support

into four distinct types: *emotional support*, *instrumental support*, *informational support*, and *appraisal support*. Each type serves a unique function, providing individuals with various forms of assistance in times of need.

- a. *Emotional Support* is characterized by comfort, empathy, and reassurance, offering individuals a sense of belonging and validation. This type of support is crucial in alleviating emotional distress, particularly during periods of crisis or high stress, and fosters an environment where individuals feel understood and valued.
- b. *Instrumental Support* involves providing tangible, practical assistance, such as financial aid, help with physical tasks, or provision of resources. This type of support is essential when individuals face overwhelming practical challenges and are unable to meet their basic needs. It directly addresses the stressor at hand, providing immediate relief and enabling individuals to focus on managing the underlying stress.
- c. *Informational Support* refers to the provision of advice, guidance, and knowledge to help individuals navigate difficult situations. It plays a critical role in reducing uncertainty and enhancing decision-making. Informational support equips individuals with the necessary information to assess their circumstances and make informed choices, thereby reducing anxiety and increasing their capacity to cope effectively with stress.
- d. *Appraisal Support* provides individuals with feedback that aids in evaluating their situation, recognizing their strengths, and assessing their ability to cope with stress. This type of support is instrumental in reinforcing self-esteem, promoting self-efficacy, and fostering personal growth, all of which are vital in enhancing an individual's capacity to manage stress and overcome adversity.

The presence of social support is directly linked to improved mental health outcomes. Research consistently shows that individuals with strong social networks experience lower levels of anxiety, depression, and stress (Thoits, 2011). In contrast, the absence of support exacerbates feelings of isolation and distress, leading to

deteriorating mental and physical health. This is particularly relevant in healthcare settings, where the emotional and physical demands are intense, making social support critical for long-term well-being. Healthcare workers who receive support from colleagues and family are less likely to suffer from burnout, depression, and anxiety, as social support helps alleviate work-related stress and enhances overall health (Lai et al., 2020; Koh et al., 2020).

This research is grounded in four well-established theories of stress and coping, providing a structured framework to understand how healthcare workers manage challenges. The General Adaptation Syndrome (GAS) explains physical health coping, Lazarus and Folkman's Transactional Model of Stress and Coping addresses mental and emotional health, the Job Demands-Resources (JD-R) Model focuses on workplace stress, and the Conservation of Resources (COR) Theory covers general coping strategies. Each theory offers valuable insights into how healthcare workers balance the demands of their roles with effective coping strategies to maintain their well-being.

Healthcare workers often experience physical strain due to long hours and high-intensity environments. To cope, many adopt strategies such as taking breaks, using nutritional supplements, staying hydrated, maintaining a proper diet, and exercising. These physical strategies help mitigate stress from demanding work. The GAS theory, developed by Hans Selye, is relevant here as it describes three phases in response to stress: alarm, resistance, and exhaustion. By practicing self-care, healthcare workers can avoid the exhaustion phase, conserve their physical resources and prevent burnout.

Mental and emotional stress is another significant challenge for healthcare workers, arising from patient deaths, emotional trauma, and the high demands of patient care. Coping strategies like emotional disclosure, mindfulness, cognitive restructuring, and professional counselling help manage this stress. The Transactional Model of Stress and Coping by Lazarus and Folkman (1984) offers a framework for understanding these responses. It suggests that stress arises from how individuals appraise a situation. If stress is perceived as manageable, problem-

focused coping is used; if overwhelming, emotion-focused coping such as seeking support or relaxation techniques is employed.

The JD-R Model (Bakker & Demerouti, 2007) applies to understanding workplace stress, where an imbalance between job demands and available resources leads to stress. Healthcare workers with access to sufficient resources, such as peer support and training, are better equipped to manage job demands, reducing burnout. Time management, taking breaks, and peer communication are common strategies to cope with workplace stress.

Finally, general coping strategies are essential for managing stress outside of work. These strategies may include digital socialization, self-care, and seeking external support. The COR Theory (Hobfoll, 1989) posits that individuals strive to protect and conserve their resources, such as time, energy, and emotional support, to cope with stress. When these resources are depleted, stress levels increase. For healthcare workers, maintaining social support and time for self-care is crucial for managing both work and personal stress. Engaging in self-care practices and seeking support help restore these resources and prevent burnout.

1.8. Theoretical framework

The mental health and well-being of healthcare workers (HCWs) during the COVID-19 pandemic were influenced by various interconnected factors. This theoretical framework explores how social support, occupational health, and well-being are connected and collectively influence the psychological and physical health of HCWs under extreme work pressures.

Social support refers to the various forms of assistance that individuals receive from others, such as emotional, instrumental, informational, and appraisal resources provided through interpersonal relationships that help individuals cope with stress (House, 1981; Styra et al. 2022). It can come from different sources including colleagues, supervisors, family members, and healthcare organizations/institutions. During the pandemic, social support acted as a vital protective factor that helped healthcare workers handle the increased stress and anxiety caused by their challenging roles. According to the stress-buffering model

(Cohen & Wills, 1985), social support works by reducing the harmful effects of stressors on health outcomes, mainly by improving an individual's ability to cope with difficulties. When healthcare workers perceive strong support, they tend to experience less psychological distress, which promotes resilience in demanding environments.

Occupational health is concerned with the physical, psychological, and social aspects of health as they relate to the workplace (World Health Organization, 2001). For healthcare workers during COVID-19, occupational health was especially critical given the unprecedented demands placed on them. Key challenges included increased workloads, long working hours, direct exposure to the virus, lack of adequate protective equipment, and stressful working conditions. Moreover, healthcare workers faced significant psychosocial risks such as burnout, emotional exhaustion, and moral distress (Maslach & Leiter, 2016). These occupational stressors directly impacted their well-being, affecting both mental and physical health, as well as job satisfaction and performance.

The Job Demands-Resources (JD-R) model provides a useful framework to understand these dynamics. The model suggests that job demands such as high patient volumes, infection risk, and emotional strain can lead to stress and health problems when they exceed the individual's capacity to cope. However, job resources, including social support, proper protective equipment, training, and supportive management, can buffer these demands. These resources not only help reduce burnout but also promote motivation, engagement, and overall well-being among healthcare workers. Thus, the balance between demands and resources is crucial for sustaining healthcare workers' health during crises.

In this framework, social support plays a dual role. First, it directly enhances healthcare workers' well-being by providing emotional and practical assistance. Second, it acts as a buffer that lessens the negative impact of occupational stressors. When healthcare workers have sufficient social and institutional and organizational support, they are better equipped to manage the pressures of their work, maintain mental health, and perform effectively. Conversely, a lack of support may worsen the effects of stressful working conditions and lead to poorer health outcomes.

This theoretical framework highlights the interconnected nature of social support, occupational health, and well-being. It emphasizes that effective interventions to support healthcare workers during pandemics or other crises must focus on strengthening social support networks and improving workplace conditions. Providing adequate resources and fostering supportive environments can help protect the physical and mental health of healthcare workers, ensuring the resilience and sustainability of the healthcare system.

1.7. Rationale of the study

Healthcare workers faced unprecedented challenges during the COVID-19 pandemic, including high workload, psychological stress, and risk of infection. These factors significantly impacted their occupational health and overall well-being. Social support helps reduce stress and prevent burnout, yet its role among healthcare workers in Mizoram during the pandemic remains underexplored. Understanding this relationship is essential for developing strategies to enhance resilience, improve mental health, and ensure quality healthcare delivery in future crises.

1.9. Statement of the problem

The COVID-19 pandemic severely tested healthcare systems worldwide, including Mizoram, a small north-eastern state of India with a population of just over 1.2 million (Census of India, 2011). Mizoram's healthcare infrastructure, while improving, remains limited due to geographic challenges and resource constraints. Healthcare workers (HCWs) including doctors, nurses, and Accredited Social Health Activists (ASHAs) played a critical role in the state's pandemic response, often under difficult circumstances. The COVID-19 pandemic (2020–2023) placed an extraordinary burden on healthcare workers worldwide. In Mizoram, a north-eastern state of India with limited healthcare infrastructure and challenging terrain, doctors, nurses, and community health workers were on the frontline of the pandemic

response. Despite their critical role, these healthcare workers faced significant challenges related to inadequate social support, compromised occupational health, and declining overall well-being.

Many healthcare workers in Mizoram experienced limited access to formal psychosocial support services during the pandemic. This lack of support, combined with the fear of contracting and transmitting the virus to their families, heightened their emotional stress. Although social stigma toward healthcare workers was less intense compared to other regions, the fear and uncertainty surrounding COVID-19 contributed to feelings of isolation and anxiety among these workers (Ranjit et al., 2023). Healthcare workers struggle with mental health challenges including anxiety, depression, and burnout. Studies conducted among nursing students and healthcare staff in Mizoram revealed high levels of stress and psychological distress during this period (Lalramdini et al., 2024). These mental health burdens were exacerbated by long working hours, inadequate rest, and the emotional toll of witnessing high patient morbidity and mortality.

Furthermore, working conditions in Mizoram during the pandemic were often suboptimal. Shortages of personal protective equipment, insufficient staffing, and logistical challenges in rural areas compounded the physical and psychological strain on healthcare workers (Biswas et al., 2022). Female healthcare workers faced additional challenges balancing professional demands with household responsibilities, often without adequate institutional support (Lalrinzuala & Elizabeth, 2021).

The combination of inadequate social support, poor occupational health conditions, and declining well-being poses a serious threat to the sustainability of Mizoram's healthcare workforce. If these challenges remain unaddressed, they risk leading to increased burnout, reduced job satisfaction, and potential attrition among healthcare workers, thereby weakening the state's overall healthcare system. This study seeks to investigate these interconnected problems to provide evidence-based recommendations for strengthening support systems, improving working conditions, and promoting the mental and physical health of healthcare workers in Mizoram during and beyond the COVID-19 pandemic.

1.10. Objectives of the study

1. To profile the demographic background of the healthcare workers in Mizoram.
2. To probe the availability and utilization of safety measures of the healthcare workers in Mizoram
3. To understand the occupational health issues and the coping mechanisms adopted by the healthcare workers in Mizoram.
4. To assess the social support received by the health workers during COVID -19 pandemic.
5. To identify the coping mechanisms adopted by the healthcare workers during the COVID-19 pandemic.
6. To assess the well-being of the healthcare workers in Mizoram.
7. To suggest measures for policy implications and scope for social work interventions.

1.11. Hypothesis

1. There is a significant difference in the overall well-being scores between healthcare workers in the medical and para-medical professions (*Intuitively drawn*).
2. There is no gender difference in the well-being of the healthcare workers (*intuitively drawn*).
3. The better the social support received, the better the well-being of the healthcare workers (*Intuitively drawn*).
4. There is a relationship between occupational health and well-being among the healthcare workers (*Intuitively drawn*).

1.12. Chapter Scheme

CHAPTER I: Introduction

This chapter introduces the study on healthcare workers' social support, occupational health, and well-being during COVID-19 in Mizoram. It highlights key challenges like mental health issues, lack of support, and poor working conditions.

The chapter also outlines the study's objectives, hypotheses, and the theoretical foundations linking social support, occupational health, and well-being.

CHAPTER II: Review of Literature

This chapter reviews research on healthcare workers' challenges during COVID-19, focusing on stress, burnout, PPE shortages, stigma, and inadequate support. It underscores the importance of social support and coping strategies, showing how these factors are crucial for healthcare workers' well-being, especially in India and Mizoram.

CHAPTER III: Methodology

This chapter outlines the research design, sampling methods, data collection tools, and analysis techniques used in the study. It also defines the key variables involved in the research.

CHAPTER IV: Demographic Profile of Healthcare workers

This section provides the demographic and professional profiles of the healthcare workers participating in the study, including personal details (age, gender, marital status, education) and work-related factors (role, department, shift duration, workload, and workplace conditions).

CHAPTER V: Safety of Healthcare workers during COVID-19 Pandemic

This chapter evaluates the safety measures provided to healthcare workers, including PPE availability, mental health support, quarantine facilities, and vaccinations. It also examines workers' knowledge of COVID-19 prevention strategies and their perceptions of safety protocols and institutional support.

CHAPTER VI: Occupational Health Issues & Coping Strategies of the Healthcare workers

This chapter discusses the physical and mental health challenges faced by healthcare workers, along with workplace difficulties and social issues like discrimination and work-life imbalance. It explores coping strategies across four

areas: physical health, mental health, workplace strategies, and general coping efforts.

CHAPTER VII: Social Support of the Healthcare workers

This section analyses the social support received by healthcare workers during the pandemic. It covers four types of support: mental and emotional, instrumental, informational, and appraisal support, highlighting their impact on healthcare workers' resilience and well-being.

CHAPTER VIII: Well-Being of the Healthcare workers

This chapter evaluates the respondents' well-being using validated scales and presents statistical tests to assess the study's hypotheses. It includes measures of mental, physical, relational, social, and psychological well-being.

CHAPTER IX: Qualitative Information

This chapter presents the Key Informant Interviews with healthcare workers, organized by profession. It integrates both qualitative and quantitative findings and discusses emerging themes.

CHAPTER X: Conclusion & Suggestions

The final chapter summarizes the study's key findings and offers practical suggestions for improving healthcare workers' support and working conditions. It provides actionable recommendations based on the study's conclusions.

This chapter introduces the study on healthcare workers (HCWs) during the COVID-19 pandemic, focusing on their roles, safety, well-being, and support systems. It highlights the critical importance of healthcare workers, especially during public health crises, and discusses support programs designed to protect and promote their well-being. The chapter covers key concepts like occupational health, well-being, and social support, essential for understanding the challenges HCWs face. It

further explores the impact of the COVID-19 pandemic at global, national, and regional levels, emphasizing how it increased healthcare workers' risks and workloads. The safety of healthcare workers is addressed, with a focus on preparedness, PPE access, and infection control measures. Mental health challenges, including burnout and gender-specific issues, are also examined. The chapter concludes by discussing the importance of social support systems and coping mechanisms, such as peer and institutional support, in managing the emotional toll on healthcare workers. The theoretical framework, problem statement, objectives, and hypotheses of the study are introduced, providing a roadmap for the thesis.

The next chapter, the *Review of Literature*, will examine existing research on healthcare workers' safety, well-being, and support during the COVID-19 pandemic, providing a foundation for the study's empirical analysis.

REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

The literature review in this thesis is organized into five key categories that collectively address the critical aspects of healthcare workers' (HCWs) well-being and their work environment. First, the section on availability and utilization of safety measures explores the various safety protocols in place for HCWs and how effectively these measures are utilized to safeguard their health. Secondly, occupational health and safety, examines the physical and mental health challenges faced by HCWs in their professional roles, focusing on the impact of their working conditions. Thirdly, social support received by healthcare workers, investigates the emotional and social resources available to HCWs, which are crucial for their resilience and coping. In the fourth section, coping strategies for healthcare workers, analyse the different methods used by the HCWs to manage stress and maintain their mental health in high-pressure environments. Finally, the well-being of healthcare workers section assesses the overall physical, mental, and emotional health of HCWs, highlighting both their strengths and areas that require attention.

By reviewing the existing literature across these five areas, this chapter sets the foundation for understanding the complex relationship between work conditions, support systems, and the health outcomes of healthcare workers.

2.1. Consequences of COVID-19

The COVID-19 consequences have long-term effects, influencing both individual well-being and global systems. The studies on the consequences of COVID-19 are found in *Afrashtehfar et al., 2023; Golzardi et al., 2024; Hamrouni et al., 2022; Huang et al., 2021; Luedtke et al., 2024; Mirza et al., 2024; Prakash et al., 2020; Saengtabtim et al., 2022; Saifullah et al., 2023; Singh et al., 2021; Talukdar et al., 2024.*

Afrashtehfar et al. (2023) discuss the widespread physical, oral, and psychological impacts of COVID-19, particularly focusing on how the pandemic has affected not only physical health but also oral health and psychological well-being. They emphasize the importance of understanding these multiple dimensions of

COVID-19's consequences as healthcare systems work toward recovery. Similarly, Huang et al. (2021) present the long-term health effects of COVID-19 in patients who were discharged from the hospital, underscoring the persistence of symptoms even six months after recovery, such as fatigue and cognitive impairment, a condition often referred to as “long COVID.” On a broader scale, Hamrouni et al. (2022) examine how COVID-19 has disrupted geopolitics, health systems, economics, and education, presenting a multifaceted view of the pandemic’s far-reaching effects on society. The economic repercussions of the pandemic were particularly harsh, with millions of people losing jobs, businesses closing, and countries entering recessions. These economic challenges were compounded by the strain placed on healthcare workers (HCWs), many of whom experienced heightened stress and burnout (Luedtke et al., 2024). The psychological toll on HCWs was particularly severe, with some experiencing post-traumatic stress disorder (PTSD) and long-lasting mental health issues (Mirza et al., 2024). Furthermore, Saengtabtim et al. (2022) focus on the economic and health impacts of COVID-19 in Asia, noting how sectors such as tourism were hit hard, while the healthcare sector was overwhelmed with demand. The economic setbacks faced by Asia are echoed in Singh et al. (2021), who highlight the impact of COVID-19 on people with chronic conditions in India, stressing the exacerbation of health and economic difficulties for these vulnerable groups. One of the most concerning outcomes highlighted in the references is the impact of the pandemic on HCWs. Saifullah et al. (2023) specifically discuss the effects of the pandemic on HCWs in Pakistan, pointing out the overwhelming psychological stress they faced. This included fear of contracting the virus and transmitting it to family members, compounded by the emotional burden of patient deaths. The shortage of essential medical supplies, such as personal protective equipment (PPE), further added to their anxiety and stress (Prakash et al., 2020). The pandemic also prompted a shift in work culture. Luedtke et al. (2024) describe how HCWs had to adapt to new work environments and mental health challenges, including the need for rehabilitation and ongoing care after their experiences on the frontlines. The importance of psychological support services, such as counselling and mental health resources, has been emphasized as crucial for supporting HCWs in the aftermath of the crisis (Golzardi et al., 2024).

On a global level, the pandemic has exposed and exacerbated inequalities, with marginalized groups bearing the brunt of the health and economic impacts. The COVID-19 pandemic not only reshaped healthcare systems but also highlighted the critical need for comprehensive policies that prioritize the health and well-being of both the general public and frontline workers. As countries recover, it is essential to address these issues to avoid long-term adverse effects on both the workforce and society. From its impact on healthcare workers to its strain on global economies, the pandemic has left an indelible mark on the world. As recovery efforts continue, it is crucial to learn from these experiences and implement systems that protect the health and well-being of all individuals, especially those most affected by the crisis.

2.2. Availability and utilization of safety measures of the HCWs

The availability and effective utilization of personal protective equipment (PPE) and infection control measures studies was found in, *Abdulrahman Yusuf et al., 2023; Abed Alah et al., 2021; Abubakar et al., 2022; Ağalar & Öztürk EngiN, 2020; Agarwal et al., 2020; Birhanu et al., 2021; Cordeiro et al., 2022; Deressa et al., 2021; Galanis et al., 2021; Haegdorens et al., 2022; Haq et al., 2023; Joseph et al., 2022; Kajti & Öztekin, 2024; Kumar, 2021; Mardiko et al., 2023; Naserpour et al., 2024; Okyere Boadu et al., 2024; Oladele et al., 2021; Park, 2020; Shatnawi et al., 2022; Toso et al., 2022; Wen et al., 2025; Yunus et al., 2024*

Personal protective equipment (PPE) is widely regarded as the primary line of defence for healthcare workers against the novel coronavirus. Studies have consistently highlighted that the availability of adequate PPE is critical in preventing infections among HCWs. A study by Abdulrahman Yusuf et al. (2023) assessed the knowledge, accessibility, and adherence to PPE usage and preventive practices among healthcare workers in various healthcare settings. Their findings revealed a significant gap in PPE accessibility, especially during the early stages of the pandemic, when the demand for protective gear surged globally. This shortage was particularly evident in low- and middle-income countries (LMICs), where healthcare systems struggled to meet the urgent demand. In contrast, some higher-income countries managed to secure PPE supplies more effectively. Abubakar et al. (2022) found that in Nigeria, PPE accessibility was inconsistent, especially in rural areas,

which heightened anxiety among HCWs who were at a higher risk of infection. While some regions faced significant shortages, others, like in England and Greece, managed to maintain a more consistent supply of PPE (Galanis et al., 2021). However, even in these settings, the effective use of PPE was still a challenge, with issues of improper utilization and non-adherence to infection control measures. This was compounded by insufficient training and pressure from high patient volumes, which led to lapses in safety protocols (Kajti & Öztekin, 2024). Deressa et al. (2021) conducted a study in Addis Ababa, Ethiopia, and noted that while the availability of PPE improved over time, challenges remained in maintaining a consistent supply. This gap in accessibility posed significant risks to HCWs, many of whom were required to continue working with limited protection. In Qatar, Abed Alah et al. (2021) observed similar barriers to effective PPE utilization, with HCWs facing challenges in complying with infection prevention protocols due to the unavailability of PPE, highlighting the critical need for more robust supply chains and better resource allocation.

While PPE availability was a primary concern, the effective utilization of these safety measures was equally important. Inadequate training and a lack of adherence to protocols were often cited as factors hindering the effective use of PPE. Birhanu et al. (2021) found that psychological preparedness and proper training in the use of PPE were essential for HCWs to feel confident in their safety measures. However, they noted that in some cases, training was either insufficient or poorly executed, leading to improper use of protective gear. This issue was compounded by the high-stress environment and the constant pressure to provide care, which sometimes led to lapses in safety practices. A comprehensive scoping review by Cordeiro et al. (2022) underscored that the implementation of PPE protocols was inconsistent across various healthcare settings. The review found that while some institutions provided adequate training and enforced strict guidelines for PPE use, others struggled with the proper execution of these protocols. This inconsistency had significant implications for the safety of healthcare workers, as improper use of PPE could potentially increase the risk of exposure to the virus. The training and preparedness of healthcare workers also played a key role in mitigating the

psychological impact of PPE shortages. Haegdorens et al. (2022) demonstrated that HCWs who received proper PPE training reported fewer symptoms related to COVID-19 exposure, including psychological distress and physical symptoms. This finding emphasizes the importance of not only providing physical protection but also ensuring that healthcare workers have the knowledge and confidence to use their protective equipment effectively.

The role of healthcare institutions in providing a safe working environment for HCWs cannot be understated. Organizational support, including proper PPE provision, training, and mental health support, is essential for reducing the risk of infection and enhancing the well-being of healthcare workers. Studies conducted in India by Agarwal et al. (2020) and Joseph et al. (2022) highlighted the importance of healthcare institutions in implementing comprehensive safety measures and providing psychological support to mitigate the effects of the pandemic on HCWs. Hospitals that prioritized safety protocols, such as regular PPE distribution, infection control training, and mental health services, reported higher levels of satisfaction and lower levels of stress among HCWs. However, the pandemic exposed significant gaps in many healthcare systems. Mardiko et al. (2023) noted that some hospitals in Germany, despite initially having proper PPE supply chains, struggled with staffing shortages and overwhelmed systems, which affected the ability to maintain optimal safety measures. The lack of sufficient personnel, combined with long working hours, led to burnout and reduced adherence to safety protocols. In Pakistan, Haq et al. (2023) examined the impact of pre-pandemic PPE training on healthcare worker safety during the pandemic. Their study found that HCWs who had undergone PPE training prior to the pandemic were better equipped to handle the increased demands of the healthcare crisis. This finding emphasizes the need for continuous investment in training and preparedness to ensure that HCWs are ready to respond to future public health emergencies.

The psychological toll on healthcare workers during the COVID-19 pandemic has been profound. The constant fear of infection, high workload, and emotional strain of dealing with critically ill patients have contributed to widespread mental health challenges among HCWs. Studies by Yunus et al. (2024) and Shatnawi et al.

(2022) highlighted that HCWs experienced elevated levels of anxiety, depression, and insomnia, particularly in high-risk areas. These mental health issues were exacerbated by the lack of sufficient mental health support in many healthcare settings. In their study, Shatnawi et al. (2022) found that the perceived adequacy of safety measures, including the provision of PPE and the availability of training, was inversely related to the levels of psychological distress among HCWs. The study suggested that healthcare workers who felt supported by their organizations, through both physical safety measures and mental health resources, reported lower levels of stress and anxiety. This highlights the importance of addressing both the physical and psychological needs of healthcare workers to enhance their overall well-being and ability to provide care. Similarly, the findings of Toso et al. (2022) underscored the role of family support in the well-being of healthcare workers. The study revealed that healthcare workers who practiced safety measures within their families, such as avoiding close contact with high-risk individuals and adhering to personal hygiene protocols, reported better mental health outcomes. This finding suggests that healthcare systems should also consider the family environment when developing safety and support protocols for HCWs. A key component of addressing the psychological distress faced by HCWs is providing accessible mental health services. However, despite the recognition of these needs, many healthcare systems failed to offer adequate support. As reported by Deressa et al. (2021), even in countries where mental health resources were available, stigma and logistical barriers often prevented HCWs from seeking help. This issue was particularly acute in countries with cultural stigmas around mental health, as noted by Wen et al. (2025), who found that mental health services for HCWs in high-workload provinces in China were either insufficient or difficult to access.

The COVID-19 pandemic revealed significant disparities in the availability and effectiveness of safety measures across countries. While developed countries like the US, UK, and Germany were generally able to provide adequate PPE and implement comprehensive infection control measures, many low- and middle-income countries (LMICs) faced severe challenges in meeting the demands for PPE. Oladele et al. (2021) conducted a study in Nigeria, which found that while HCWs had some

access to PPE, shortages remained a significant concern. The study highlighted that despite the importance of PPE, many HCWs were forced to work with inadequate protection, increasing their risk of contracting COVID-19. In a similar vein, Okyere Boadu et al. (2024) found that healthcare workers in Ghana faced challenges not only in the availability of PPE but also in adherence to infection prevention protocols due to limited resources and inconsistent training. These findings underscore the need for a more equitable distribution of resources to ensure that healthcare workers in LMICs are adequately protected.

While the immediate impact of safety measures was critical in controlling the spread of the virus, the long-term effects on healthcare workers' physical and mental health must also be considered. Studies by Kheradmand et al. (2021) and Naserpour et al. (2024) suggest that the long-term psychological impact of the pandemic on healthcare workers is far-reaching, with many experiencing ongoing mental health challenges such as burnout, PTSD, and anxiety. The emotional toll of caring for COVID-19 patients, combined with the constant fear of exposure, has created a need for long-term psychological support systems for HCWs. Moreover, the physical demands placed on healthcare workers, including long hours, intense workloads, and exposure to infectious diseases, have led to increased fatigue and burnout. This has had serious implications for the quality of patient care, as overworked and stressed healthcare workers are more prone to errors, as noted by Park (2020). As noted by Kumar (2021), future preparedness should include not only better PPE supply chains but also robust mental health resources for healthcare workers. This dual approach of protecting both the physical and psychological well-being of HCWs is essential for ensuring their resilience in future health emergencies. It is therefore crucial that healthcare organizations continue to address both the physical and psychological needs of their workforce long after the pandemic.

2.3. Occupational health and safety of the healthcare workers

The following research studies discussed the scenario of the occupational health and safety of the healthcare, *Castañeda-Millán et al. (2025)*, *Ortiz-Ramirez et al. (2025)*, *Jalilian et al. (2024)*, *Mehboodi et al. (2024)*, *Mustafa et al. (2024)*, *Houben et al. (2024)*, *Medeni et al. (2024)*, *Hurtado et al. (2024)*, *Rahmani et al. (2024)*, *Mirza et*

al. (2024), Bashar et al. (2024), Holtzclaw (2020), Dopelt et al. (2022), Minikumary et al. (2022), Mavaji et al. (2022), Alah et al. (2022), Mehta et al. (2022), Jamil et al. (2022), Iyengar et al. (2022), Kea et al. (2021), Brown-Johnson et al. (2021), Casper (2021), Gulrandhe et al. (2021), Gupta et al. (2021), Hetzmann et al. (2021), Kheradmand et al. (2021), Naqvi (2021), Omar et al. (2021), Suraj et al. (2021), Siddique et al. (2023), Hak Yek Tan (2023), Nathan Ezie et al. (2023), Nashwan et al. (2023), Haq et al. (2023), Kumar et al. (2023), Aggarwal et al. (2024), Debbarma (2023), Galanis et al. (2021), Bandyopadhyay et al. (2020), Nguyen et al. (2020), Behera et al. (2020), Dabholkar et al. (2020).

Mehboodi et al. (2024) conducted a qualitative study exploring the occupational safety and health of nurses during the COVID-19 pandemic and its impact on the quality of care. Their findings revealed that the pandemic significantly disrupted nurses' professional lives, leading to increased physical and psychological stress. This stress was largely attributed to inadequate personal protective equipment (PPE), increased workloads, and the persistent fear of infection. Despite these considerable challenges, some nurses demonstrated remarkable resilience and post-traumatic growth, developing professionally as they coped with the crisis. However, the study emphasized that the insufficiency of occupational health measures compromised nurses' ability to deliver optimal quality care. It highlighted the urgent need for healthcare organizations to strengthen occupational safety policies and enhance psychological support systems to sustain nurses' well-being and the quality of care during pandemics. Complementing these qualitative insights, Ortiz-Ramirez et al. (2025) carried out a quantitative study examining the occupational health conditions of healthcare workers in a secondary care hospital during the first year of the pandemic. Their study identified a significant rise in chronic health conditions, including obesity, hypertension, and diabetes among healthcare workers. Additionally, the research underscored low levels of satisfaction with working life quality and a diminished perception of workplace safety. These results point to compounded health risks and psychosocial challenges faced by healthcare professionals, underscoring an urgent need for improved occupational health strategies and enhanced workplace safety measures to protect this vulnerable

population. In a related vein, Varyvonchyk et al. (2024) investigated occupational safety, health, and hygiene practices among healthcare workers, focusing particularly on access to PPE during the pandemic. The study uncovered that PPE provision was notably insufficient, with availability rates fluctuating between 61.25% and 63.63%. This lack of adequate protective equipment substantially heightened the risk of infection among healthcare workers. These findings expose critical gaps in occupational safety measures and emphasize the pressing need for better resource allocation and the implementation of comprehensive protective strategies to safeguard healthcare professionals amid pandemic conditions.

Mental health, a crucial facet of occupational safety, was the focus of a retrospective quantitative study by Castañeda-Millán et al. (2025), which compared health-seeking behaviours between healthcare workers and the general population during the COVID-19 crisis. Their analysis revealed that healthcare workers were significantly more likely to seek mental health support than the general population. However, barriers such as concerns about exposure to COVID-19 and a preference for self-management limited the extent of help-seeking behaviours among healthcare professionals. These findings underscore the necessity of addressing stigma and accessibility challenges within mental health services to better support healthcare workers' psychological well-being during public health emergencies.

Addressing the evolution of psychological distress over time, Rahmani et al. (2024) conducted a two-year longitudinal study examining COVID-19-related anxiety and job burnout among Iranian healthcare workers. Using validated tools, the Corona Disease Anxiety Scale (CDAS) and the Maslach Burnout Inventory (MBI) and an online platform for data collection, the study involved 310 healthcare workers. Results indicated a reduction in COVID-related anxiety over the study period; however, an increase in the severity of job burnout dimensions was observed, particularly emotional exhaustion, depersonalization, and feelings of personal inadequacy. Notably, the study identified negative correlations between job burnout and COVID-related anxiety, and multivariate regression analyses suggested that each predicted the other at both measured time points. Despite the positive association between anxiety and burnout, the divergence of increasing burnout alongside

decreasing anxiety implies the presence of other contributing risk factors requiring further investigation to effectively address healthcare workers' occupational mental health.

Further exploring the intersection of occupational health and psychological well-being, Hurtado et al. (2024) performed a longitudinal study assessing the relationship between safety responsiveness and psychological distress among healthcare workers in the Pacific Northwest. The study found that individuals who recognized a more responsive safety culture and leadership in their units experienced significantly lower levels of psychological distress. Both individual- and unit-level analyses consistently revealed inverse relationships between safety responsiveness and distress levels. These findings emphasize the critical role that effective safety measures and responsive organizational leadership play in mitigating psychological distress and fostering occupational health among healthcare workers during public health crises.

The spread of the Covid-19 had a significant impact on the occupational health of many workers, and because they are on the front lines and interacted frequently with infected patients, healthcare workers are particularly affected by the virus. The healthcare professionals treated patients who were virus-infected and were the main group of people with a greater risk of spreading the diseases. The healthcare workers composed up 4% of the infected population in China at the early stages of the pandemic. The virus is known to have a long-term impact on people who are infected, causing respiratory and immune problems. The healthcare organisation must deal with rehabilitating and recovering the mental health challenges that healthcare workers face, such as anxiety, insomnia, burnout, depressive symptoms, and post-traumatic stress disorder. To prevent potential future unforeseen challenges, it is essential to improve the workers' psychological and psychosocial support systems. The contribution of appropriate knowledge and insights based on the experiences of the healthcare professionals is essential if they are to improve their occupational health (Burdorf et al., 2020).

In Germany, during the pandemic, a qualitative study was conducted among the medical personnel involved in outpatient care. The primary goal of the study is to

examine the occupational health and safety of the healthcare workers using a semi-structured telephone interview to collect qualitative information about them. The study enquires on the regular use of face masks by the health care workers, the availability of medical doctors for consultations, and following of special protective measures. It is reported that face masks have been used effectively. However, after the pandemic, there is a severe shortage of supply as well as a need has been extending to the patients and their carer, therefore, the healthcare workers did not regularly use facemasks. Likewise, the medical doctor is available for consultation, however, it is challenging to meet him in person due to the spread of the virus. Therefore, voice and video calling were used for consultations. In addition, awareness and education on cleanliness and hygiene were familiarised before the pandemic, and so disinfection was performed more frequently than it was before the pandemic. However, it is important to notice that the healthcare workers did not receive special protection or prevention regarding occupational health and safety provided in care services, and also unlike other professions there is no provision for working from home (Hetzmann et al., 2021).

An online survey was conducted among healthcare professionals in Chandigarh, India, and it found that the pandemic had increased the burden of workloads and that working hours had been extended. Moreover, it was identified that the healthcare workers had contact with infected covid-19 patients. Therefore, the risks have been extended to stigma or misconduct as a result of their duties (Suraj et al., 2021). Despite playing a critical role in providing care to patients, the healthcare workers encountered tremendous mental and emotional challenges during the pandemic. The risk factors of covid-19 infection for the healthcare workers are late diagnosis, long working hours, inadequate infection prevention and control training, a lack of hygiene practices, and improper use of personal protective equipment. Therefore, the healthcare workers were vulnerable particularly to occupational health risks resulting from frequent contact with infectious patients (Casper, 2021). In spite of the fact that the Covid-19 had caused a number of occupational health issues among healthcare professionals, including exposing them to long and exhausting working hours, a lack of personal protective equipment, and a

lack of societal support, all of which contributed to their emotional, mental, and psychological distress. The daily pressures of their jobs cause stress, anxiety, insomnia, and depression in healthcare workers (Gulrandhe et al., 2021).

The Covid-19 had an adverse effect on the occupational health of the healthcare workers due to intense exposure to anxiety, stress, depression, and insomnia, with some even experiencing suicidal thoughts. The US National Veterans' Health Administration assess the needs of healthcare workers using key informant interviews and found out that there is a need for a better infrastructure to support employee population management apart from many obstacles regarding infection control. Secondly, the study found inadequate staffing of the health worker including the necessary for capacity building and work allocation. Thirdly, it is crucial to adopt strategies for the management of healthcare workers' mental health concerns (Brown-Johnson et al., 2021). The health care workers such as medical doctors, licensed nurses, nursing assistants, physiotherapists, and technical staff who had direct or indirect contact with the Covid-19 patients had participated in the exploratory qualitative study that was conducted in Vienna, Austria. The lack of physical and mental preparedness for the covid-19 pandemic, delayed implementation of guidelines for infection prevention and control, lack of personal protective equipment, staffing shortage, and overworked healthcare workers were the main occupational health challenges encountered by the healthcare workers. Further, in times of medical uncertainty, the mental health and well-being of healthcare workers were neglected, and they lacked recognition of how to deal with multiple levels of stress, stigma, and avoidance (Jeleff et al., 2022). COVID-19 is a recent occupational illness. The occupational health and safety of healthcare workers were put at risk as they were exposed to COVID-19 patients and had direct contact with them. There are still cases of COVID-19 infections among healthcare workers even though many protective equipment has been given to them for their protection.

Many research studies emphasized on the mental health aspect of the healthcare workers as poor mental health has been linked to suicidal thoughts, depression, anxiety, and poor eating habits among the healthcare workers (Naqvi, 2021). The safety and well-being of caregivers (healthcare workers) are determined

by organisational culture and safety practices. The most common cause of error leading to an unfortunate event in healthcare settings occurred because of a lack of attention to worker safety, inadequate supervision and inadequate staffing for specific jobs, and excessive workload due to shortage of workers. Physical exhaustion (tiredness or fatigue) among healthcare workers affects patient safety, and nurses who work longer shifts have higher error rates, which is linked to sleep deprivation (Yassi & Hancock, 2005). Kheradmand et al. (2021) studied the mental health status of healthcare workers during the Covid-19 pandemic by conducting a cross-sectional study with staff members from two tertiary healthcare centres in Tehran province. The study revealed that during the early stages of the COVID-19 pandemic, there is a high probability of mental disorders among healthcare workers. The probability of developing a mental illness was higher in female healthcare workers compared to male healthcare workers and healthcare workers with lower educational qualifications and healthcare workers caring for COVID-19 patients were likely to develop a mental disorder.

In addition, the Covid-19 outbreak emphasises the importance of health-care worker safety. The fatality rate of healthcare workers is increasing, and there are no differences in protecting the safety of healthcare workers between developed and developing countries. Many countries have revealed a lack of preparedness to protect their health workers due to the sudden outbreak of the covid-19, which has left no time to consider worker safety as the number of covid-19 patients continues to rise (Shaw et al., 2020). Healthcare workers are considered a high-risk population because they have frequent contact with COVID-19 patients. Indeed, the personal protective equipment (PPE) is the most appropriate and desirable way to protect healthcare workers, but there is a global shortage of PPE, making it difficult for health workers to function without PPE. The World Health Organization has developed standard operating procedures for maximum use of PPE for the protection and safety of the healthcare workers. It suggested extensive use of telemedicine for initial assessment, minimizing the number of patients visits (entering patients' rooms), and having only essential healthcare workers enter patient rooms in order to minimise the use of PPE (Cinar et al., 2020). Augmenting the differences in

practices, the healthcare workers in Nepal must take the risk of infecting themselves while providing care for patients and Covid-19 is not recognised as an occupational disease; therefore, healthcare workers infected with Covid-19 do not receive financial assistance from the government and must pay out of their own pockets. Despite the adoption of health and safety measures, healthcare workers continue to have a psychological fear of virus infection because of social stigma and discrimination. The safety of healthcare workers is crucial as they contribute so much to the health and safety of others, and the government must pay adequate attention to and prioritise their issue (Joshi, 2021). The author suggested routine occupational health and safety (OHS) training in healthcare settings to the reduction of occupational hazards and to also maintain workplace safety. The cross-sectional interview on OHS revealed that healthcare settings that conduct routine OHS are more likely to adopt a good organisational safety culture perception than healthcare centres that do not conduct routine OHS training. Healthcare workers over the age of 39 years old are more likely to adhere to a positive OHS culture perception than those between the ages of 20 and 29. The gender differences show that the female healthcare workers were more likely than male counterparts to adopt a positive OHS culture perception (Ahadzi et al., 2021). The assessment of healthcare authorities' preparedness during the COVID-19 pandemic found that while healthcare workers were trained to handle pandemics, there were insufficient supplies of PPE and fewer disinfection sprays in healthcare facilities (Muhammad et al., 2021).

The COVID-19 pandemic has placed immense pressure on India's healthcare system, thereby exposing the vulnerabilities faced by healthcare workers (HCWs) across the country. The rapid onset of the crisis led to shortages in protective equipment, insufficient training, and inadequate psychological and financial support, all of which worsened the risks of infection, burnout, and mental health issues for healthcare workers. According to Behera et al. (2020), the lack of protective gear, inadequate infection control training, and the absence of psychological support mechanisms further exacerbated the situation. Meanwhile, healthcare workers were required to work beyond their standard hours without appropriate compensation. The shortage of human resources and overextension of existing staff increased the risk of

errors, underlining the need for a robust, well-prepared healthcare system that can respond effectively to future emergencies. In addition to this, Mehboodi et al. (2024) examined the occupational health impacts of the pandemic on nurses, revealing significant job dissatisfaction, burnout, and emotional exhaustion—factors that compromised both their health and the quality of patient care. However, some nurses demonstrated resilience by adopting safer behaviors. This dual phenomenon underscores the critical need for targeted support mechanisms addressing both physical and psychological well-being. Similarly, Mustafa et al. (2024) found that healthcare workers with proper IPC training and PPE exhibited higher compliance, thereby reducing viral transmission risks. The study further stressed the need for continuous education and resource provision to improve IPC adherence. In line with these findings, a comprehensive risk assessment conducted by Jalilian et al. (2024) revealed that frontline HCWs, particularly nurses and respiratory therapists, faced the highest risk of infection, especially during aerosol-generating procedures. The study showed that strict adherence to IPC protocols and PPE use significantly reduced exposure, though gaps in PPE availability and inconsistent training created vulnerabilities, particularly among experienced workers who were overburdened with longer shifts. These findings were corroborated by Cassinia et al. (2024), who identified key risk factors related to SARS-CoV-2 infection, including inadequate PPE use and household exposure to COVID-19. This highlights the need for sustained training, dependable PPE supply chains, and rigorous adherence to safety protocols. In addition to infection risks, Medeni et al. (2024) analyzed 68,563 injury cases among healthcare workers in Turkey, revealing that nurses and auxiliary staff suffered the highest rates of injuries, underscoring the importance of enhanced safety training programs and stricter enforcement of safety protocols. Holtzclaw (2020) further highlighted the physical and psychological toll of the pandemic, stressing the need for comprehensive approaches to improve healthcare workers' health and occupational safety. Meanwhile, Dopelt et al. (2022) found that workplace violence against healthcare workers worsened during the pandemic, further exacerbating occupational stress and safety concerns. Regarding infection prevention, practices like mask-wearing proved to be instrumental in reducing transmission. Mavaji et al. (2022) and Alah et al. (2022) found that higher knowledge levels regarding IPC

protocols led to better adherence, which was crucial in reducing infection transmission. Additionally, Nashwan et al. (2023) emphasized the importance of psychosocial safety through mental health resources and fostering supportive work environments. Training on PPE usage is essential for healthcare workers' safety. Haq et al. (2023) found that pre-pandemic training improved PPE adherence and reduced hospital-acquired infections. Kea et al. (2021) noted that PPE shortages, particularly in low-resource settings, exposed global inequities in resource distribution. Bandyopadhyay et al. (2020) and Nguyen et al. (2020) also found that healthcare workers performing high-risk procedures experienced higher infection rates. Bansal et al. (2025) and Houghton et al. (2020) observed that unclear guidelines and fatigue contributed to lower compliance, highlighting the importance of clear communication and organizational support. Furthermore, Galanis et al. (2021) noted the adverse effects of prolonged PPE use, including headaches and skin problems, while the WHO (2020) highlighted a surge in workplace violence against healthcare workers, underscoring the need for safety measures beyond infection control. Siddique et al. (2023) found that healthcare institutions with strong safety protocols before the pandemic adapted more effectively, thus better protecting their workforce. Vaccination campaigns also significantly reduced severe infections among healthcare workers, thereby bolstering healthcare system resilience (WHO, 2021). In conclusion, the pandemic has illuminated the complex occupational risks faced by healthcare workers, emphasizing the need for multifaceted approaches to improve their safety. Effective protection requires tailored strategies, continuous training, psychological support, and robust institutional policies. Ensuring healthcare worker safety is essential not only for their well-being but also for maintaining high-quality patient care and preparing healthcare systems for future crises.

2.4. Social support received by the healthcare workers

Studies related to the social support received by healthcare workers are discussed by, Williams et al., 2021; Widjaja et al., 2020; Alnazly et al., 2021; Fang et al., 2021; Ortiz-Calvo et al., 2022; Karadaş & Duran, 2022; Kushairi et al., 2022; Zhan et al., 2022; Styra et al., 2022; Karagöl & Törenli Kaya, 2022; Tindle et al., 2022; Yilmaz et al., 2022; Skogsberg et al., 2022.

The COVID-19 pandemic has put a lot of pressure on healthcare workers, affecting their mental health and how they feel about their jobs. During these tough times, feeling supported by others has become really important. Studies show that having social support helps reduce feelings of anxiety, depression, burnout, and stress among healthcare workers. It also helps them stay strong and better handle the ongoing challenges they face every day. The COVID-19 pandemic has placed unprecedented strain on healthcare workers, profoundly impacting their mental health and professional well-being. A growing number of studies emphasize resilience and social support as vital protective factors that help mitigate adverse psychological outcomes, such as anxiety, depression, burnout, and secondary traumatic stress. The study by Katsiroumpa et al. (2025) provides compelling evidence that resilience is a key personal resource for nurses navigating the post-COVID-19 era. Their cross-sectional study revealed that nurses with higher levels of resilience experienced markedly lower anxiety and depressive symptoms. This finding positions resilience as a fundamental coping mechanism that enables nurses to withstand pandemic-related stressors. Importantly, while social support from colleagues, family, and significant others was also associated with better mental health outcomes, resilience exhibited a somewhat stronger protective effect. These results emphasize the necessity for healthcare organizations to foster environments that enhance resilience through targeted training and psychological support, alongside strengthening social support networks to comprehensively buffer against pandemic-induced psychological impacts. Similarly, Shrestha et al. (2025) examined the role of social support among healthcare professionals in Nepal during the pandemic. Their study found that higher social support correlated with greater compassion satisfaction and reduced burnout and secondary traumatic stress. This suggests that social support critically mitigates the psychological burdens imposed by pandemic-related work stress, thereby enhancing professional quality of life. The authors advocate for targeted interventions aimed at reinforcing social support mechanisms within healthcare settings, which are essential to improving the mental well-being and job satisfaction of health professionals who continue to face pandemic-related challenges (Williams et al., 2021).

Moisoglou et al. (2024) emphasize the crucial protective roles of both social support and resilience in mitigating burnout among nurses during and after the COVID-19 pandemic. Their research demonstrates that nurses who reported higher resilience and stronger social support experienced significantly lower levels of both pandemic-related and general job burnout. These factors act as buffers against the cumulative psychological strain caused by prolonged stressors in healthcare settings throughout the pandemic. Consequently, the authors advocate for the implementation of organizational and individual-level interventions aimed at strengthening resilience and social support networks to promote nurses' overall well-being in the post-pandemic period. Adding to these findings, Mehdizadeh et al. (2024) investigated the relationship between resilience and social and organizational support among nurses working with COVID-19 patients. Their study revealed that nurses' resilience was positively associated with the degree of social and organizational support they perceived. Key organizational factors such as effective communication, adequate resource provision, and recognition from healthcare institutions, together with social support from peers and family, significantly bolstered nurses' resilience and helped alleviate stress and burnout. This underscores the critical need for healthcare management to cultivate supportive work environments and robust social networks to sustain nurses' mental health and maintain the quality of patient care during ongoing and future health crises.

John et al. (2025) investigated the mediating effect of social support on the relationship between unemployment and mental distress among healthcare graduates during the COVID-19 era. While social support was positively linked to reduced mental distress, it did not significantly mediate the impact of unemployment on mental health outcomes. This indicates that unemployment has a direct adverse effect on mental distress that social support alone cannot fully counteract. The study underscores the complex interplay between economic hardship and psychological well-being, emphasizing the need for comprehensive interventions addressing both employment opportunities and social support systems to alleviate mental distress among healthcare graduates during and beyond pandemic conditions.

Mrayyan et al. (2024) focused on job stressors and social supportive behaviours among hospital nurses during the COVID-19 era. Their online cross-sectional study identified major contributors to job stress, including increased workload, fear of contagion, and inadequate personal protective equipment. Crucially, the research highlighted social support behaviours such as peer assistance and organizational backing as important factors mitigating stress and enhancing job satisfaction. The authors recommend that healthcare institutions implement strategies aimed at reducing job stressors while promoting supportive behaviours to improve nurses' well-being and job performance during and beyond the pandemic.

Hou et al. (2020) examined the intricate relationships between social support and mental health among healthcare workers using a moderated mediation model during the COVID-19 outbreak. Their findings show that social support reduced symptoms of anxiety, depression, and stress by enhancing psychological resilience and lowering stress levels. Moreover, the protective effect of social support was moderated by coping styles and workplace environments, indicating that social support's benefits are maximized when coupled with effective coping strategies and supportive organizational cultures. These results underscore the critical role of multifaceted social support systems in safeguarding healthcare workers' mental health during public health crises.

Carbone et al. (2022) conducted a scoping review examining peer support among healthcare workers across hospital and out-of-hospital settings. Their review emphasizes that peer support programs significantly enhance psychological well-being by providing emotional, informational, and practical assistance during stressful periods, such as the COVID-19 pandemic. Structured peer support interventions reduce burnout, improve resilience, and foster a sense of community and shared understanding among healthcare professionals. The authors advocate for the broad integration of peer support initiatives within healthcare systems as a crucial element of occupational health strategies, essential for sustaining workforce mental health and job satisfaction.

The COVID-19 pandemic has profoundly impacted healthcare systems globally, placing healthcare workers at the forefront of an unprecedented crisis. The

immense pressure on these frontline workers has not only affected their physical health but also precipitated significant emotional and psychological challenges. A crucial factor in mitigating these challenges has been the support provided by hospital management, colleagues, family, and society at large. A mixed-method study by Skogsberg et al. (2022) highlights the importance of hospital managers' physical presence in supporting healthcare workers during the pandemic. The study found that when managers were physically present, healthcare workers received timely information, encouragement, and, importantly, a listening ear. Such managerial presence helped reduce feelings of anxiety among healthcare professionals, who expressed a clear need for support when managers were absent. This finding underscores the essential role of capable leadership in healthcare settings, especially in times of crisis. Managers not only coordinate logistical and clinical responses but also provide crucial emotional support and aid healthcare workers in managing psychological stress, thereby enhancing their resilience and capacity to cope with the intense demands of the pandemic.

Healthcare professionals have faced substantial changes in their professional and personal lives during the COVID-19 outbreak. Williams et al. (2020) documented the global response to protecting healthcare workers' mental health, noting that many nations developed innovative strategies aimed at alleviating psychological distress. These strategies included establishing helplines dedicated to healthcare workers experiencing emotional or psychological difficulties, providing remote counselling services to prevent burnout, and conducting resilience and mindfulness sessions. In several countries, mental healthcare services were organized and delivered through universities and educational institutions, reflecting a community-wide recognition of the need to support healthcare workers' well-being. Additionally, tangible support measures, such as childcare assistance, salary increases, free transportation, and free housing for workers separated from their families, were implemented. These comprehensive approaches demonstrate a multifaceted effort to address the complex stressors healthcare workers face, ranging from mental health concerns to practical life challenges.

The concept of social support has been extensively studied as a buffer against the negative psychological effects experienced by healthcare workers during the pandemic. Ortiz-Calvo et al. (2022) conducted a cross-sectional online survey in Spain with over 2,000 healthcare workers to explore resilience and social support. The results indicated that while healthcare workers exhibited average resilience levels, they faced difficulties adjusting to the stressful and often traumatic realities of the pandemic. Particularly in environments marked by psychological distress and pervasive death thoughts, social support from family and colleagues was found to be a critical resource. Physicians and nurses showed higher prevalence of depressive symptoms, whereas technicians were more affected by psychological distress, highlighting the nuanced ways different roles within healthcare experience mental health challenges. Similar patterns emerged in Malaysia, where Kushairi et al. (2022) found widespread burnout, emotional exhaustion, depersonalization, and feelings of reduced personal accomplishment among healthcare workers. Their research evaluated social support across three domains: family, friends, and significant others, revealing generally unsatisfactory levels. Importantly, the study suggested that increased social support reduces the risk of emotional exhaustion and depersonalization. Conversely, lower social support levels correlate with heightened emotional exhaustion. Moreover, higher levels of personal achievement were associated with greater social support, emphasizing the integral role of social networks in maintaining healthcare workers' psychological health and job satisfaction.

The protective function of social support is further illuminated by Karadaş and Duran's (2022) study, which found a significant negative correlation between work stress and social support, alongside a positive correlation between social support and resilience among healthcare workers during the pandemic. Their findings suggest that resilience mediates the relationship between workplace stress and social support perceptions, meaning that social support bolsters resilience, which in turn mitigates work-related stress. Utilizing validated instruments such as the Multidimensional Scale of Perceived Social Support, the Brief Resiliency Scale, and the General Work Stress Scale, their research adds empirical weight to the argument

that fostering social support and resilience is vital for healthcare workers facing extreme occupational pressures.

Zhan et al. (2022) assessed social support among Chinese healthcare professionals using the Social Support Rate Scale (SSRS), which measures subjective support (emotional and informational), objective support (material aid), and support utilization (the degree to which support is used). Their cross-sectional study revealed that frontline healthcare workers (FHW) experienced significantly lower social support compared to the general population. Subjective support from colleagues was moderate but lower than support from friends and family. COVID-19 restrictions, including lockdowns, limited face-to-face contact, and difficulties in phone communication, hampered FHW's ability to maintain social interactions. Objective support, such as economic assistance from governmental and community sources, was also diminished due to restricted community engagement. Support utilization was notably low, as many FHW hesitated to seek external help, possibly due to stigma or fear of being perceived as weak while caring for COVID-19 patients. Additionally, excessive workloads and limited leisure time contributed to physical and emotional exhaustion, further constraining their participation in social support activities. This combination of factors illustrates the multifaceted barriers to effective social support among frontline workers in pandemic contexts.

Healthcare workers' reliance on informal support sources over formal mental health services is evident in Canadian healthcare settings. Styra et al. (2022) found that healthcare professionals tended to seek emotional support primarily from friends, family, and co-workers rather than from mental health professionals. Workers with limited support experienced more severe symptoms of anxiety, stress, and depression. Furthermore, many healthcare workers hesitated to disclose their risk exposure to family members, contributing to increased depressive symptoms. In contrast, those who shared their experiences and risks with sympathetic listeners were less prone to anxiety. This finding underscores the critical role of empathetic communication and informal support networks in buffering psychological distress. Similar observations were made in Turkey, where Yilmaz et al. (2022) conducted a cross-sectional study using standardized scales, the Stress Symptom Scale and the

Multidimensional Scale of Social Support, and statistical analyses via SPSS. Their results confirmed that social support is crucial in reducing stress levels among healthcare workers during pandemics. The study emphasized the need for regular training programs aimed at mitigating psychological and psychosocial problems within healthcare settings.

In Jordan, Alnazly et al. (2021) assessed healthcare workers social support during the COVID-19 pandemic across three categories: family, friends, and significant others. All three dimensions of social support were rated above moderate, indicating satisfactory levels of support during the crisis. The findings highlight the importance of social support from close personal relationships in maintaining healthcare workers' psychological health.

The critical role of social support in reducing psychological distress is widely acknowledged. Tindle et al. (2022) reported that social support from friends, family, and co-workers enhances general well-being and lowers symptoms of stress, anxiety, and depression. Conversely, lack of adequate support correlates with increased psychological problems. More stringent COVID-19 restrictions intensified feelings of loneliness among healthcare workers due to decreased opportunities for social interaction. Social support emerged as the most significant protective factor against loneliness, with frequent and effective social networks identified as essential for stress management during the pandemic. Karagöl and Törenli Kaya (2022) investigated social support in Turkish healthcare professionals using snowball sampling. Their study revealed that married healthcare workers received more social support than unmarried ones. Comparisons between government and private institutions showed that private hospitals provided better social support. Healthcare workers with children exhibited lower hopelessness scores compared to those without children. Additionally, government hospital staff were more emotionally exhausted and received less recovery support than their private hospital counterparts.

Fang et al. (2021) explored social support, depression, loneliness, and COVID-19-related issues among healthcare workers in Anhui Province, China, using cross-sectional random sampling. Their findings indicated that doctors felt less social support than medical technicians and isolation ward staff. Social support was

negatively correlated with depression and loneliness, with doctors experiencing more loneliness than other healthcare workers. Workers in isolation wards, fever clinics, and pre-check triage areas reported mild to moderate depression. The study emphasized a preference among healthcare workers for one-on-one psychological counselling and crisis management training to better address their mental health needs.

The severity of the pandemic extended to heightened mortality among healthcare workers, exacerbating mental health challenges and even leading to suicidal ideation. Widjaja et al. (2020) emphasized that social support is crucial to improving morale and overall health among healthcare workers. Supportive social relationships positively influence mood, emotional regulation, and self-efficacy. Emotional and practical support from friends, family, and society at large plays a significant role in reducing stress and anxiety and bolstering healthcare workers' confidence and ability to manage their demanding roles.

The literature highlights that social support whether from managers, peers, family, or society is essential for protecting healthcare workers' mental health during the COVID-19 pandemic. It reduces anxiety, burnout, and psychological distress while enhancing resilience and job satisfaction. However, barriers such as heavy workloads, lockdown restrictions, stigma, and institutional inequalities limit access to support. Effective interventions include empathetic leadership, accessible mental health services, peer support programs, and targeted training. Addressing these challenges and ensuring equitable social support systems is vital for sustaining healthcare workers' well-being and resilience, enabling them to navigate current and future public health crises effectively.

2.5. Coping strategies adopted by the healthcare workers

Studies on coping strategies of healthcare workers during the COVID-19 pandemic was found in; Bandino et al., 2025; Gyamerah et al., 2025; Agbonmwandolor et al., 2024; Alshagrawi, 2024; Arango-Martinez et al., 2024; Baczewska et al., 2024; Podder et al., 2024; Ali & Kumar, 2023; Bakhsh et al., 2023; Elaidy et al., 2023; Hamdan et al., 2023; Karram et al., 2023; Mathias et al., 2023; Omar et al., 2023;

Patel et al., 2023; Rony et al., 2023; Siddique et al., 2023; Sharma et al., 2023; Vicente et al., 2023; Ghosh et al., 2022; Mokogwu, 2022; Elsherbeny et al., 2022; Yubonpunt et al., 2022; Birhanu et al., 2021; Razu et al., 2021; Singh et al., 2021; Smallwood et al., 2021; Alnazly & Hjazeen, 2021; Htay et al., 2021; Özçevik Subaşı et al., 2021; Orfão et al., 2020.

The COVID-19 pandemic placed enormous physical, mental, and emotional strain on healthcare workers (HCWs) worldwide. Faced with an unprecedented public health crisis, HCWs were tasked with treating large numbers of critically ill patients while also dealing with their own health risks, emotional distress, and institutional challenges. The strain on their mental health led to widespread use of coping strategies across different cultures and healthcare settings. This review synthesizes findings from various studies, exploring the challenges HCWs faced during the pandemic and the coping mechanisms they employed to manage stress and anxiety.

One of the most significant challenges healthcare workers experienced during the COVID-19 pandemic was psychological distress. HCWs were confronted with fear, anxiety, depression, and burnout, largely due to the overwhelming nature of the pandemic and the unprecedented demands placed on healthcare systems. Ali and Kumar (2023) highlighted that Indian healthcare workers reported feelings of persistent worry, emotional exhaustion, and significant anxiety due to PPE shortages, mandatory overtime, and lack of mental health support. The emotional toll was particularly high among female HCWs, who, in many cases, also faced societal stigma and discrimination. Studies across various countries, including the United Kingdom, Saudi Arabia, and Bangladesh, identified significant stressors such as fear of infection, the mental toll of prolonged working hours, and the emotional strain from witnessing the suffering and deaths of patients. Bakhsh et al. (2023) found that nursing staff in Saudi Arabia faced heightened levels of emotional distress, with fear of contagion being a primary stressor. These emotional challenges were exacerbated by societal stigma and isolation, further compounding the mental burden on HCWs (Ghosh et al., 2022; Vicente et al., 2023).

Healthcare workers deployed various coping strategies to manage the stress and anxiety that arose during the pandemic. Coping strategies generally fall into two categories: problem-focused and emotion-focused. Problem-focused coping involves direct actions to manage or resolve stressors, while emotion-focused coping addresses the emotional response to stressors. A study by Alnazly and Hjazeen (2021) found that nurses in Jordan predominantly relied on emotion-focused coping mechanisms, such as seeking emotional support from colleagues and engaging in prayer or religious practices, to cope with their anxiety and stress. On the other hand, problem-focused coping strategies, such as organizing and structuring work tasks or seeking professional advice on handling COVID-19-related concerns, were more commonly used by HCWs in structured healthcare settings. In a study conducted in Saudi Arabia, Alshagrawi (2024) observed that healthcare workers who engaged in structured problem-solving and sought training on PPE usage were more effective in managing their stress levels. These strategies were particularly useful in reducing the perceived threat of infection and increasing confidence in the protective measures provided.

Institutional and organizational support played a crucial role in helping healthcare workers manage the stress induced by the pandemic. In many healthcare settings, support came in the form of mental health resources, training on COVID-19 protocols, and improved PPE distribution. However, several studies indicate that this support was often inconsistent, with healthcare systems in some regions failing to meet the immediate needs of frontline workers. For example, Bandino et al. (2025) found that while some healthcare systems implemented effective resilience-building programs, others struggled to provide adequate support, leaving workers to cope largely on their own. Support from colleagues was also identified as a critical coping mechanism. In their study, Franck et al. (2021) observed that the camaraderie and peer support in healthcare teams significantly mitigated the negative emotional effects of the pandemic. However, this support was not universal, and in regions where teamwork and collaboration were less emphasized, HCWs faced greater psychological challenges (Elsherbeny et al., 2022). While some healthcare systems responded by implementing mental health resources, helplines, and staffing

adjustments, their effectiveness varied. Siddique et al. (2023) observed that while these initiatives were useful in some regions, they did not always provide sufficient support. Healthcare workers who received proper training in PPE usage reported better confidence and reduced anxiety, which helped mitigate some of the psychological distress associated with PPE use (Birhanu et al., 2021).

The strategies employed by healthcare workers to cope with the pandemic varied significantly depending on regional and cultural factors. In the United Kingdom, Agbonmwandolor et al. (2024) identified that migrant healthcare workers often faced unique stressors, including the fear of spreading the virus to their families and communities. These workers used a range of coping mechanisms, such as social support from fellow migrants, spirituality, and connection to their home countries. In contrast, healthcare workers in the Middle East, as demonstrated by Baczewska et al. (2024), often relied on traditional coping mechanisms, such as prayer and social support from family members, to manage stress during the pandemic. In some regions, HCWs turned to digital tools for support. A study by Htay et al. (2021) conducted across several countries, including Myanmar, Bangladesh, and India, found that digital support networks and online counselling platforms provided essential outlets for HCWs to express their concerns and receive mental health support. These platforms became a lifeline for workers who were unable to access face-to-face therapy due to physical distancing measures or institutional limitations. In terms of coping strategies, HCWs often turned to social support and prayer to manage the stress they experienced. Razu et al. (2021) highlighted that many workers in Bangladesh sought social support alongside prayer and meditation to help them cope. In India, Ali and Kumar (2023) noted that problem-focused coping strategies were more frequently used than emotional or meaning-focused strategies, as HCWs focused on practical ways to manage their workload and stress. In Ghana, Gyamerah et al. (2025) found that spiritual practices and community support were key coping mechanisms, reflecting cultural influences on how healthcare workers managed mental health.

Religion and spirituality played a significant role in the coping strategies of healthcare workers, especially in cultures where religious practices are deeply

integrated into daily life. In Saudi Arabia, Bakhsh et al. (2023) observed that many healthcare workers turned to prayer, religious texts, and community worship to manage their emotional distress. Similarly, in India, Ghosh et al. (2022) reported that religious rituals and prayer were among the most commonly used coping strategies for dealing with anxiety and fear during the pandemic. These strategies offered HCWs a sense of solace and connection to a higher purpose, which was essential for maintaining mental resilience in the face of overwhelming adversity.

In low-resource settings, the ability of healthcare workers to access adequate PPE, healthcare training, and mental health resources was often limited, making social support networks even more critical. Ali and Kumar (2023) reported that HCWs in India, especially in rural hospitals, had limited access to proper training and psychological support. As a result, they leaned heavily on their families, peers, and community networks to manage the mental and emotional strain. This was reflected in the coping strategies adopted by HCWs in other countries with similar challenges, such as Bangladesh and Kenya, where peer support and family discussions were often relied upon to navigate the emotional impact of the pandemic (Rony et al., 2023).

Extended work hours, lack of adequate rest, and excessive physical demands from PPE use were prevalent challenges for healthcare workers. Htay et al. (2021) noted that long shifts in high-risk environments led to physical fatigue and mental exhaustion. Many HCWs struggled with dehydration, headaches, and skin irritation due to prolonged PPE usage, compounding the emotional distress they were already experiencing. Coping with these physical and emotional burdens required both institutional support and individual strategies. Hamdan et al. (2023) emphasized the importance of taking breaks, engaging in physical relaxation exercises, and receiving proper hydration as critical self-care measures to help alleviate the physical toll.

Healthcare workers also had to contend with moral distress and ethical dilemmas. In the midst of the pandemic, many faced situations where they had to make difficult decisions regarding resource allocation, patient care, and prioritization. Mathias et al. (2023) highlighted that moral distress was especially pronounced among junior doctors who were often on the frontlines of patient care

and had to make quick decisions without adequate guidance. These decisions, coupled with the emotional burden of caring for critically ill patients, led many HCWs to experience intense feelings of guilt and helplessness. Coping strategies for dealing with moral distress included seeking ethical guidance, participating in team discussions, and reflecting on personal values and professional ethics (Podder et al., 2024).

As the pandemic evolved, healthcare workers' mental health continued to be impacted. Long-term psychological effects, such as burnout, PTSD, and anxiety, became more evident as the pandemic persisted. Baczewska et al. (2024) noted that while some HCWs initially displayed resilience, the ongoing nature of the crisis led to emotional exhaustion and a sense of hopelessness. Mental health resources, including counseling and peer support, became even more critical as the pandemic entered its later stages. Similarly, Mokogwu (2022) found that quarantined healthcare workers, who had been exposed to confirmed COVID-19 cases, experienced heightened levels of anxiety, depression, and PTSD, requiring ongoing psychological intervention.

The COVID-19 pandemic presented unprecedented challenges for healthcare workers across the globe. From physical and emotional exhaustion to moral distress and societal stigma, HCWs faced numerous stressors that affected their mental health and well-being. The coping strategies employed by healthcare workers varied widely depending on the region, the available support systems, and individual circumstances. While problem-focused and emotion-focused coping mechanisms were frequently used, the role of organizational support, peer networks, and religious or spiritual practices was equally significant in helping healthcare workers manage the stress induced by the pandemic. As the pandemic continues to evolve, healthcare systems must prioritize the mental health and well-being of their workforce to ensure long-term resilience and preparedness for future public health crises.

2.6. Well-being of the healthcare workers

The well-being of healthcare workers during the COVID-19 pandemic has been extensively studied across various contexts and countries, with significant

contributions from scholars such as *Leung et al. (2024)*, *Kaczmarski et al. (2024)*, *Molina et al. (2024)*, *Ruini et al. (2025)*, *Riedel et al. (2022)*, *Zhu et al. (2023)*, *Moore et al. (2021)*, *Martsenkovskiy et al. (2024)*, *Kooktapeh et al. (2023)*, *Mushtaq et al. (2022)*, *Bucca et al. (2022)*, *Zhou et al. (2022)*, *Alharthi et al. (2022)*, *Denning et al. (2021)*, *Munn et al. (2021)*, *Aditya et al. (2022)*, *Abo-Ali et al. (2021)*, *Murthy (2022)*, *Sigurdsson (2021)*, *Maganur et al. (2020)*, *Suryavanshi et al. (2020)*, *Søvold et al. (2021)*, *De Kock et al. (2021)*, *Wu et al. (2020)*, *Philip and Cherian (2020)*, *Naqvi et al. (2021)*, *Schneider et al. (2021)*, *Wasim (2020)*, *Ceri and Cicek (2021)*, *Li et al. (2022)*, and *Giorgi et al. (2020)*.

The COVID-19 pandemic has posed unprecedented psychological challenges for healthcare workers worldwide, exposing them to prolonged stress, burnout, anxiety, and depression. As frontline responders, healthcare workers have faced overwhelming workloads, fears of infection, and resource shortages, all of which have significantly impacted their mental health and overall well-being. Understanding the multifaceted factors influencing healthcare workers' psychological resilience and distress is critical to developing effective interventions that sustain workforce health and healthcare delivery during ongoing and future health crises.

Leung et al. (2024) investigated the psychological well-being of healthcare workers in a mental health institution during the COVID-19 pandemic. Their study found that healthcare workers experienced significant psychosocial challenges, including elevated levels of anxiety and stress, which were influenced by both personal and organizational factors. The authors highlighted that adaptive coping strategies and strong organizational support played a crucial role in buffering these negative effects. The findings underscore the importance of fostering supportive work environments and promoting effective coping mechanisms to maintain the psychological health of healthcare professionals amid pandemic-related stressors.

Kaczmarski et al. (2024) conducted a comprehensive literature review examining organizational resilience and its impact on healthcare workers during the COVID-19 pandemic. The study identifies that organizational resilience characterized by adaptive capacity, crisis management, and strong leadership is

critical in mitigating the adverse psychological effects on healthcare workers facing pandemic-related stress. Key strategies enhancing resilience include targeted staff training, effective communication protocols, mental health support programs, and resource allocation. These measures collectively foster a supportive work environment that strengthens healthcare workers' ability to cope with prolonged stress and uncertainty. The authors emphasize that healthcare organizations must prioritize resilience-building initiatives to safeguard the mental well-being of their workforce and ensure sustained healthcare delivery during crises.

Molina et al. (2024) investigated the impact of the first wave of COVID-19 on the mental health of healthcare workers in a front-line Spanish tertiary hospital. The study revealed that healthcare workers experienced significant psychological distress, including heightened levels of anxiety, depression, and burnout, particularly among those directly involved in COVID-19 patient care. Factors such as workload intensity, fear of infection, and insufficient protective equipment exacerbated mental health challenges. Importantly, the research underscored the necessity for timely psychological support, adequate resource provision, and effective communication to mitigate adverse outcomes. The authors concluded that lessons learned from this initial phase must inform ongoing organizational policies to better protect healthcare workers' mental well-being in future health crises. Ruini et al. (2025) examined the relationships between positive mental health, depression, and burnout among healthcare workers during the second wave of the COVID-19 pandemic. The study found that healthcare workers with higher levels of positive mental health reported significantly lower symptoms of depression, anxiety, and burnout. Conversely, those experiencing burnout and depressive symptoms had diminished mental well-being. These findings suggest that fostering positive mental health is crucial in protecting healthcare workers from psychological distress during prolonged health crises. The authors advocate for interventions that enhance well-being and resilience as a means to mitigate the mental health challenges faced by healthcare professionals in pandemic settings

Riedel et al. (2022) conducted a systematic review exploring the psychological well-being of healthcare workers during the COVID-19 pandemic.

The review revealed that healthcare workers experienced elevated levels of anxiety, depression, and burnout, primarily driven by factors such as fear of infection, excessive workload, and insufficient access to personal protective equipment. These stressors significantly compromised their mental health, highlighting the urgent need for targeted psychological support and organizational interventions. The authors emphasized that comprehensive mental health programs and adequate resource allocation are essential to mitigate the psychological impact on healthcare workers and sustain their well-being during ongoing and future health crises

This qualitative study revealed that healthcare workers experienced overwhelming negative emotions and trauma related to their work during the COVID-19 pandemic, compounded by inadequate support systems. The findings emphasize the critical need for organizational interventions to effectively address the mental health challenges faced by healthcare professionals in such crisis situations, highlighting the importance of strengthening support structures to promote well-being (Zhu et al., 2023).

(Moore et al., 2021) conducted a scoping review to examine how nurses collaborate during the transition of older adults between hospital and community care settings. Their findings revealed that effective collaboration is essential to ensure continuity of care, reduce readmissions, and enhance patient outcomes. However, the review identified challenges such as communication gaps, role ambiguity, and inconsistent care coordination that hinder collaborative efforts. The authors emphasize the need for clear communication channels, defined roles, and integrated care pathways to strengthen nursing collaboration and improve transitions for older adults.

Kooktapeh et al. (2023) conducted a systematic review and meta-analysis to examine the impact of the COVID-19 pandemic on job burnout among nurses. Following PRISMA 2020 guidelines, the study analysed data from PubMed, ScienceDirect, and Google Scholar using the Maslach Burnout Inventory to assess emotional exhaustion, personal failure, and depersonalization. The meta-analysis revealed that approximately 2.75% of nurses experienced job burnout during the pandemic, with rates ranging from 1.87% to 7.75% within a 95% confidence

interval. These findings highlight the urgent need for interventions addressing burnout to improve nurses' well-being and healthcare quality. The authors recommend that future research focus on individual, organizational, and contextual factors influencing burnout and the development of effective strategies to mitigate it during pandemics and other high-stress healthcare situations.

Covid-19 had put at risk the well-being of healthcare workers (HCWs); they have prolonged contact with patients, and long working hours have adversely affected their physical well-being, the frontline healthcare workers who are posted in pulmonary and infectious disease departments are having a higher chance of infection from the virus. Working with inadequate protective equipment (PPE), long exposure to patients without PPE, and insufficient hygienic hand washing practices were also linked to an increased risk of infection. Indeed, the use of PPE and N95 had resulted in device-related pressure injuries, with HCWs experiencing pain and swelling in the face area. In addition, anxiety and depression were more prevalent among direct care HCWs and nurses than among administrative staff and the general public. This has an impact on both the physical and mental well-being of healthcare workers. The fear of contracting the virus had led to obsessive compulsive disorder, and stress and insomnia were more common among HCWs than among university, college, and general population students. Post-traumatic stress disorder was common among quarantined doctors, and occupational burnout is a threat to the proper functioning of HCWs (Mushtaq et al., 2022). In addition, Intensive care unit staff members who participated in the Covid-19 survey reported mild cases of anxiety, depression, and posttraumatic stress disorder. Risks to the healthcare workers' well-being were present, and staff members showed signs of poor psychological well-being (Bucca et al., 2022). Zhou et al. (2022) had conducted a cross-sectional study of healthcare workers in China and discovered that healthcare workers, particularly female doctors, reported a higher number of psychological symptoms and burnout, and that job stressors as a result of the pandemic had positively contributed to burnout, anxiety, and depression. It has also been found that social support among healthcare workers, as well as organisation support provided by the healthcare setting, have significantly reduced job stress and depression among healthcare

workers. The well-being of healthcare workers is properly monitored and supervised by strengthening the support system. Similarly, Alharthi et al. (2022) during the COVID-19 pandemic, a cross-sectional study was conducted among Saudi healthcare workers, and data was collected through online (email and WhatsApp) convenient sampling. The findings revealed that healthcare workers under the age of 30 had a higher level of depression; healthcare workers whose family or close friends were infected with COVID-19 had a higher number of depressions. When comparing the northern and middle regions, healthcare workers in the northern region scored higher on anxiety, while healthcare workers in the middle region scored higher on depression. Further, cross-sectional research was done using healthcare workers in Singapore, Poland, and the UK and were asked to complete a self-administered questionnaire to assess their psychological health and burnout. Healthcare workers faced many difficulties as a result of the unprecedented Covid-19, including widespread depression, burnout, and anxiety that had an impact on their mental health (Denning et al., 2021). Cross-sectional study of healthcare workers found that factors like low resiliency, a lack of organisational support, mental and emotional problems, increased workload, and a lack of personal protective equipment, insufficient staff to care for patients, and a low level of psychological safety significantly increased the likelihood of poor well-being among the workers (Munn et al., 2021). A cross-sectional study determined that the main causes of stress for Indonesian healthcare workers during the pandemic were having personal work demands, working long hours, having limited facilities and resources, and being in a high-risk area for disease transmission (Aditya et al., 2022). Furthermore, a cross-sectional study was conducted among various healthcare workers to assess mental well-being using the WHO five well-being index, and it was discovered that younger and older ages, irregular exercise, nursing professions, historical background of anxiety and/or depression, fewer years of experience, and longer daily working hours were the primary determinants of negative Mental Well-being among healthcare workers (Abo-Ali et al., 2021).

The psychological and mental challenges faced by healthcare workers existed prior to COVID-19, and they had an impact on their well-being: insomnia, post-

traumatic stress disorder, anxiety, depression, and burnout. The COVID-19 worsened existing challenges and had a negative impact on the well-being of healthcare workers. There is a need for administrative work to be reduced for healthcare workers, and increased access to mental health care for healthcare workers is critical for their positive functioning and well-being. Murthy, (2022) emphasised the importance of creating a culture that supports the well-being of healthcare workers and breaking the traditional silence of seeing the suffering of healthcare workers by starting it in the training institution and planting the seeds of taking proper care of the workers' well-being and the needs of the institutions that support their workers' mental and well-being health rather than simply ignoring when reported incidents of seeking mental health care. The well-being of doctors and other healthcare workers is critical; stress and overload in healthcare have a negative impact on patient care. According to 2017 data, the General Practitioners (GPs) healthcare workers had the highest level of stress and were most likely to quit direct patient care in the next five years. COVID-19 added to the burden and stress for healthcare workers by increasing the number of tasks and workloads. As a result of the burden, there has been a significant increase in the number of burnouts, anxiety, and depression. Clinical roles have a higher rate of burnout than non-clinical roles. In 2019, the General Medical Council in the United Kingdom stated that in order to ensure well-being and motivation at work, as well as to reduce workplace stress, three needs must be met: first, autonomy and control over one's own work; second, belonging, which refers to being connected; care and concern for others in the workplace; and feeling valued, respected, and supported; and lastly, competence to provide the most effective and high-quality care and a desirable result (Sigurdsson, 2021). Further, the spread of Covid-19 put a lot of strain on healthcare workers and had a negative impact on their well-being. According to the review report, there are a number of healthcare workers who become dependent on alcohol, and this is positively associated with quarantine. Psychological distress was common among healthcare workers, resulting in insomnia, anxiety, and mental depression. Female healthcare workers reported a higher number of psychological distress than male healthcare workers (Maganur et al., 2020). When compared to married healthcare workers, the proportion of single healthcare workers with depressive, anxiety, and low quality of

life symptoms was higher. The risk of depression and anxiety increased in the presence of work stress, the mental health of healthcare workers had an impact on their well-being, the quality of life among healthcare workers was poor, and symptoms of anxiety and depression were highly prevalent (Suryavanshi et al., 2020).

The covid-19 pandemic had an unprecedented impact on most of the world's healthcare systems, as well as the mental and physical well-being of healthcare workers. Heavy workloads, long working hours, a lack of physical and psychological safety, a high rate of work rate, and a lack of social support are all factors that contribute to the well-being and mental health of health-care workers. Burnout, depression, anxiety disorder, and sleeping disorders are all symptoms of psychological distress among healthcare workers. Workplace stress has an impact on healthcare professionals' professionalism, quality of care, efficiency, and quality of life. Burnout among healthcare workers has been found to have a negative impact on health care delivery, with burnout workers having a higher (double) chance of making a medical error than workers who are not burnt out. Absenteeism, low commitment, an increase in worker turnover, and patient dissatisfaction are all consequences of burnout. It is critical for healthcare workers to have good mental health and well-being in order to provide high-quality care to their patients (Søvold et al., 2021). During the Covid-19 outbreak, healthcare workers were burdened with a great deal of responsibility and faced numerous psychological challenges, which resulted in poor patient care. The study found that nurses have a higher risk of developing psychological issues, and that the well-being of nurses is overlooked, despite the nursing department's significant contribution during the Covid-19 pandemic. During the pandemic, there was no psychological or well-being intervention for nurses; intervention is required to improve the well-being and psychological health of nurses (De Kock et al., 2021). Despite the situation, healthcare workers are struggling to meet patient demand, and caring for patients puts them at risk of infection and puts their emotional well-being in jeopardy. In times of pandemic, workers and their loved one's experience fear, anxiety, and worry while caring for their patients. Working in a new environment, work culture, or schedule

led to inadaptability and a loss of interest, as well as self-doubt and feelings of incompetence. When health-care workers are unable to provide adequate emotional support, their abilities deteriorate, they contribute less to the health-care workforce, and they are unable to work to their full potential (Wu et al., 2020). Accordingly, secondary data was gathered to gain a better understanding of the well-being of healthcare workers during the pandemic, as they are a particularly vulnerable group in terms of physical, mental, and emotional harm. There is a link between age and psychological distress; middle-aged employees are more likely to experience mental health issues, and younger employees are more likely to develop depressive symptoms, while older employees experience fewer psychological setbacks during the pandemic. Psychiatry morbidity is higher among female health workers than male health workers, and unmarried workers have a higher risk of depressive symptoms than married workers, highlighting the importance of a spouse in providing social support during times of anxiety and depressive symptoms. Low educational attainment leads to more psychological effects, and frontline workers during the pandemic are more vulnerable to mental health issues (Philip & Cherian, 2020). Further, a mixed method study was conducted to examine the psychological well-being of healthcare workers in a tertiary hospital in South Wales, and it was revealed that pandemic management training significantly improved the well-being of healthcare workers when compared to pre-training, with a median score of 18.3 jumping to 23.2 on post-training. Seeking support from peers and family members had improved the well-being of the healthcare workers (Naqvi et al., 2021). Furthermore, the unprecedented event has put pressure on healthcare workers all over the world, and this pressure has had an impact on their working conditions, safety, and psychological well-being. Burnout, anxiety, and depression all had a negative impact on the psychological well-being of healthcare workers. According to a multinational cross-sectional study, burnout is more likely in redeployed staff, but it is less likely in non-clinical healthcare workers than in clinical healthcare workers. Burnout symptoms are more likely in healthcare workers who suffer from anxiety or depression (Denning et al., 2021). Additionally, having a history of mental disorders was significant predictors of depression and anxiety symptomatology, insomnia, or panic attacks during pandemic outbreaks, as per research based on secondary data.

During pandemics, anxiety and depression moderate the association between sleep quality, quality of life, and perceived support. Psychological distress and the risk of disease-related burnout were linked to social isolation, whether self-imposed or imposed by others out of stigma and fear of infection, as well as poor support from family and friends. Better sleep quality and lower anxiety and stress levels were linked to social support (Schneider et al., 2021).

Thus, the mental well-being of medical health workers has been studied, and it has been revealed that anxiety, depression, stress, and insomnia are common. In comparison to post-graduate healthcare workers and paramedics, insomnia was more prevalent among workers with a low level of education. Nurses and healthcare workers in isolation/intensive care units were more prone to insomnia than doctors. Healthcare workers with insomnia had symptoms of depression, and mild to severe anxiety was found in those with insomnia. Workers in the Corona isolation unit have significantly more insomnia than those in other departments (Wasim, 2020). Consequently, healthcare workers' psychological well-being, depression, and stress are investigated. The findings reveal that while psychological well-being scores do not differ by gender, there is a significant increase in the rate of stress and depression among female healthcare workers. The marital status of healthcare workers has an impact on their psychological well-being; unmarried healthcare workers have significantly higher depression and stress scores than married healthcare workers. Doctors reported higher levels of stress and psychological well-being than other healthcare professionals, while nurses reported lower levels of psychological well-being and stress. When compared to healthcare workers who do not work with covid-19 patients, healthcare workers who work with covid-19 patients have higher levels of depression and stress. Healthcare workers who are required to spend more than a week away from their families report higher levels of stress and depression in comparison to those who do not have to do so (Ceri & Cicek, 2021).

HCWs have been at the forefront of the pandemic response, often working under extreme pressure. A systematic review by Adanaqué-Bravo et al. (2023) revealed that factors such as being female, younger age, single status, and having pre-existing health conditions increased the risk of psychological distress among

HCWs. Occupational stressors, including extended work hours, inadequate sleep, and fear of infecting loved ones, further exacerbated mental health issues. Moreover, a meta-analysis by Li et al. (2022) found that approximately 21.5% of HCWs experienced symptoms of post-traumatic stress disorder (PTSD) during the pandemic. Frontline workers, especially nurses, were particularly susceptible due to prolonged exposure to high-stress environments and witnessing patient suffering and death.

Burnout, characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment, became increasingly prevalent among HCWs. Ghasemi Kooktapeh et al. (2023) conducted a systematic review and meta-analysis, reporting that 2.75% of nurses experienced job burnout during the pandemic. Factors contributing to burnout included overwhelming workloads, lack of resources, and insufficient organizational support.

The emotional toll was further compounded by moral distress, where HCWs faced ethical dilemmas, such as allocating limited resources and making end-of-life decisions. Such situations often led to feelings of helplessness and guilt, intensifying emotional exhaustion. Recognizing the mental health crisis among HCWs, various interventions were implemented to provide support. A systematic review by De Kock et al. (2021) categorized these interventions into four main areas: informational support (e.g., training and guidelines), instrumental support (e.g., provision of PPE), organizational support (e.g., workload management), and emotional and psychological support (e.g., counseling services). These interventions aimed to address the immediate needs of HCWs and build resilience against ongoing stressors. However, the effectiveness of these measures varied, emphasizing the need for tailored approaches that consider individual and organizational contexts.

The impact of the pandemic on HCWs' well-being was not uniform across countries. A study by Giorgi et al. (2020) highlighted that cultural factors, healthcare infrastructure, and government responses influenced the psychological outcomes of HCWs. For instance, HCWs in countries with robust support systems reported lower levels of distress compared to those in regions with limited resources. Furthermore, stigmatization of HCWs, especially in the early stages of the pandemic, added to

their psychological burden. Instances of discrimination and social ostracization were reported, leading to feelings of isolation and decreased morale.

Healthcare workers have faced immense psychological, physical, and emotional challenges during the COVID-19 pandemic. Factors such as heavy workloads, fear of infection, inadequate resources, and insufficient organizational support contributed to anxiety, depression, burnout, and trauma. Building resilience through effective coping strategies, organizational support, and mental health interventions is essential to protect and sustain the well-being of healthcare workers in this and future crises. Creating supportive environments, ensuring clear communication, and providing access to psychological care can help healthcare professionals continue delivering quality care while maintaining their own health.

2.7. Research Gaps

In reviewing the literature several key gaps have emerged. These gaps highlight areas where further research is needed to deepen understanding and improve future interventions.

Knowledge Gap:

There is limited understanding of the long-term mental and physical health outcomes of HCWs post-pandemic, particularly regarding burnout, anxiety, PTSD, and their persistence over time. The interaction between occupational safety measures and HCWs' resilience in managing stress is also underexplored.

Empirical Gap:

While the immediate psychological impact of COVID-19 on HCWs has been studied, there is a lack of empirical research on the effectiveness of specific mental health interventions, like peer support programs, and their impact across different healthcare systems, particularly in low-resource settings.

Methodological Gap:

Most studies use cross-sectional designs, limiting the ability to assess the evolving mental health of HCWs over time. Longitudinal studies and the use of objective physiological markers (e.g., stress levels) alongside self-reported data could provide more comprehensive insights.

Practical Knowledge Gap:

There is insufficient research on the real-world effectiveness of interventions like PPE training, mental health support programs, and resilience training for HCWs, particularly across different cultural and regional contexts. Further exploration is needed into how these interventions can be tailored for specific healthcare roles and settings.

Theoretical Gap:

Existing theories fail to fully explain the complex interactions between physical health risks, emotional exhaustion, and organizational challenges that affect HCWs' well-being during pandemics. A comprehensive theoretical model integrating psychological resilience with occupational health and safety frameworks is needed.

Population Gap:

Many studies focus primarily on doctors and nurses, with administrative staff, paramedics, and allied health professionals being largely overlooked. More research is required on the diverse healthcare workforce, especially in low- and middle-income countries where HCWs face unique challenges.

Data Gap:

There is a lack of data comparing the mental and physical health outcomes of HCWs working in public vs. private healthcare settings. More global data is needed

to assess the pandemic's psychological impact across different geographical regions, particularly in under-researched countries.

The next chapter will present the *Methodology* of this study, outlining the research design, data collection, and analysis methods used to further investigate the experiences of HCWs regarding their safety, social support & coping and well-being during the pandemic.

METHODOLOGY

CHAPTER III

METHODOLOGY

This chapter outlines the approach and procedures for the research. It begins with the study field profile, providing context and scope, followed by the research design, which details the overall plan. It covers sampling design and techniques, ensuring a representative sample, and explains the sources and tools for data collection. Once the data is gathered, it is processed and analysed with clear scoring and operational definitions to ensure consistency. The reliability test ensures the accuracy of the results, while the limitations of the study acknowledge any constraints. Finally, ethical considerations are discussed to ensure the study respects participant rights and follows ethical guidelines. This methodology provides a structured and reliable framework for conducting the research.

3.1. Profile of the study field

Aizawl District:

Aizawl, the capital city of Mizoram, is situated in the central part of the state at an elevation of approximately 1,132 meters above sea level. The district encompasses an area of 3,576 km² and had a population of 400,309 as per the 2011 Census. It boasts a high literacy rate of 97.89% and a favourable sex ratio of 1,009 females per 1,000 males. Aizawl's healthcare system is primarily supported by important institutions like Zoram Medical College & Hospital and Civil Hospital Aizawl. Additionally, there is the State Cancer Hospital and Kulikawn Hospital, which specializes in mental health. The district also has a network of health centers, including Primary Health Centers (PHCs) and Community Health Centers (CHCs), both in rural and urban areas, offering vital services like maternal and childcare, emergency treatment, immunization, and general health care. In addition to public facilities, several private hospitals, mainly located in the city, have played a significant role in promoting health and preventing disease. These include Aizawl Hospital, Alpha Hospital, BN Hospital, Care Hospital, City Hospital, Ebenezer Medical Centre, Trinity Hospital, and Greenwood Hospital. The district is also home to two church-run hospitals: Adventist Hospital and Synod Hospital. The district has

made significant progress in healthcare indicators such as reduced maternal and child mortality rates, improved immunization coverage, and a high literacy rate that positively impacts health awareness and hygiene practices.

Lunglei District:

Lunglei, located in the southern part of Mizoram, covers an area of 4,536 km² and had a population of 161,428 according to the 2011 Census. The district has a literacy rate of 88.86% and a sex ratio of 947 females per 1,000 males. Lunglei town, the district headquarters, sits at an elevation of 729 meters above sea level. The Lunglei District Hospital (Civil Hospital) is the primary medical facility, supported by PHCs and Sub-Centers that serve the rural population. In Lunglei town, private healthcare facilities such as Hope Hospital and Faith Hospital are available, alongside two church-operated hospitals: Christian Hospital Serkawn, which is managed by the Baptist Church of Mizoram, and John William Hospital, run by the Presbyterian Church. The district has made notable strides in healthcare access, focusing on maternal and child health, communicable disease prevention, and the promotion of public health initiatives. However, like Aizawl, healthcare access is an issue in remote villages due to the difficult terrain and limited infrastructure. The district has faced challenges with staffing shortages in rural health centers, which can delay medical care. The National Health Mission (NHM) programs are actively implemented to address these gaps, focusing on health education, sanitation, and improved healthcare delivery systems in both urban and rural areas.

3.2. Research Design

This study utilized a mixed-methods approach, combining both qualitative and quantitative data collection techniques. The quantitative data was collected through a structured questionnaire, while the qualitative data was gathered through structured interviewed scheduled with healthcare workers, as well as those directly involved in the care of COVID-19 patients.

The study population consists of healthcare workers employed in both government and private hospitals during the COVID-19 pandemic. The unit of the study includes individual healthcare workers from the Aizawl and Lunglei districts.

3.3. Sampling design

A purposive sampling technique was used to select healthcare workers (HCWs) from Aizawl and Lunglei districts in Mizoram. The sample was drawn from both government and private healthcare institutions, focusing on HCWs who were working during the pandemic and actively involved in healthcare delivery during the COVID-19 pandemic, irrespective of their profession or specialization.

3.4. Sampling Frame

In Aizawl, as per the data provided by the Health & Family Welfare Govt. of Mizoram, a total of 652 healthcare workers are employed in government healthcare facilities, including Civil Hospital, Zoram Medical College (ZMC), Kulikawn Hospital, and State Cancer Hospital (HFW, GOM). From this total, 50% (335 HCWs) were selected from the government sector. Due to the unavailability of a comprehensive list of healthcare workers in the private sector, 100 questionnaires were distributed to the selected private hospitals such as Ebenezer hospital, Trinity hospital, Aizawl hospital, Greenwood hospital and City hospital. A total of 450 questionnaires were distributed to the HCWs in Aizawl. However, some respondents did not return the questionnaires, and others provided incomplete responses, leading to a reduction in the sample. Of the 450 questionnaires distributed, 191 were returned, and after data classification, 170 valid responses were included in the final study for Aizawl district.

In Lunglei district, approximately 251 healthcare workers are employed by the government. Of these, 50% were selected for the sample, which equates to 125 healthcare workers from the government sector. Like Aizawl District, the private healthcare institutions in Lunglei did not provide a list of their staff, so the questionnaire was distributed purposively to HCWs in these institutions, who were considered to provide relevant insights. A total of 50 questionnaires were distributed to healthcare workers in private hospitals, including Hope Hospital, Faith Hospital, John Williams Hospital, and Christian Hospital Serkawn. Additionally, 150 questionnaires were distributed to healthcare workers in government hospitals. In total, 200 questionnaires were distributed in Lunglei. Of these, 158 were returned,

and after removing incomplete responses, 82 valid responses were included in the study for Lunglei district. Therefore, a total of 252 respondents were included in the study.

3.5. Source of data collection

The study utilized both primary and secondary data. Primary data were collected through a self-structured questionnaire and key informant interviews, allowing for direct insights from participants. Secondary data were gathered from a range of credible sources, including scholarly journals, eBooks, book chapters, and official reports, providing a robust foundation of existing research and evidence.

3.6. Tool of data collection

The quantitative data for this study were collected using an offline, in-person approach. The researcher personally visited the healthcare facilities in both districts and distributed the questionnaires to willing participants. HCWs who agreed to participate were provided with the questionnaires, and they were instructed on how to complete them. The qualitative data was collected using structured interview scheduled. The KII was held with the doctor, nurses (Health & Wellness Officer) and Laboratory Technicians from the two districts.

3.7. Ethical Consideration

Prior informed consent was obtained from all participants, and the purpose of the study, along with the potential uses of their responses, was explained in detail. A consent form was incorporated into the questionnaire, ensuring transparency and the voluntary nature of participation. Confidentiality was maintained, and respondents were assured that their participation was anonymous, with all data being used strictly for academic purposes.

3.8. Data processing and analysis

The quantitative data were analysed using Statistical Package for Social Sciences (SPSS) V27, employing methods such as simple frequency and percentage ratios, mean and standard deviation scores, Karl Pearson's Product Moment Correlation Coefficients and t-test are generated and interpret the data. Conversely, the qualitative data (KII) collected through semi-structured interview schedules was manually analysed using thematic analysis.

3.9. Scoring of data

Each aspect of the study has its own distinct scoring and calculation process. Firstly, in the sections on the *availability of essential safety measures, COVID-19 knowledge, self-reported health issues, and coping mechanisms*, respondents answered with a “Yes” or “No” response. For assessing social support, a 3-point scale was used, with the options “Always”, “Sometimes”, and “Never”.

Secondly, to assess the well-being of the respondents, a 5-point Likert scale was used to score the responses, which helped ensure that the data could be analysed effectively. The choice of a 5-point scale allowed for more detailed responses, giving a better picture of the participants’ views and experiences. For the well-being assessments, where respondents rated their feelings on a scale from “None of the time” to “All the time”. For other aspects of well-being, such as social and psychological health, responses were measured using a scale from “Strongly Disagree” to “Strongly Agree”.

3.10. Reliability test

The reliability of the scales used in this study was assessed using *Cronbach’s Alpha* for each measurement instrument. Cronbach’s Alpha is a commonly used statistic to measure the internal consistency of a scale, indicating how well the items on a test measure the same concept. A higher value of Cronbach’s Alpha suggests better reliability. The following table presents the *Cronbach’s Alpha* values and the number of items for each scale:

Table No. 1. Reliability Test

Scale	Cronbach’s Alpha	Number of Items
Psychological Well-being	.81	18
Social Well-being Scale	.83	33
Subjective Well-Being Scale	.82	23
Mental Well-being	.79	14

Source: Computed

Table no. 1 presents the reliability coefficients and the number of items for each scale used in the study. To ensure the accuracy and consistency of the measurement tools used in this study, a reliability test was conducted on all scales.

Cronbach's Alpha was employed as the indicator of internal consistency. The results demonstrate strong reliability across all scales, with values ranging from 0.79 to 0.83, which exceeds the commonly accepted threshold of 0.70 for satisfactory reliability. Values above 0.80 indicate very good internal consistency, confirming that the items within each scale effectively measure their respective constructs.

The standardized scales did not align with the respondents' perceptions and the specific context of the study. Therefore, a self-constructed scale was developed based on these standardized frameworks. All the phrases were coded positively, and the scale was designed using a 5-point Likert scale. Since the standardized scales were unsuitable for data collection, the newly constructed scale was tested for reliability using Cronbach's Alpha.

The Psychological Well-being Scale, consisting of 18 items and yielding a Cronbach's Alpha of 0.81, demonstrates good internal consistency, indicating that the items are well correlated and effectively measure psychological well-being. Similarly, the Social Well-being Scale, with 33 items and an alpha of 0.83, exhibits very good reliability, confirming that it consistently captures various dimensions of social well-being. The Subjective Well-Being Scale, comprising 23 items and achieving an alpha of 0.82, also reflects good reliability, signifying that it reliably measures subjective well-being with a high degree of internal consistency. In comparison, the Mental Well-being Scale, with 14 items and a Cronbach's Alpha of 0.79, shows acceptable to good reliability, indicating that it provides a reasonably consistent assessment of mental well-being, though slightly lower than the other scales.

3.11. Operational definition

- 1. Occupational Health:** In this study the occupational health of the HCWs will be assessed using four dimensions such as physical health, mental health, workplace issues and the social & emotional health issues.
- 2. Well-being:** In this study well-being refers to the psychological, mental, subjective and social well-being of the HCWs

3. **Social Support:** In this study social support will look at the emotional, informational, instrumental and appraisal support received by the HCWs during the COVID-19 pandemic.
4. **Healthcare Workers:** In this study healthcare workers will includes those who are working during the pandemic and directly work in the care and treatment of COVID-19 patient, employed in both private and public (Govt.) hospitals.

3.12. Limitation of the study

The study was limited to two districts of Mizoram, Aizawl and Lunglei. As a result, the findings may vary if other districts, such as Champhai, Kolasib, Siaha, Serchhip, Saitual, Lawngtlai, Hnahthial, Khawzawl, and Mamit, had been included in the study. Out of the 450 questionnaires distributed, only 252 were included in the study due to incomplete responses and loss of some questionnaires. As a result, the findings cannot be generalized, and they may not fully represent the entire population of Mizoram. Additionally, the length of the questionnaire posed challenges for respondents, leading to incomplete responses and a loss of some questionnaires, as the survey was not conducted through interviews. Conducting Key Informant Interviews (KIIs) with healthcare workers was also challenging due to their demanding schedules, with some interviews being conducted via telephone or WhatsApp messages.

The next chapter will present the *Results, Interpretation, & Discussion* of the findings from this study. This chapter will delve into the key areas of the research, including:

1. Demographic Profile of Healthcare workers
2. Safety of Healthcare workers During the COVID-19 Pandemic
3. Occupational Health Issues & Coping Strategies of Healthcare workers
4. Social Support of Healthcare workers
5. Well-Being of Healthcare workers and hypothesis testing

In the next chapter, the results will be presented first, followed by the interpretation of these findings, and then a detailed discussion linking these results to existing literature.

RESULTS & DISCUSSIONS

DEMOGRAPHIC PROFILE OF HEALTHCARE WORKERS

CHAPTER IV

DEMOGRAPHIC COMPOSITION

4.1. Demographic Profile of Healthcare workers

Demographics refer to the statistical characteristics of a population, which help to describe and categorize groups of people based on various factors. These include traits such as age, gender, ethnicity, education level, income, occupation, marital status, and location. In this study, the demographic characteristics include gender, age, marital status, education, employment status, department, years of experience, primary role, work location, and average working hours of the participants. Understanding these characteristics is important for analysing the structure and diversity of the group being studied. By looking at these factors, we can identify trends, compare differences, and gain a better understanding of how they affect behaviours, opinions, and outcomes. Demographic data is essential to ensure that the research findings are accurate, meaningful, and applicable to the wider population.

This chapter focuses on the demographic and professional characteristics of the respondents, which are vital for understanding the diversity and dynamics of the healthcare workforce. The *demographic characteristics* include gender, age, marital status, and educational background, which help in understanding the structure of the study's population. In terms of *professional characteristics*, data on employment status, department, years of experience, and working hours offer insights into the respondents' work lives.

Table No. 2. Personal characteristics of the Respondents

Sl. No.	Particulars		Frequency (N=252)	Percentage (%)
1.	Gender	Female	193	76.6
		Male	59	23.4
2.	Age	20-29 Years	137	54.4
		30-39 Years	85	33.7
		40-49 Years	25	9.9
		50-59 Years	5	2.0
3.	Marital Status	Single	166	65.9
		Married	86	34.1
4.	Educational Qualification	Medical Doctor	47	18.7
		Nursing Professionals	138	54.8
		Pharmacy Professionals	22	8.7
		Laboratory & Diagnostic Professionals	45	17.9

Source: Computed

The table No. 2 represents the personal characteristics of the respondents. The personal characteristics of the respondents is classified into three categories such as gender, age and marital status.

Gender refers to the social, cultural, and behavioural characteristics and roles that societies attribute to individuals based on their biological sex. In this study, gender is conceptualised as male and female. These categories help to examine how gender influence the behaviours, roles, or outcomes of an individual in the context of the research. Inclusion of gender in the demographic variable of the study is essential, as it allows for the examination of gender differences in perceptions, experiences, roles, and challenges faced by the healthcare workers. Therefore, gender has influenced workplace dynamics, communication styles, task assignments, and even coping mechanisms under pressure.

The data shows that nearly three-fourths (76.6%) of the respondents were female, while less than one-fourth (23.4%) of the respondents were male. The distribution indicates a gender imbalance, which may be attributed to the random sampling method applied among healthcare workers across various healthcare settings.

Age is a crucial demographic factor in research, particularly in studies involving the workforce, as it influences levels of experience, physical stamina, adaptability to new practices, and job performance. The age of the respondent is important for better understanding of generational perspectives, career stage, and potential training or support needs. In healthcare settings, age may also be associated with exposure to different clinical environments, decision-making skills, and resilience under pressure. Hence, it is essential to include age as one of a demographic variable to contextualize findings and draw meaningful comparisons across respondents age groups.

The age of the respondents was categorized into four age groups: 20-29 years, 30-39 years, 40-49 years, and 50-59 years. A maximum of more than half (54.4%) of the respondents were aged between 20-29 years, and one-third (33.7%) of the respondents were in 30-39 age group. While nearly One-tenth (9.9%) were between 40-49 years. The analysis of the table revealed the presence of a small proportion (2.0%) belonged to the 50-59 age category. The finding shows that of the healthcare workers who participated in the study were in the age range of early to middle adulthood (20-39 years). A smaller proportion represented those in later adulthood.

The marital status of the respondents was classified into single, married and divorced. The data shows that a maximum of nearly two-thirds (65.9%) of the respondents were unmarried, less than one-third (31.0%) were married, and a small portion (3.2%) of the respondents were divorced. The finding shows that the maximum numbers of the respondents were unmarried.

The educational qualification was included in the study to understand the professional background and training level of the respondents, as these factors influence the roles, responsibilities, and perspectives of the respondents within the healthcare system. The educational qualification of the respondents was categorized into five groups: Medical Doctors (MBBS, PG), Nursing Professionals (ANM, GNM, M.Sc. and B.Sc. nursing), Pharmacy Professionals (D. Pharm, B. Pharm, M. Pharm), Laboratory & Diagnostic Professionals (Microbiologist and Laboratory Technicians), and those with education above High School Leaving Certificates.

The data shows that a maximum of more than half of the total respondents (54.8%) belongs to the nursing professions. This is followed by nearly one-fifth (15.9%) of the respondents are laboratory professionals, and more than one-tenth (14.7%) of the respondents are medical doctors. Moreover, nearly one-tenth (8.7%) of the respondents are pharmacy professionals, and the remaining 6.0% of the respondents have an educational qualification above the High School Leaving Certificate (HSLC).

4.2. Professional characteristic of the respondents

The professional characteristics of the respondents are essential for gaining deeper insights into their work environments and personal experiences. Determining factors such as employment status, departmental affiliation, years of experience, primary role, work location, and average working hours enables understanding of their impact on job satisfaction, efficiency, and overall professional well-being.

Table No. 3. Professional characteristic of the respondents

Sl.No.	Particulars		Frequency (N=252)	Percentage (%)
1.	Employment Status	Permanent worker	140	55.6
		Contractual worker	112	44.4
2.	Department	General Medicine	103	40.9
		Surgical Department	37	14.7
		Maternal & Child Health	39	15.5
		Emergency Department	29	11.5
		Diagnostic & Laboratory Sciences	30	11.9
		Mental Health Department	8	3.2
		Cardiovascular & Pulmonary	6	2.4
3.	Years of Experience	Less than 2 years	14	5.6
		3-6 years	165	65.5
		7-10 years	40	15.9
		11-13 years	18	7.1
		Above 14 years	15	6.0
1.	Primary Role	Medical	187	74.2
		Para-Medical	65	25.8
2.	Work Location	Aizawl city	181	71.8
		Lunglei city	71	28.2
3.	Average Working	Less than 8 hours a day	117	46.4
		8-10 hours a day	117	46.4

	Hours	11-12 hours a day	13	5.2
		More than 12 hours a day	5	2.0

Source: Computed

Table No. 3 has presented professional information of the respondents. The professions consisted of employment status, department, years of experience, primary role, work location and average working hours of the respondents.

Employment Status

The employment status of the healthcare workers is important because it helps us understand the job security, benefits, and the nature of work that the healthcare workers are expected to do. Permanent employees might have more job stability and benefits, while contractual workers may face different challenges, such as less job security or fewer benefits in compared to permanent employee. Thus, it shows how these differences affect the satisfaction level, commitment level, and views on workplace policies and conditions of the employees.

The data indicates that out of the 252 respondents, the maximum of just over half (55.6%) of the total respondents are a permanent employee, while the remaining nearly two-fifths (44.4%) are contractual employees.

Department of the Respondents

Knowing the department of the respondents is essential to understand the clinical context in which respondents is exactly operated. Different departments were exposed to varying levels of workload, patient interaction, stress, and specialization.

The data reveals that two-fifths (40.9%) of the respondents work in General Medicine department, making it the largest group. About one-fifth (15.5%) of the respondents are employed in Maternal & Child Health department and more than one-tenth (14.7%) of the respondents are employed in surgical department. Approximately one-fifth (11.9%) of the respondents also work in diagnostic & laboratory sciences and in the emergency department (11.5%). Only a small fraction of 3.2% and 2.4% of the total respondents are employed in the mental health department and the cardiovascular & pulmonary department respectively.

Years of Experience

Experienced healthcare workers are able to adapt to challenges with high level of expertise, which in turn improves patient care efficiency and increases job satisfaction (Krijgsheld et al., 2022). It is assumed that they handle difficult cases more easily and provide better care to patients. Therefore, with the increase in the duration of experience helps the healthcare workers increase their satisfaction levels, which is good for the healthcare system. The data shows that a maximum of nearly two-thirds (65.5%) of the respondents have a working experience of 3-6 years, and more than one-tenth (15.9%) of the respondents have 7 to 10 years of experience, less than one-tenth (7.1%) of the respondents have 11 to 13 years of experience, and a small proportion of the healthcare workers have a working experience of above 14 years (6.0%) and less than 2 years (5.6). The result indicates that despite some of the respondents are still in the early phases of their careers, most of the respondents had a moderate level of experience.

Primary Role

Knowing the primary roles of medical and para-medical staff in healthcare is crucial as it helps define responsibilities, ensures proper care, and improves team coordination. Medical staff focus on diagnosing and treating patients, while para-medical staff assist with support roles like testing, therapy, and patient care.

The data shows that nearly three-fourth (74.2%) of the total respondents have a primary role in medical care, while little more than one-fifth (25.8%) work in para-medical roles. This indicates that majority of respondents are focused on direct patient care, with a smaller group of the respondents supporting in areas like testing, diagnosis and therapy.

Work Location

Work location of the respondents is important for assessing the regional distribution of the workforce and for identifying location-specific challenges or variations in healthcare delivery.

The data shows that a majority of nearly three-fourth (71.8%) of the respondents work in Aizawl city, while the remaining of more than one-fifth (28.2%) of the respondents are based in Lunglei city. This reveals an unequal distribution, with Aizawl city having a significantly larger number of healthcare workers as compared to that of Lunglei city.

Average Working Hours

Healthcare workers' typical workdays during the COVID-19 pandemic were limited to no more than eight hours, though it could be extended beyond that in the event of a staffing shortage (MoHFW, GOI, 2022). The average working hours have a significant impact on healthcare workers, longer hours lead to fatigue, stress, and burnout, affecting their overall well-being and job performance. On the other hand, manageable working hours help maintain energy levels, improve focus, and ensure better patient care.

The data shows that more than two-fifths (46.4%) of respondents work less than 8 hours a day, while an equal proportion (46.4%) work between 8 to 10 hours. A smaller percentage (5.2%) work 11 to 12 hours a day, and 2.0% work more than 12 hours daily. This indicates that most healthcare workers have balanced working hours, with only a few working extended shifts, likely due to staffing shortages at their institutions.

The next chapter examines the safety of healthcare workers during the COVID-19 pandemic. It is organized around three central themes: the availability and utilization of essential safety measures, the knowledge of healthcare workers

regarding COVID-19, and the overall safety of healthcare workers during the pandemic.

**HEALTHCARE WORKERS SAFETY DURING
COVID-19 PANDEMIC**

CHAPTER V

HEALTHCARE WORKERS SAFETY DURING COVID-19 PANDEMIC

This chapter examines healthcare workers' safety during the COVID-19 pandemic. The respondents working condition during COVID-19 pandemic has been explored on the availability and utilization of essential safety measures that comprises of hand gloves, hand sanitizer, full body gowns, session on COVID-19 transmission and precautions, SOPs, N95 mask, face shields or goggles, COVID-19 vaccines, COVID-19 testing, quarantine and isolation, regular health monitoring and check-up and the work hours of the respondents.

5.1. Availability and utilization of essential safety measures

Table No. 4. Availability and utilization of essential safety measures

Sl. No.	Practice	Available (N=252) (%)	Utilization	
			Yes (%)	No (%)
1.	Availability of disposable gloves	241 (95.6)	241 (95.6)	11 (4.4)
2.	Availability of hand sanitizers at key points	238 (94.4)	238 (94.4)	14 (5.6)
3.	Availability of full-body gowns (disposable or washable)	228 (90.5)	228 (90.5)	24 (9.5)
4.	Awareness sessions on COVID-19 transmission and precautions	225 (89.3)	225 (89.3)	27 (10.7)
5.	Access to standard operating procedure from health authorities	222 (88.1)	222 (88.1)	30 (11.9)
6.	Availability of N95 masks	220 (87.3)	220 (87.3)	32 (12.7)
7.	Availability of face shields or goggles	217 (86.1)	217 (86.1)	35 (13.9)
8.	Availability of covid-19 vaccines for healthcare workers	204 (81.0)	204 (81.0)	48 (19.0)
9.	Regular COVID-19 testing for healthcare workers	198 (78.6)	198 (78.6)	54 (21.4)
10.	Quarantine and isolation facilities for healthcare workers	194 (77.0)	194 (77.0)	58 (23.0)
11.	Daily health monitoring and symptom checks	188 (74.6)	188 (74.6)	64 (25.4)
12.	Adequate work hours to prevent burnout	187 (74.2)	187 (74.2)	65 (25.8)

Source: Computed

Figure in the parenthesis are percentage

The table no. 4 shows the availability and utilization of essential safety measures by respondents in relation to COVID-19 pandemic. The checklist is freely listed based on the literature collected, the data reveals the extent to which various safety measures are available to workers and whether they are being fully utilized. The “Available (Yes)” and “Utilization (Yes/No)” columns differentiate the number of safety measures that are available and being utilized by the respondents.

To examine the utilization of gloves the majority of respondents (95.6%) indicates the *availability of disposable gloves* and a small percentage (4.4%) of respondents did not utilize deliberately. Similarly, a significant number of respondents (94.4%) reported the *availability of hand sanitizers at key areas* while a small percentage (5.6%) of the respondents had not used the hand sanitizers as they did not like the fragrance and texture though it was available at the key areas. More than four-fifths (90.5%) of respondents reported the *availability of full-body gowns*. However, a notable portion of less than one-tenth (9.5%) of the respondents did not use them, considering unnecessary or inconvenient while working. In regard to the *availability of awareness sessions regarding COVID-19 transmission and precautions*, a maximum of more than four-fifths (89.6%) of the total respondents had attended the sessions and found to be effective. While a little more than one-tenth (10.7%) of the respondents had reported they did not effectively utilize these sessions. The *availability of standard operating procedures (SOPs)* was explored from health authorities. The data shows that a majority of more than four-fifths (88.1%) had reported the efficient utilization of SOPs while the remaining of more than one-tenth (11.9%) did not adhere to it because of feeling unnecessary to compliance. Further, the availability of N95 masks was confirmed by 87.3% of the respondents, and a little more than one-tenth (12.7%) have reported that they did not utilize them for no reason. *Face shields or goggles were available* to more than four-fifths (86.1%) of the respondents, but the remaining 13.9% of the respondents did not utilize them due to feeling of inconvenience to wear. Thus, it revealed the importance of reinforcing the use of these protective measures. The data shows that more than four-fifths (81%) of the total respondents were vaccinated, while a little less than one-fifth (19%) of the respondents were unvaccinated due to the myths of

the COVID-19 vaccines. In addition, more than three-fourth (78.6%) of the respondents has undergone regular testing for COVID-19 and the remaining more than one-fifth (21.4%) of the respondents were not willing to have test due to the fact that they did not have experienced the signs and symptoms of COVID-19. Moreover, more than two-thirds (77%) of the total respondents reported the availability and access to *quarantine and isolation*, however, more than one-fifths (23%) of the respondents did not utilize deliberately assuming it is unnecessary for them. The *daily health monitoring and symptom checks* by the respondents shows that nearly three-fourths (74.6%) of them reported *daily health monitoring and symptom checks*, however, one-fourth (25.4%) of the respondents were failed to do so as they did not have any signs and symptoms of COVID-19. It is significant to find out the work hour of the respondents. A maximum of nearly three-fourths (74.2%) of the respondents reported they had worked for 8 hours a day that was stipulated to be an adequate *work hour to prevent burnout*. In contrary, the remaining one-fourths (25.8%) of the respondents had reported they were working more than the stipulated hour work hours which is a concern for the healthcare workers.

The findings from the study reveal a generally high availability and utilization of essential safety measures among healthcare workers (HCWs), which is encouraging in the context of the COVID-19 pandemic. *The availability and use of disposable gloves* (95.6%) and *hand sanitizers* (94.4%) were notably high, reflecting a strong adherence to basic infection control practices. These results align with earlier studies that emphasize hand hygiene and glove use as critical barriers against virus transmission in healthcare settings (WHO, 2020). Similarly, *the availability of full-body gowns and personal protective equipment (PPE)* such as *N95 masks* (87.3%) and *face shields or goggles* (86.1%) was reported to be high. These PPE elements are crucial for protecting healthcare workers from SARS-CoV-2, especially during procedures that create airborne particles. However, the slight drop in usage suggests possible issues like discomfort, supply chain problems, or lack of training (Lan et al., 2020).

Awareness sessions on COVID-19 transmission and precautions were attended by nearly 90% of respondents, underscoring the importance of educational interventions. Education is key to ensuring HCWs understand how to properly use PPE and adhere to infection prevention protocols, which previous literature confirms can reduce infection rates (CDC, 2020). Despite these positive trends, some critical safety measures showed relatively lower availability and utilization rates. Notably, *COVID-19 vaccines* were available to 81% of HCWs, and only 74.6% reported *daily health monitoring and symptom checks*. *Regular testing* (78.6%) and *quarantine facilities* (77%) were also less consistently available. These findings highlight areas where healthcare systems can improve to better protect their workforce. Similar gaps have been identified in other studies, emphasizing the need for comprehensive occupational health strategies that include vaccination, monitoring, and adequate rest periods to prevent burnout (Nguyen et al., 2020; Sharma et al., 2020). Moreover, only 74.2% of HCWs reported having *adequate work hours to prevent burnout*, a concerning finding given the high demands placed on healthcare staff during the pandemic. Work overload and burnout not only affect HCWs' wellbeing but can also impair infection control practices (Shanafelt et al., 2020).

This finding highlighted the previous research emphasizing the importance of comprehensive safety measures, education, and occupational health support to safeguard healthcare workers during the pandemic. While the high availability of basic PPE is commendable, ongoing efforts are needed to ensure consistent utilization, improve vaccine coverage, facilitate regular testing, and manage work conditions to mitigate physical and psychological risks.

5.2. Healthcare workers' knowledge of COVID-19

The healthcare workers' awareness on COVID-19 was explored using a self-structured question which consisted of sensitization of COVID-19, PPE knowledge, vaccination, awareness on COVID-19 symptoms, recommended quarantine period, hand hygiene, managing the spread of the virus and vaccination knowledge.

Table No. 5. Awareness on COVID-19 among the Respondents

Sl. No.	KNOWLEDGE	Yes N=252 (%)	No N=252 (%)
1.	PPE must be utilised when managing patients with COVID-19	100 (100)	0 (0)
2.	Sensitize the primary transmission of COVID-19	233 (92.5)	19 (7.5)
3.	Fully vaccinated person can still be infected with COVID-19	224 (88.9)	28 (11.1)
4.	Aware the common symptoms of COVID-19	223 (88.5)	29 (11.5)
5.	Aware the recommended quarantine period for COVID-19 exposure	217 (86.1)	35 (13.9)
6.	Hand hygiene is crucial	216 (85.7)	36 (14.3)
7.	Isolation/quarantine helps in mitigating the spread of COVID-19	215 (85.3)	37 (14.7)
8.	Managing the spread of COVID-19 requires maintaining physical distance.	210 (83.3)	42 (16.7)
9.	Vaccination can reduce the severity of infection and transmission of COVID-19	203 (80.6)	29 (19.4)

Source: Computed

Figure in the parenthesis are percentage

Table no. 5 presents the knowledge of COVID-19 among the respondents. The knowledge assessment is based on 9 questions derived from a literature review, which were designed to capture essential information about COVID-19. Knowledge on the transmission, prevention, and protection of the virus is crucial for healthcare workers to ensure they can effectively safeguard themselves and others, minimize the spread of COVID-19, and provide informed patient care.

The data shows that the respondents have a complete understanding (100%) of the needs for *utilising PPE when managing COVID-19 patients*. This indicates that the knowledge on the use of PPE is satisfactory. The respondents with more than nine-tenths (92.5%) had knowledge of the *primary transmission of COVID-19*, while fewer than one-tenth (7.5%) of the respondents indicated that they lacked clear knowledge about the primary transmission of COVID-19. More than four-fifths (88.9%) of the respondents were aware that *fully vaccinated individuals can still contract COVID-19*, while just over one-tenth (11.1%) of the respondents were unaware of this fact. This indicates that healthcare workers are conscious that

vaccination does not provide complete protection. Moreover, a little or no difference was reported in the awareness of the common symptoms of COVID-19; more than four-fifths (88.5%) of the respondents were *aware of the common symptoms of COVID-19*, while more than one-tenth (11.5%) of the respondents were unaware of the common symptoms, due to the symptoms being closely related to the common cold. More than four-fifths (86.1%) of the respondents are aware of the *recommended quarantine period for COVID-19 exposure*, and a little more than one-eighth (13.9%) of the respondents are not aware of it. The knowledge on the importance of hand hygiene during the pandemic was explored; it was reported that more than four-fifths (85.7%) of the respondents were aware that *hand hygiene is crucial*, while a little more than one-seventh (14.3%) of the respondents were not aware that hand hygiene is crucial. In addition, more than four-fifths (85.3%) of the respondents acknowledge that *isolation and quarantine help prevent the spread of the virus*, and more than one-seventh (14.3%) of the respondents are not aware that physical distancing helps in mitigating the spread of the virus. Lastly, a little more than four-fifths (80.6%) of the respondents are aware *vaccination can reduce the severity of infection and transmission*. However, nearly two-tenths (19.4%) of the respondents are unaware that vaccination can reduce the severity of infection and transmission.

The results on healthcare workers knowledge of COVID-19 indicated that healthcare workers had a clear and strong understanding of the important ways to prevent COVID-19. This knowledge was very important for controlling the disease in hospitals and clinics. The majority of respondents (100%) agreed that using Personal Protective Equipment (PPE) such as *masks, gloves, gowns, and face shields* was necessary when caring for COVID-19 patients. This showed that the respondents knew PPE was a vital shield that protected them from getting exposed to the virus through infected droplets or contaminated surfaces. Also, a maximum (92.5%) of the respondents knew *how COVID-19 mainly spread*, mostly through droplets in the air and by touching contaminated surfaces. Adhering to PPE protocols significantly reduced the risk of healthcare workers catching COVID-19 and understanding how

the virus spreads helped the HCWs to follow key safety procedure (Yunus et al., 2024; Mikulska, 2024; Toney-Butler et al., 2025).

The respondents with 88.9% of them understood that even fully vaccinated person could still catch/infected with COVID-19, called breakthrough infections. This showed that the respondents knew vaccines were not full protection but helped reduce the severity. Knowing about breakthrough infections helped HCWs stay careful and continue safety measures like wearing masks and keeping distance, even after vaccination (Lipsitch et al., 2022). The respondents with 88.5% and 86.1% of them correctly identified common COVID-19 symptoms and the right quarantine time after exposure. HCWs who are aware about the symptoms and quarantine rules quickly report and isolate cases, helping reduce outbreaks (Cui et al., 2023). Hand hygiene was seen as very important by 85.7% of respondents, washing hands thoroughly with soap or sanitizer was one of the easiest and most effective ways to mitigate the spread of the virus. Correct handwashing practices removed the virus from hands and stopped it from spreading to patients or surfaces (Moncion et al., 2019). The importance of isolation and quarantine were recognized by 85.3% of the respondents as an important step towards reducing the spread of COVID-19. Separating sick or exposed people helped break the chain of infection, especially in hospitals where many patients were vulnerable (Calonge et al., 2020). The respondents understood that maintaining physical distance was a key measure to reduce exposure to the virus, with 83.3% of the respondents. Maintaining physical distance is a crucial step in preventing the transmission of contagious respiratory diseases (Pandi-Perumal et al., 2021). The respondents showed an awareness of how vaccinations function, with 80.6% of the respondents understand that vaccines reduce the severity of COVID-19 illness and decrease the likelihood of transmission. Healthcare workers have a positive attitude toward vaccination but are unlikely to administer the newly developed vaccine to their children (Duran & Çalbayram, 2024).

Therefore, the respondents had a strong and clear understanding of how COVID-19 spread and how to protect themselves and others. Their knowledge covered personal protection, spotting symptoms, following safety steps, and the

importance of vaccines. This helped the respondents protect themselves and their patients better and played an important role in controlling the pandemic in healthcare settings.

5.3. Healthcare workers safety

The safety of healthcare workers during the pandemic was explored using a self-structured questionnaire. This questionnaire focuses on key safety measures received by healthcare workers, which includes access to personal protective equipment (PPE), training and guidelines, workplace hygiene and environment, mental health support, testing and monitoring, vaccination, and communication and feedback.

Table No. 6. Access to Personal Protective Equipment (PPE)

Sl. No.	Statements	Min	Max	Mean	Std. Dev.
1.	Regular instruction on PPE usage.	1	3	1.31	.512
2.	PPE provides was good quality	1	3	1.44	.565
3.	PPE provided was suitable to the tasks	1	3	1.44	.600
4.	PPE reserves were distributed in case of shortages of supply.	1	3	1.48	.659
5.	Use of PPE while on duty	1	3	1.48	.647
6.	Availability of PPE reduced anxiety about COVID-19 exposure.	1	3	1.50	.689
7.	Public donations met safety and quality standards.	1	3	1.52	.665
8.	No delays in PPE access.	1	3	1.54	.567
9.	Public awareness campaigns increased PPE donations.	1	3	1.55	.704
10.	Government's PPE quality was satisfactory.	1	3	1.56	.662
11.	Local community contributions helped address shortages.	1	3	1.56	.686
12.	Government ensured donated PPE met safety standards.	1	3	1.60	.687
Average mean				1.49	

Source: Computed

The Table no. 6 presents the access to personal protective equipment (PPE) during the COVID-19 pandemic. The table consisted of 12 statements, each statement is assessed using a three-point scale (1 = Agree, 2 = Partially Agree, and 3 = Disagree). The responses are converted into mean scores, and the scores have been categorised based on the observed distribution of responses, such as a mean score between 1.00 and 1.49 as agree, a mean score between 1.50 and 2.49 as partially agree, and a mean score between 2.50 and 3.00 as disagree. The average mean score is 1.49, which indicates that the respondents were having a strong agreement with the statements.

The analysis shows the orderly mean scores obtained by the 12 statements as a mean score between 1.31 and 1.48 as strong agreement, such as *Regular PPE usage instructions were provided (1.31)*, *PPE provided was good quality (1.44)*, *PPE provided was suitable to the tasks (1.44)*, *PPE reserves were distributed in case of shortages of supply (1.48)*, *use of PPE while on duty (1.48)*. Therefore, the respondents had a strong agreement on the above statements. This is followed by seven statements as “*partially agree*”, between a mean score of 1.50 and 2.49 such as these scores suggest that while respondents generally agreed, they had some mixed feelings or concerns about the PPE situation. A mean score of 1.50, respondents partially agreed that the *availability of PPE helped reduce their anxiety about COVID-19 exposure*. A mean score of 1.52 shows that respondents felt public donations mostly met safety and quality standards, though the quality of donated PPE might have varied. With a mean score of 1.54, respondents expressed some concern over delays in PPE access. The mean scores of 1.55 and 1.56 indicate that respondents agreed that public awareness campaigns helped increase PPE donations and that the government-provided PPE was generally satisfactory. Finally, with mean scores of 1.56 and 1.60, respondents agreed that local community contributions and government efforts helped address PPE shortages and ensured safety standards.

The regular instructions on PPE usage, obtained a mean score of 1.31. Continuous education on PPE use enhances healthcare workers’ confidence and proper compliance during pandemics. Proper training ensures that HCWs are aware

of correct PPE practices, reducing risk of infection (Lohiniva et al., 2025). *The respondents believed that the quality of PPE and its appropriateness for specific tasks received an average score of 1.44.* HCWs satisfaction with PPE quality directly influences their willingness to use it consistently. When PPE fits the job and is comfortable, workers are more likely to maintain proper usage throughout their shifts (Hoedl et al., 2024). *Distribution of PPE reserves during shortages scored 1.48, showing that most institutions managed supply shortages effectively.*

It is crucial to have backup PPE supplies to maintain continuous protection, especially when supply chains are disrupted (Yan et al., 2025). *The actual use of PPE while on duty also scored 1.48, reflecting good adherence to safety protocols.* It was found that consistent PPE use is linked to reduced infection rates among healthcare workers (Soleman et al., 2023). *The availability of PPE obtained a mean score of 1.50, PPE played a key role in reducing anxiety about the risk of COVID-19 exposure. Adequate PPE supply lowers stress and mental health issues among frontline workers, enabling them to focus better on patient care (Romero-Cabrera et al., 2024).* *Public donations of PPE, which scored 1.52, were generally seen as it meets the safety and quality standards.* Community support was essential to fill supply gaps, quality control measures were necessary to ensure donated PPE was safe (Marston et al., 2020). *Public awareness campaigns were believed to increase PPE donations, with a mean of 1.55.* It was found that well-organized campaigns encouraged community participation and helped ease PPE shortages (Afolabi & Ilesanmi, 2022; Wijesinghe et al., 2023). *Local community contributions also helped address shortages, with a similar mean score of 1.56.* This finding aligns with the vital role of community efforts in supporting healthcare facilities during periods of high demand (Haldane et al., 2019). Finally, *government assurance that donated PPE met safety standards received a mean scored of 1.60, showing confidence in regulatory oversight.* Quality checks are essential to ensure that only equipment meeting standards is used, thereby protecting the safety of healthcare workers from low-quality products (Cambien et al., 2021)

The findings reflect effective PPE management during the pandemic, supported by multiple studies emphasizing training, quality, availability, and community involvement as key factors in protecting healthcare workers.

Table No. 7. Training and Guidelines

Sl. No.	Statements	Min	Max	Mean	Std. Dev.
1.	Training provided in resource-limited situations.	1	3	1.50	.602
2.	Trained on PPE use and infection prevention.	1	3	1.47	.646
3.	Emphasis was placed on coordination with local governing bodies.	1	3	1.46	.608
4.	Received practical training with demonstrations.	1	3	1.45	.626
5.	Clear guidelines for safe disposal of biomedical waste.	1	3	1.44	.565
6.	SOPs were clear and regularly updated.	1	3	1.43	.611
7.	Clear protocols for isolating exposed workers, quarantine, and patient transport.	1	3	1.39	.558
8.	Immediate report any contact with COVID-19 cases.	1	3	1.35	.582
Average mean				1.43	

Source: Computed

Table no. 7 illustrates the training and guidance received by the respondents during the COVID-19 pandemic. The table consists of 8 self-structure statements, and each statement is assessed using a three-point scale (1 = Agree, 2 = Partially Agree, and 3 = Disagree). The responses are converted into mean scores, and the scores have been categorised based on the observed distribution of responses, such as a mean score between 1.00 and 1.49 as agree, a mean score between 1.50 and 2.49 as

partially agree, and a mean score between 2.50 and 3.00 as disagree. The overall average mean score is 1.43, which indicates that the respondents strongly agreed that they received necessary training and guidelines during the COVID-19 pandemic.

The analysis indicates that only one statement falls into a “partially agree” category, with a mean score of 1.50, related to *training provided in resource-limited situations*. The score indicates that there have been challenges in delivering the training effectively, particularly in environments with limited resources. The remaining seven statements are classified as "agree". A mean score of 1.47 shows that respondents had agreed that they were *trained on (PPE) use and infection prevention*. A mean score of 1.46 of the respondents agreed that *coordination with local governing bodies was emphasised*. Respondents agreed that they had *received practical training with demonstrations*, with a mean score of 1.45, and agreed that *clear guidelines for the safe disposal of biomedical waste* were informed, with a mean score of 1.44. Respondents further agreed that *SOPs were clear and regularly updated* with a mean score of 1.43, which was crucial during the pandemic. With regards to isolation, managing and transportation of patients, the respondents agreed that *clear protocols for isolating exposed workers, managing quarantine, and transporting patients* with COVID-19 were informed, with a mean score of 1.39. The respondents, with a mean score of 1.35, agreed that they *immediately report any contact with COVID-19 cases*. This result indicates that the respondents adhere to the instruction given to them.

Training provided in resource-limited situations received a mean score of 1.50 which indicated that most respondents felt prepared despite challenges. Tailored training programs helped healthcare workers in low-resource areas maintain safety standards during the pandemic (Qureshi et al., 2022). *Coordination with local governing bodies received a mean score of 1.46, showing that communication and collaboration were important aspects of pandemic response* and coordinated efforts helped streamline responses and reduce confusion during crises (Dutta & Fischer, 2021). *Practical training with demonstrations, which scored a mean of 1.45, was considered effective in boosting confidence*. Practical sessions boost correct PPE use and infection prevention behaviour (Cordeiro et al., 2022). *Clear guidelines for*

biomedical waste disposal, with a mean score of 1.44, highlighted the adequate emphasis placed on this crucial safety aspect. It was emphasized that proper management of biomedical waste is vital to prevent secondary infections and well-defined waste disposal protocols protect both healthcare workers and the environment (Mondal et al., 2022; Das et al., 2021). Regular updates and clarity on Standard Operating Procedures (SOPs), with a score of 1.43, indicate ongoing efforts to keep protocols current and effective. Updated SOPs are essential for adapting practices as new information about COVID-19 emerges (Brown et al., 2020).

The protocols for isolating exposed workers, quarantine, and patient transport scored 1.39, indicating reasonable clarity in these procedures. Quarantine and transport measures are vital for minimizing infection spread (Patel et al., 2020).

Immediate reporting of contact with COVID-19 cases shows the lowest mean score of 1.35 which indicate some room for improvement. Encouraging prompt reporting enhances contact tracing and outbreak control (Juneau et al., 2023).

The results revealed that the training and guidelines received by healthcare workers during the pandemic were generally effective, especially in adapting to resource limits and ensuring clear communication and safety practices. These discussions align with previous research emphasizing the importance of practical training, updated protocols, and strong coordination in managing COVID-19 risks.

Table No. 8. Workplace Hygiene and Environment

Sl. No.	Statements	Min	Max	Mean	Std. Dev.
1.	Clean rest areas with hygiene reminders displayed.	1	3	1.53	.658
2.	Regular inspections on cleanliness and hygiene for staff and patients.	1	3	1.48	.659
3.	Social distancing enforced; adequate ventilation provided.	1	3	1.45	.645
4.	Accessible sanitizers and handwashing stations.	1	3	1.42	.590
5.	Proper bins for PPE & medical waste disposal.	1	3	1.42	.610
6.	Mask-wearing and social distancing protocols encouraged.	1	3	1.37	.566

7.	Regular cleaning, disinfection, and sanitization of high-touch surfaces.	1	3	1.22	.426
Average Mean				1.41	

Source: Computed

Table no. 8 shows the feedback provided by the respondents concerning the workplace hygiene and environment. Hygiene in the workplace and environment plays a crucial factor as it directly impacts employee health, productivity, and overall well-being (Adams, 2019). The table consist of 7 self-structure statements, and each statement is assessed using a three-point scale (1 = Agree, 2 = Partially Agree, and 3 = Disagree). The responses are converted into mean scores, and the scores have been categorized as follows: mean score between 1.00 and 1.49 as agree, as mean score between 1.50 and 2.49 as partially agree and a mean score between 2.50 and 3.00 as disagree. The data reflects various aspects of cleanliness, hygiene protocols, and safety measures implemented in the workplace. The overall average mean score is 1.41, indicating that respondents generally agree with the cleanliness and hygiene measures in place.

The analysis shows that *clean rest areas with hygiene reminders displayed* achieved the highest mean score of 1.53, indicating that respondents partially agreed on the cleanliness of the rest facilities and the presence of hygiene reminders. A mean score of 1.48 of the respondents agreed that *regular inspections of cleanliness and hygiene for staff and patients*, regular maintenance of hygiene in the workplace is vital the workers as well as for the patients. *Enforcing social distancing and providing adequate ventilation* received a mean score of 1.45, indicating that these safety measures were generally well implemented. The respondents agreed that *sanitizer and hand-washing station* for the respondents were available and accessible with a mean score of 1.42 and also agreed that *proper bins for the disposal of PPE and medical waste*, received mean scores of 1.42. The respondents agreed that mask-wearing and social distancing were practised, with a mean score of 1.37 on *mask-wearing and social distancing protocols encouraged*, which indicates that respondents felt these practices were encouraged and followed properly. *Regular cleaning, disinfection, and sanitization of high-touch surfaces* scored the lowest

mean of 1.22, which indicates that these practices were effectively implemented and strongly agreed among by the respondents.

The results on workplace hygiene and environment show that healthcare workers experienced a generally clean and well-maintained workplace environment during the COVID-19 pandemic, which is essential for infection control.

Clean rest areas with hygiene reminders scored a mean of 1.53, indicating moderate emphasis on cleanliness and promoting good hygiene practices through visible reminders. This indicates a clear focus on ensuring a sanitary and healthy environment for staff members and visible hygiene reminders help reinforce safe behaviours among healthcare workers (Dunlop et al., 2024).

Social distancing enforcement and adequate ventilation had a mean score of 1.45, reflecting efforts to minimize airborne virus spread. Enforcing social distancing combined with good ventilation significantly reduces COVID-19 transmission in hospital settings (Arjmandi et al., 2022; Sun & Zhai, 2020).

The accessibility of sanitizers and handwashing stations scored 1.42, indicating that these essential tools were made available for frequent use. Placing sanitizer stations in convenient locations encourages regular use by healthcare staff and visitors (Sandbøl et al., 2022).

The proper bins for PPE and medical waste disposal scored 1.42, indicating moderate waste management practices. Moderate awareness and inconsistent practices in medical waste management highlight the need for better training, infrastructure, and stricter guideline adherence (Letho et al., 2021).

Protocols encouraging mask-wearing and social distancing scored 1.37, indicating strong promotion of these behaviours among healthcare workers. Clear and consistent information on masks use and distancing improves the adherence and lowers infection risks (Klompas et al., 2020).

Regular cleaning, disinfection, and sanitization of high-touch surfaces scored the lowest mean of 1.22, but still reflect consistent efforts to reduce contamination. Frequent disinfection of surfaces like doorknobs and equipment is essential to limit virus spread and strict cleaning schedules help maintain safer healthcare environments during outbreaks (Ying Liu et al., 2020; Dhama et al., 2021).

Therefore, the findings show that the healthcare facilities maintained strong hygiene and environmental controls during the pandemic, supported by multiple studies showing these measures are vital to protect healthcare workers and patients.

Table No. 9. Support for mental health safety

Sl. No.	Statements	Min	Max	Mean	Std. Dev.
1.	Counselling session available when needed	1	3	1.79	.927
2.	Stress and burnout coping training sessions were conducted	1	3	1.73	.741
3.	My personal well-being was prioritized by my institution	1	3	1.69	.715
4.	Support systems like peer groups and helplines were available	1	3	1.69	.753
5.	Work adjustments were made to reduce stress	1	3	1.67	.714
6.	Mental health concern was able to discuss with my team or supervisor	1	3	1.65	.728
7.	Mental health support services provided by the institutions	1	3	1.65	.745
8.	Work related stress was openly communicated	1	3	1.58	.636
9.	Break times and rest periods were given	1	3	1.52	.683
10.	Moral support was given among colleagues	1	3	1.45	.620
Average mean				1.62	

Source: Computed

Table no. 9 shows the respondents' perceptions regarding support for mental health safety. The 10 statements from the given table explored the support for mental health safety of the respondents. The responses are scored on a three-point scale, with a mean score between 1.00 and 1.49 indicating agree, between 1.50 and 2.49 indicating partial agree, and between 2.50 and 3.00 indicating disagree. The average mean score for all statements is 1.62, which indicates that, on average, respondents "partially agree" with the statements related to mental health support.

The data shows a mean score of 1.79 of the respondents indicating "partial agreement" that *counselling session available when needed*. This indicated that some respondents had access, but it may not have been consistent or fully utilized by all of the respondents. *Stress and burnout coping training sessions were conducted* scored 1.73, this means that some coping sessions were provided, but they may not have been enough or accessible to all staff members. *My personal well-being was prioritized by my institution* scored 1.69, this suggests that some institutions did prioritize staff well-being, but it was not consistent across all respondents. *Support systems like peer groups and helplines were available* received a mean score of 1.69, while these support systems were in place, it shows that it has not been fully accessible or widely used by everyone. *Work adjustments were made to reduce stress* scored 1.67, indicating that work-related adjustments to reduce stress were made, but these efforts may not have been fully effective or applied consistently across all staff. The statement *Mental health support services provided by the institutions* scored 1.65, suggesting that mental health services were available. Similarly, the statement *Mental health concerns were able to be discussed with my team or supervisor* also scored 1.65, it shows that there was some opportunity for open discussions about mental health. A mean score of 1.58 of the respondents partially agreed that *Work-related stress was openly communicated*. This reveals that stress may not have been fully addressed or openly talked about in every situation. The respondents partially agreed that *break times and rest periods were given* with a mean score of 1.52. The respondents strongly agreed that *moral support was provided among colleagues*, with a mean score of 1.45, highlighting both the availability and the significance of offering moral support to one another.

The availability of counselling sessions when needed, obtained a mean score of 1.79. This indicates that most participants felt they had less to moderate access to counselling services. Accessible counselling is an effective preventive measure against burnout and prioritizing support systems like counselling is beneficial for both employees' health and organizational performance (Kabat-Zinn, 2018; Stewart et al., 2021),

Provision of stress and burnout coping training sessions, received a mean score of 1.73. This indicated that institutions are somewhat or moderately addressing stress management but not offering sufficient training. Integrating stress management can help mitigate burnout in high-pressure work environments (West et al., 2017).

The institution prioritizing personal well-being received a mean score of 1.69. This indicate that although some attention is given to employees' well-being, it is not always seen as a priority. Organizations often overlook employee well-being in high-pressure environments, but investing in wellness programs leads to higher satisfaction and reduced absenteeism (Awa et al., 2019).

Support systems such as peer groups and helplines were available with a mean score of 1.69, indicating that while these systems exist there was less or moderate utilization. Peer support is essential in improving mental health outcomes, as it provides employees with a sense of belonging and emotional security (Hunter et al., 2020).

Work-related stress being openly communicated received a mean score of 1.58. Promoting open discussions about stress improves mental health by encouraging healthy coping, while lack of communication can lead to increased anxiety and burnout (Williams et al., 2020).

Moral support among colleagues received a mean score of 1.45, indicating that while some level of support is present, which is above moderate score. Moral support from peers is crucial for improving mental health by helping individuals cope with stress, while its absence can lead to higher stress, burnout, and lower job satisfaction (Rook, 2016; Kinnunen et al., 2018).

While mental health safety measures exist in the institution, there is a need for improvement across several areas. Strengthening counselling services, expanding stress management training, fostering open communication about stress, and

promoting peer support networks could significantly enhance employee well-being and reduce the risk of burnout.

Table No. 10. Testing, Monitoring, and Vaccination

Sl. No.	Statements	Min	Max	Mean	Std. Dev.
1	Sufficient recovery time was provided after vaccination	1	3	1.57	.668
2	Potential vaccine side effects were clearly communicated	1	3	1.54	.688
3	The vaccination process was made easy and user-friendly.	1	3	1.49	.640
4	Followed government guidelines for testing and vaccination.	1	3	1.48	.682
5	Regular monitoring of symptoms was carried out.	1	3	1.45	.620
6	Booster doses were made available as necessary.	1	3	1.45	.607
7	Clear protocols were in place for managing positive cases.	1	3	1.43	.618
8	COVID-19 testing was readily accessible when required.	1	3	1.42	.617
9	The vaccination was offered to all healthcare staff.	1	3	1.39	.592
10	Test results were delivered without delay.	1	3	1.32	.552
Average mean				1.44	

Source: Computed

The table no. 10 presents the analysis of institutional practices related to COVID-19 testing, symptom monitoring, and vaccination for the safety of the healthcare workers. A self-structured assessment was implemented to evaluate testing, monitoring, and vaccination processes. Responses were captured on a three-point scale, where 1 = agree, 2 = partially agree, and 3 = disagree. The responses are converted into mean scores, and the scores have been categorized as follows: mean score between 1.00 and 1.49 as agree, as mean score between 1.50 and 2.49 as partially agree and a mean score between 2.50 and 3.00 as disagree. The analysis shows the overall average mean score of 1.44, suggesting a generally high level of agreement among respondents regarding the availability, accessibility, and responsiveness of COVID-19 testing and vaccination procedures in their institutions.

The data shows that *sufficient recovery time was provided after vaccination* and *potential vaccine side effects were clearly communicated* fall under partially agree with a mean score of 1.57 and 1.54 respectively. The respondents strongly agreed that *the vaccination process was made easy and user-friendly* with a mean score of 1.49 and also strongly agreed that *the institution followed government guidelines for testing and vaccination* with a mean score of 1.48. There is a similar mean score on both *regular monitoring of symptoms was carried out* and *booster*

doses were made available as necessary with a mean score of 1.45 each respectively. The respondents strongly agreed that *clear protocols were in place for managing positive cases* with a mean score of 1.43 and nearly a similar mean score of *COVID-19 testing was readily accessible when required* was strongly agreed among the respondents with a mean score of 1.42. The respondents strongly agreed that *the vaccination was offered to all healthcare staff* with a mean score of 1.39. The respondents strongly agreed that *test results were delivered without delay* with a lowest mean score of 1.32. The results indicate that healthcare institutions have been highly effective in ensuring safety for their workers through testing, monitoring, and vaccination efforts.

The prompt availability of test results, with a mean score of 1.32, indicates that most respondents agree on the importance of quick results. Timely delivery of test results has been shown to be essential in managing patient care and controlling the spread of infections like COVID-19 (Paltiel et al., 2020). *Institution's adherence to government guidelines was acknowledged by participants, with a mean score of 1.48.* This confirms that following national and international protocols is vital to ensuring that the health measures are both effective and consistent with best practices (WHO, 2021). *Ease of the vaccination process, which had a mean score of 1.49.* A user-friendly vaccination process and the availability of necessary vaccines, including boosters, are crucial for high vaccination uptake and maintaining immunity (Polack et al., 2020). *The regular monitoring of symptoms, with a mean score of 1.45,* which indicate the respondents are closely monitored for adverse symptoms post-vaccination. Post-vaccination monitoring is crucial for early detection of side effects and prompt medical intervention, as supported by studies (Rainey et al., 2021). *Clear communication about potential side effects was also rated a moderate mean score of 1.54.* Transparent communication of potential side effects builds trust, reduces hesitancy, and promotes compliance, with informed consent being key to public health (Gargano et al., 2021; Tuckerman et al., 2022).

The findings highlight the importance of clear communication, adherence to protocols, and ease of access in vaccination and testing programs. These elements are essential for increasing vaccine uptake, managing potential side effects, and ensuring

public trust, all of which are fundamental in the fight against global health threats like COVID-19.

Table No. 11. Communication and Feedback

Sl. No.	Statements	Min	Max	Mean	Std. Dev.
1.	Healthcare workers were urged to give feedback on safety measures.	1	3	1.56	.612
2.	Any safety concerns raised were promptly addressed.	1	3	1.56	.644
3.	Feedback on safety measures was taken seriously	1	3	1.54	.682
4.	Received prompt, clear notice of modifications to workplace procedures	1	3	1.53	.646
5.	Authority was open to hearing my concerns about safety	1	3	1.52	.640
6.	Regular update on new COVID-19 guidelines	1	3	1.31	.541
Average mean				1.50	

Source: Computed

Table no. 11 presented the effectiveness of institutional communication and feedback mechanisms related to COVID-19 workplace safety. The table consisted of 6 statement to assess the communication and feedback. Responses were captured on a three-point scale, where 1 = agree, 2 = partially agree, and 3 = disagree. The responses are converted into mean scores, and the scores have been categorized as follows: mean score between 1.00 and 1.49 as agree, as mean score between 1.50 and 2.49 as partially agree and a mean score between 2.50 and 3.00 as disagree. The average mean score is 1.50 which indicate that the respondents partially agreed to all the statement.

The data shows that *healthcare workers were encouraged to provide feedback on safety measures* and *any safety concerns raised were promptly addressed* recorded the same mean score of 1.56 this indicated that the respondents are partially agreed to the statements. *Feedback on safety measures was taken seriously* and *received prompt, clear notice of modifications to workplace procedures* and *authority were open to hearing my concerns about safety* reported a mean score of 1.54, 1.53 and 1.52 respectively, this also indicated that the respondents partially agreed with the statements. The respondents expressed satisfaction with the *regular*

updates on new COVID-19 guidelines from the health authority, strongly agreeing with the statement reflected by a mean score of 1.31.

The results related to communication and feedback highlight that healthcare workers had positive perceptions of the safety measures and communication strategies implemented. The average mean of 1.50 indicates that, overall, participants felt that their feedback was valued and that safety concerns were addressed promptly.

The highest-rated statement was that healthcare workers were *encouraged to provide feedback on safety measures*, with a mean of 1.56. Encouraging feedback from employees contributes to a sense of agency and responsibility in improving workplace safety and overall organizational effectiveness (Parker & Axtell, 2001). Furthermore, *prompt addressing of safety concerns* also obtained a mean score of 1.56, indicating that healthcare workers felt their concerns were taken seriously. Addressing safety concerns immediately is a key practice in minimizing risks and ensuring a safe working environment. Rapid response to safety concerns is associated with higher job satisfaction and better overall workplace safety (Gurses et al., 2019). *The feedback on the clarity and promptness of modifications to workplace procedures* received a mean score of 1.53. Clear and timely updates on procedural changes reduce confusion and anxiety among healthcare workers, improving their performance and mental well-being, especially during crises like the COVID-19 pandemic, where keeping HCWs informed about new guidelines is crucial to prevent errors and maintain safety standards (Liu et al., 2021; Tucker et al., 2020). *The availability of regular updates on new COVID-19 guidelines* with a mean score of 1.31, reflect a positive sentiment regarding communication in the workplace. Regular updates on public health guidelines are crucial in maintaining alignment with government recommendations and best practices (WHO, 2021). The positive feedback on communication and feedback mechanisms in the workplace suggests that the institution made significant efforts to foster a culture of safety and openness. Promoting feedback, addressing concerns promptly, and providing clear updates on procedures contribute significantly to healthcare workers' satisfaction and well-being.

In summary, the safety measures for healthcare workers (HCWs) during the pandemic, focusing on three key areas: *availability and utilization of essential safety measures*, *HCWs' knowledge of COVID-19*, and *HCWs' safety* as:

1. **Availability and Utilization of Safety Measures:** Most HCWs had access to essential safety measures such as gloves (95.6%), hand sanitizers (94.4%), and full-body gowns (90.5%). However, some measures like face shields and N95 masks were not consistently used by all, with reasons including discomfort or perceived unnecessary use.
2. **Healthcare Workers' Knowledge of COVID-19:** HCWs demonstrated a solid understanding of COVID-19 transmission, PPE usage, symptoms, quarantine, and vaccination. Nearly 100% knew the importance of PPE, while over 80% understood that vaccination doesn't provide complete immunity but helps reduce severity.
3. **Healthcare Workers' Safety:** The chapter further examines the effectiveness of PPE, training, workplace hygiene, mental health support, and testing. Most HCWs had access to PPE, with strong adherence to usage protocols, although there were gaps in mental health support and stress management training.

The next chapter will examine the *Occupational Health Issues and Coping Strategies of Healthcare Workers (HCWs)*. It delves into the various occupational health challenges faced by HCWs, including physical, mental, workplace, and social/emotional health issues. Additionally, the chapter explores the coping strategies employed by healthcare workers, which are categorized into five key areas: physical health coping, mental and emotional health coping, workplace coping, and general coping strategies.

**OCCUPATIONAL HEALTH ISSUES AND COPING
STRATEGIES OF THE HEALTHCARE WORKERS**

CHAPTER VI

OCCUPATIONAL HEALTH ISSUES AND COPING STRATEGIES OF THE HEALTHCARE WORKERS

This chapter explore the diverse challenges encountered by healthcare workers during the COVID-19 pandemic. The pandemic resulted in various occupational health issues affecting the well-being of healthcare workers, encompassing both administrative staff and clinical professionals. They encountered various risks, both physical and mental, while working extended hours to provide patient care. In addition to the physical strain, they encountered stigma and harassment, resulting in increased psychological stress (Smallwood & Willis, 2021). Healthcare workers faced significant emotional distress due to their excessive workloads, resulting in widespread burnout and mental health issues. Their resilience and commitment, despite the challenges, highlight just how tough the situation was for them during this crisis (Zhang & Kim, 2021).

6.1. OCCUPATIONAL HEALTH ISSUES OF THE HEALTHCARE WORKERS

A self-structured questionnaire was developed to investigate the occupational health issues of the respondents, comprising four aspects: physical health issues, mental health issues, workplace issues, and general issues.

Table No. 12 Physical health Issues

Sl. No.	Aspects	Issues	Frequency (N=252)	Percentage (%)
1.	Physical health	Fatigue and exhaustion	211	85.4
		Musculoskeletal problems	184	74.5
		Eye strain	181	73.3
		Sleep disturbances	174	70.4
		PPE-related skin issues	167	67.6
		Weakened immunity	152	61.5
		Dehydration	148	59.9
		Gastrointestinal Issues	146	59.1

Source: Computed

Table no. 12 represents physical health issues encountered by the respondents. The table was divided into 4 aspects such as physical health issues, mental health issues, workplace issues, general issues.

The physical health issues primarily consist of fatigue and exhaustion, musculoskeletal problems, eye strain, sleep disturbances, PPE-related skin issues, weakened immunity, dehydration, gastrointestinal problems, skin irritation. The data on physical health issues among the respondents during the COVID-19 pandemic highlights a range of prevalent conditions. Fatigue and exhaustion were reported by more than four-fifth (85.4%) of the respondents, making it the most common physical health issue. Musculoskeletal problems affected nearly three- fourth (74.5%) of the respondents, likely due to prolonged PPE use and extended working hours, which increased physical strain. While a little more than seven-tenths (70.4%) of the respondents reported they experience *sleep disturbance* which was due to the stress and demanding nature of healthcare work during the pandemic. Prolong use of PPE cause skin irritation (Proietti et al., 2022) among the respondents and nearly seven-tenths (67.6%) of the respondents encountered PPE-related skin issues which revealed the physical challenges of wearing protective gear for long hours. A little more than three-fifths (61.5%) of respondents reported weakened immunity, indicating that increased physical strain, lack of sleep, and poor eating habits during the pandemic contributed to a weakened immune system. Almost three-fifths (59.9%) of respondents experienced dehydration due to long shifts and the challenge of maintaining proper hydration while wearing PPE for extended periods. The difficulty of drinking water while wearing a full PPE contributed to this issue. Lastly, nearly 59.1% of the respondents reported gastrointestinal issues due to irregular eating habits, inconsistent work hours, and the stress they experienced.

Fatigue and exhaustion were the most commonly reported physical health issues, affecting 85.4% of healthcare workers in the study. Fatigue is a major concern for healthcare workers which is driven by long working hours, high workload, and emotional stress, has been recognized as a critical issue in healthcare settings, contributing to impaired performance, reduced cognitive function, and increased risk of errors (Cahill et al., 2020; Chong et al., 2020;). *Musculoskeletal problems*, reported by 74.5% of participants, are another prevalent issue among healthcare workers, which is supported by extensive research on the physical demands of healthcare occupations. Healthcare workers, especially those in high-intensity roles

like emergency medicine, experience high levels of physical strain, leading to musculoskeletal disorders (MSDs). Long hours of standing, repetitive motions, and the physical demands of patient care have been linked to musculoskeletal problems, particularly in the back, neck, and shoulders (Jo et al., 2021). *Eye strain, reported by 73.3% of respondents*, highlights the physical toll of prolonged PPE use, including face shields and goggles. This discomfort, such as blurred vision, dryness, and fatigue, is worsened by increased screen time in hospital settings. Over time, it may lead to long-term eye issues (Mok et al., 2021; Huang et al., 2020). *Sleep disturbances, reported by 70.4% of the respondents*, resulting from high stress and irregular working hours in healthcare. Shift work, long hours, and patient care pressures lead to poor sleep hygiene, causing difficulty falling asleep and poor-quality rest. Sleep deprivation affects decision-making, immunity, and overall health (Smith et al., 2020; Caruso et al., 2020; Gupta et al., 2020). *PPE-related skin issues, reported by 67.6% of the respondents*, highlight a significant concern during the pandemic. Prolonged use of masks, face shields, and gowns has led to irritation, rashes, and pressure ulcers. This has prompted calls for improved ergonomic and material solutions in PPE design (Chiu et al., 2020; Tezcan et al., 2022). *A weakened immune system, reported by 61.5% of healthcare workers*, reflects the impact of chronic stress on the body's ability to fight infections. Long hours, stress, and constant pathogen exposure compromise immunity, making workers more vulnerable to illness. Chronic stress lowers immune function, as elevated cortisol and physical exhaustion impair the immune response (Li et al., 2020; Bakker et al., 2021). *Dehydration, reported by 59.9% of healthcare workers*, is another issue effected by long shifts, high workload, and insufficient breaks. Healthcare workers often neglect to hydrate adequately due to the pressures of their work and wearing of PPE, leading to dehydration, which can impair cognitive and physical performance (Mustofa et al., 2020). *Gastrointestinal issues, reported by 59.1% of the respondents*, highlight an often-overlooked aspect of occupational health. Long hours, irregular eating, and stress contribute to digestive discomfort. Chronic stress in healthcare has been linked to conditions like irritable bowel syndrome (IBS) and indigestion (Fang et al., 2021; Zhou et al., 2020).

The physical health issues reported by healthcare workers during the pandemic indicated the immense burden they bear in their roles. The prevalence of fatigue, musculoskeletal problems, and other health issues highlights the urgent need for systemic changes that prioritize worker well-being. Addressing these issues, through better workplace ergonomics, psychological support, and regular health monitoring, is essential to ensuring the sustainability of the healthcare workforce, particularly in times of crisis.

Table No. 13 Mental Health Issues

Sl. No.	Aspects	Issues	Frequency (N=252)	Percentage (%)
1.	Mental health	Stress	206	83.4
		Fear of infection	166	67.2
		Anxiety	152	61.5
		Emotional burden	144	58.3
		Insomnia	141	57.1
		Burnout	132	53.4
		Depression	113	45.7
		Helplessness	113	45.7
		Stigma	108	43.7
		Trauma	92	37.2

Source: Computed

The table no. 13 represents the mental health issues of the respondents. The mental health issues include stress, fear of infection, anxiety, emotional burden, insomnia, burnout, depression, frustration and helplessness, stigma, and trauma. The data shows that more than four-fifths (83.4%) of the respondents have reported *stress* was the most commonly mental health issues encountered during the pandemic, this was due to separation from loved ones and change in workload. While a little more than two-third (67.2%) of the respondents reported that *fear of infection* was also the main contributor of mental health issues among them. A little more than three-fifths (61.5%) of the respondents had mentioned they had *anxiety*; this indicates the widespread psychological discomfort among the respondents during the COVID-19. While nearly three-fifths of the respondents (58.3%) reported that they had experienced *emotional burden*, this revealed the significant emotional toll that providing patient care during a crisis imposed on them. The respondents also indicated that they had experienced sleep disturbances during the pandemic, with

more than half (57.1%) of the respondents reported symptoms of insomnia. Burnout, a common issue in high-stress work environments, had been reported by a little more than half (53.4%) of the respondents. The respondents had experienced a significant level of depression during the pandemic due to the work they have to performed more than two-fifths (45.7%) of the respondents had experienced depression. Similarly, more than two-fifths (45.7%) of the respondents had reported feeling helpless, as the respondents had reported that managing the COVID-19 crisis as an impossible task. Nearly 44% of the respondents faced stigma, primarily because they worked with patients who were considered potential carriers of the virus. Lastly, trauma had also been experienced by the respondents as a result of their life-threatening experiences, with more than one-third (37.2%) of healthcare workers having experienced trauma. The data shows that, healthcare workers faced significant mental health challenges during the COVID-19 pandemic, including stress, anxiety, burnout, and trauma. Many reported fears of infection, emotional burden, and depression due to their work conditions. These findings revealed the need for better mental health support for healthcare workers in high-stress environments.

The findings from the data reveal a significant prevalence of various mental health issues among the sample population, with stress, fear of infection, and anxiety being the most common concerns. These findings align with recent literature that highlights the growing mental health challenges, especially in the context of the COVID-19 pandemic and its aftermath. *Stress, reported by 83.4% of the respondents*, it was the most prevalent mental health issue. The COVID-19 pandemic heightened stress due to job insecurity, social isolation, and health concerns. Increased stress levels were driven by uncertainty and daily life changes, along with high workload, fear of infection, and emotional strain from treating COVID-19 patients (Rahman et al., 2020; Liljestrand & Martin, 2021). *Fear of infection, reported by 67.2% of the respondents*, was a major concern, with the respondents constantly worried about contracting the virus. This fear was a significant stressor, especially in high-risk professions. Healthcare workers prone to anxiety experienced heightened fear of COVID-19, leading to increased stress levels (Brooks et al., 2020;

Troisi et al., 2025). *Anxiety* (61.5%) was also reported by a large portion of the population, which corresponds with several studies that show an increase in anxiety levels during the pandemic. Anxiety has been one of the most common mental health issues associated with the uncertainty of the pandemic, HCWs experienced a high prevalence of anxiety and depression during the COVID-19 pandemic, with frontline workers being particularly vulnerable (Park et al., 2021; Bosma et al., 2023; Sialakis et al., 2025). *Emotional burden*, reported by 58.3% of the respondents, reflects the emotional exhaustion many healthcare workers experienced during the pandemic. Prolonged exposure to COVID-19 stressors led to significant emotional fatigue, especially among frontline workers. Emotional exhaustion increased notably during the pandemic compared to pre-pandemic levels (Cénat et al., 2021; Sexton et al., 2022). *Insomnia* (57.1%) emerged as another key issue, with respondents reporting difficulties in maintaining a healthy sleep pattern. Insomnia was prevalent among HCWs experiencing mental health distress during the pandemic, exacerbated by the constant stress and fear (Alimoradi et al., 2021; Sahebi et al., 2021). *Burnout*, reported by 53.4% of the respondents, was significant, especially among healthcare workers in high-pressure environments. Increased workloads, long hours, and fear of infection contributed to higher burnout rates. Nurses experienced more burnout, while male healthcare workers reported higher personal burnout (Pappa et al., 2020; Sidiq et al., 2024). *Depression*, reported by 45.7% of the respondents, the rate of depression among the respondents was increase due to the pandemic. The global studies also show a surge in depression rates during the pandemic. Key contributing factors included health concerns, job insecurity, social isolation, stress, patient deaths, and exposure to COVID-19 patients (Wang et al., 2020). *Helplessness*, reported by 45.7% of the respondents, was another significant issue, especially among those facing long-term uncertainty or loss of control. This feeling was strongly correlated with higher anxiety and depression, particularly when individuals could not control their environment or the health crisis. Nurses often experienced greater helplessness due to limited treatment options, visitor restrictions, and rapid patient deaths (Asadi et al., 2025). *Stigma* (43.7%) also emerged as a significant issue among the respondents. HCWs who contracted COVID-19 were often subjected to stigma and discrimination, leading to negative psychological outcomes.

HCWs were stigmatized because of their roles in treating COVID-19 patients, leading to exclusion, verbal abuse, and fear-based discrimination. This stigmatization severely impacted their mental health, causing feelings of isolation, anxiety, and stress (Nussbaumer et al., 2020; Choi et al., 2021; Janoušková et al., 2023) Finally, *Trauma* (37.2%) was also reported by a significant portion of the respondent. HCWs experienced PTSD symptoms during the COVID-19 pandemic, with many having severe symptoms. However, after the introduction of COVID-19 vaccines, PTSD rates dropped significantly. Despite this improvement, the emergence of new variants like Delta and Omicron led to a slight increase in PTSD levels (Andhavarapu et al., 2022; Gambaro et al., 2023).

These findings and discussion collectively illustrate the substantial mental health toll the pandemic has taken on individuals, with multiple issues such as stress, anxiety, and burnout being predominant. The research consistently supports the idea that the pandemic has had a lasting and profound impact on mental well-being, and efforts to address these issues are critical for recovery.

Table No. 14 Workplace Issues

Sl. No.	Aspects	Issues	Frequency (N=252)	Percentage (%)
1.	Workplace	Increase in workload	192	77.7
		Shortage of staff	183	74.1
		Long working hours	182	73.7
		Isolation/ Quarantine	172	69.6
		Adapting to changing protocols	170	68.8
		Lack of mental health support	144	58.3
		Lack of institutional support	137	55.5
		Shortages of PPE supply	136	55.1
		Inadequate break and recovery	135	54.7

Source: Computed

The table no. 14 present the workplace issues of the respondents. The data on workplace issues faced by healthcare workers during the COVID-19 pandemic revealed several key challenges. A little more than three-quarters (77.7%) of the

respondents had reported an *increase in workload*, the respondents reported that as more patient increased there was a significant rise in their responsibilities. Nearly more than three-fourths (74.1%) of the respondents had reported a *shortage of staff*, revealing that as the number of patients increased, the existing workers were unable to manage the patients; also, nearly three-fourths (73.7%) of the respondents had reported *long working hours*, which were a result of staff shortages, which required them to work additional shifts. Not only the patients, the respondents also have to be isolated or quarantine and nearly three-fourths (69.6%) of the respondents had reported that they had *experienced isolation or quarantine*. More than two-thirds (68.8%) of the respondents had reported that they had *adapted to the changing protocols*, also revealed that the frequent updated guidelines during the pandemic was sometime challenging. More than half (58.3%) of the respondents had reported a *lack of mental health support*, indicating insufficient resources to address emotional and psychological issues during the pandemic. More than half (55.5%) of the respondents had reported a lack of *institutional support*, this revealed that the respondents do not receive much extra support from their institution. Lastly, more than half (55.1%) of the respondents had experienced *shortages of PPE supplies*, highlighting the difficulties in ensuring sufficient protective measures. The results of the study highlighted the diverse occupational challenges that healthcare workers encountered during the pandemic, as revealed through detailed analysis and data collection.

The findings of the workplace issues highlighted in the survey suggest a series of significant challenges faced by healthcare workers during the COVID-19 pandemic, with an increase in workload, shortage of staff, long working hours, and other factors contributing to a stressful work environment. An *increase in workload* was identified as the most significant workplace issue, with 77.7% of the respondents indicating it as a concern. HCWs experienced increased workloads during the pandemic due to a surge in patient numbers and the need for intensive care (Huang et al., 2020; Mehta et al., 2021). Closely following this, 74.1% of the respondents reported *shortage of staff* as a critical issue. COVID-19 pandemic worsened healthcare staffing shortages, particularly as many experienced professionals,

especially those over 50, retired early due to burnout and stress (McNeill, 2022; Monteiro et al., 2023). *Long working hours*, identified by 73.7% of the respondents, is another major issue. Long working hours harm both physical and mental health, causing fatigue, physical strain, and increasing the risk of depression and anxiety. Furthermore, the overwhelming workloads not only impacted workers' health but also diminished the quality of care provided to patients (Patel et al., 2021; Monteiro et al., 2023). *Isolation and quarantine*, reported by 69.6% of the respondents, emerged as a significant challenge. Healthcare workers, in particular, faced isolation due to exposure to the virus and the risk it posed to their families. Quarantine after close contact with COVID-19 patients led to increased anxiety and fear (Chen et al., 2020; Cui et al., 2023). *Adapting to changing protocols* (68.8%) was another significant stressor for healthcare workers. The constant changes in health protocols, guidelines, and procedures were difficult for many workers to manage, especially under the pressure of high patient volumes. These changes created confusion and increased uncertainty, which led to feelings of frustration and stress among staff (Koh et al., 2020; Goh et al., 2021). The *lack of mental health support* (58.3%) also emerged as a notable issue. Despite the recognition of the psychological strain faced by HCWs, many institutions have not provided adequate mental health resources or support services. Moreover, HCWs felt unsupported by their institutions, both in terms of resources and emotional backing, during the pandemic (Xu et al., 2019). *Shortages in personal protective equipment* (PPE), reported by 55.1% of the respondents, have also been a significant issue. PPE shortages have been one of the most critical concerns during the pandemic, as healthcare workers' safety is paramount in preventing virus transmission. The insufficient supply of PPE, such as face masks, gowns, and gloves, has led to increased anxiety and fear of contamination among healthcare workers (Zhang et al., 2020; Kang et al., 2021). Finally, *inadequate break and recovery times*, mentioned by 54.7% of the respondents. The lack of adequate rest periods increases stress levels and reduces workers' ability to recover from long shifts. While inadequate break hinders HCWs effectiveness on their performance (Chen et al., 2021; Sagherian et al., 2021).

Therefore, these findings highlight a complex set of interconnected challenges faced by healthcare workers during the COVID-19 pandemic. The increase in workload, staffing shortages, long working hours, and other stressors have contributed to significant physical and mental health consequences for healthcare workers. Addressing these issues requires a multifaceted approach that includes improving staffing levels, providing adequate mental health support, ensuring proper PPE availability, and offering sufficient recovery time for workers to prevent burnout and enhance their well-being.

Table No. 15 Social & emotional issues

Sl. No.	Aspects	Issues	Frequency (N=252)	Percentage (%)
1.	Social and emotional	Work-life imbalance	161	65.2
		Physical separation from peers and family	158	64.0
		Social withdrawal	156	63.2
		Reluctant to go for duty	149	60.3
		Self-Imposed Isolation	136	55.1
		Stigma and discrimination	126	51.0
		Insufficient colleague support	121	49.0

Source: Computed

The table no. 15 represents the social and emotional issues encountered by the respondents. The data on social and emotional issues encountered by the respondents during the COVID-19 pandemic highlights a range of issues. Nearly two-thirds of the respondents (65.2%) reported experiencing work-life imbalance, indicating that they struggled to balance their professional and personal lives during the pandemic. The respondents had reported the emotional impact of being distanced from their loved ones with more than two-third (64.0%) of the respondents experienced *physical separation from their peers and family*. The respondents indicated that they socially distanced themselves due to concerns about spreading the virus, with more than three-fifths (63.2%) reporting social withdrawal. A little more than three-fifths (60.3%) of the respondents *reported being hesitant to report for duty*, which revealed that some respondents had been reluctant or fearful to continue working in such demanding environments and had worried about getting infected.

More than half (55.1%) of the respondents resorted to *self-imposed isolation* in order to protect their family from potential virus exposure. A little over half (51.0%) of the respondents experienced stigma and discrimination, which resulted from misunderstandings, reflecting negative social attitudes toward those who had worked in COVID-19 care and prevention. Nearly half (49.0%) of the respondents reported that they had experienced *insufficient colleague support*, meaning that some respondents had felt they lacked adequate emotional or social support from their peers.

The data collected from the respondents provides a comprehensive overview of the various occupational, mental, physical, and general challenges healthcare workers faced during the COVID-19 pandemic. The findings underscore the significant strain experienced by healthcare workers, not only in terms of physical health issues such as fatigue, musculoskeletal problems, and sleep disturbances but also mental health challenges like stress, anxiety, and emotional burden. The ongoing stressors were exacerbated by long working hours, increased workload, and the fear of infection.

The data reveals significant challenges faced by employees in the workplace, each impacting their well-being and job satisfaction. These challenges include work-life imbalance, physical separation from peers and family, social withdrawal, reluctance to go for duty, self-imposed isolation, stigma and discrimination, and insufficient colleague support. Drawing upon recent studies, we can delve into these issues to understand their implications. *Work-life imbalance* is a prevalent concern, with 65.2% of the respondents indicating its presence. Work-life imbalance leads to increased stress and reduced job satisfaction. Work demands often disrupted family time, causing emotional stress, while family issues, like caregiving, impacted work performance (Spector & Fox, 2021; Rony et al., 2023; Mu et al., 2024). *The respondents with 64.0% had experienced physical separation from peers and family*, this issue worsened during the COVID-19 pandemic. Healthcare workers faced significant challenges, particularly due to prolonged separation from their families, leading to feelings of isolation and decreased morale, which impacted job satisfaction (Chakma et al., 2021; Kilova et al., 2024). *The reluctance to attend work*

was observed in 60.3% of the respondents. HCWs expressed reluctance to work due to fears of contracting the virus and spreading it to their families. Despite their dedication to their roles, concerns about personal safety and inadequate protective measures played a significant part in their reluctance to continue working during the lockdown (Rafi et al., 2021). *Stigma and discrimination, reported by 51.0% of the respondents.* This stigma and discrimination have detrimental effects on mental health and job satisfaction. HCWs faced stigma from the public and family due to fear of virus transmission, leading to emotional distress and social isolation. Workplace stigma and discrimination are associated with increased stress and decreased job satisfaction among the HCWs during the COVID-19 pandemic (Negarandeh et al., 2021; Phelan et al., 2022). *Insufficient support from colleagues, affecting 49.0% of the respondents,* can lead to feelings of alienation and decreased job satisfaction. Surprisingly, HCWs in the UK experienced anxiety not only due to the fear of infection and heavy workloads but also because of insufficient support from colleagues (Siddiqui et al., 2021). The findings highlight critical areas that organizations must address to improve employee well-being and job satisfaction. Implementing strategies to promote work-life balance, enhance social connections, reduce stigma, and provide adequate support can lead to a more engaged and productive workforce.

Overall, these findings emphasize the need for improved support systems for healthcare workers, including better mental health resources, adequate PPE supplies, and institutional backing, to help mitigate the challenges faced in future crises. The study highlights the many challenges healthcare workers faced, showing how important it is to take care of both their emotional and practical needs during tough times like these. The study emphasizes the importance of strengthening both mental and physical support systems to create a more supportive work environment for the long-term well-being of healthcare workers.

6.2. COPING STRATEGIES OF THE HEALTHCARE WORKERS

The coping strategies has comprised of five (5) aspects as physical health coping, mental and emotional health coping, workplace coping and general coping of the respondents. Therefore, the responses provided valuable insights into how the respondents has maintained their well-being in general and during the pandemic.

Table No. 16 Physical health Coping

Sl. No.	Aspects	Mechanisms	Frequency (N=252)	Percentage (%)
1.	Physical health coping	Short break while on duty	215	85.3
		Use nutritional supplements	186	73.8
		Moisturize regularly	174	69.0
		Stay dehydrated	169	67.1
		Maintain proper diet	165	65.5
		Limit screen time	162	64.3
		Proper sleep	161	63.8
		Regular physical exercise	154	61.1
		Maintain a regular bedtime routine	137	54.4

Source: Computed

The table no. 16 on the coping strategies adopted by the respondents shows the coping strategies adopted by the respondents during the pandemic. *The physical health coping of the respondents* was assessed on taking short break while on duty, taking of nutritional supplements, regular moisturization of hands and body to prevent from dryness of skin, regular intake of water and fluids to stay dehydrated, maintenances of proper diet, limit on personal screen time, having proper sleep, taking regular physical exercise and maintenance of regular bedtime routine by the respondents. The data showed that a maximum number of more than four-fifths (85.3%) of the total respondents reported that they took a *short break while on duty*, so as to helped reduce stress, prevent them from burnout, and maintain focus and energy levels during long and demanding working hours. This is followed by nearly three-fourths (73.8%) of the respondents who had taken *nutritional supplements regularly* in order to boost-up the physical health and to optimize physical well-being to the maximum level. It is a common complain to have skin irritation due to regular

usage of PPE and more than two-thirds (69.0%) of the respondents had regularly *moisturized their hands and body* while using the PPE. In panic situation, especially, it is also significant that body is well hydrated and more than two-thirds of the respondents had consumed enough water and fluid, keeping themselves *dehydrated*. In similar way, nearly two-thirds (65.5%) of the respondents had reported that they *maintain a proper diet*, that revealed that nutrition was prioritised as part of physical health coping mechanism. During COVID-19, it is a popular option to have an online interaction for any of the population such as students, employees etc. This has increased the screen time spent by everyone. However, the increase in *screen time* had affected the overall functioning of the person such as lack of appetite, sleep distraction, fear of the news etc. Therefore, nearly two-third of the total respondents has limited their screen time with an average of 4 hours to make them available on their services. In addition, a little more than three-fifths (63.1%) of the respondents reported that they had *maintain proper sleep, which is 6 hours in a day*, as better sleep aids in quicker recovery from everyday physical health challenges. It is important to regularly take physical exercise as it is regulating the physical health. A little more than three-fifths (61.1%) of the respondents had taken *regular physical exercise* reported that it helped improve overall physical health functioning, reduce stress, and enhance recovery from fatigue. However, the exploration of maintain of regular bedtime routine by the respondents shows that more than half (54.4%) of the respondents reported that they had *maintain a regular bedtime routine* for better sleep quality and overall well-being.

The data on *physical health coping strategies* during work provides valuable insights into how employees are managing their well-being in the context of work-related stress, particularly during periods of remote work or extended duties. A variety of strategies were reported, with some receiving stronger adherence than others. This section will explore the significance of these findings through a review of current literature on employee well-being and physical health management.

Taking short breaks while on duty (85.3%) was one of the most reported strategies for managing physical health. Previous research emphasizes the importance of regular breaks to reduce mental and physical fatigue. Taking breaks

can reduce physical strain from long hours of sitting, which is often associated with back pain and other musculoskeletal disorders Harris et al. (2021). *The use of nutritional supplements, reported by 73.8% of the respondents*, was a common strategy. Proper nutrition and supplementation can enhance energy levels and reduce fatigue. Specific vitamins and minerals, like vitamin D and omega-3 fatty acids, have been shown to mitigate the physical effects of stress and support cognitive functions (Walker et al., 2021). *Staying hydrated, reported by 67.1% of respondents*, is essential for physical health, especially in environments with sustained attention demands, like remote work or extended shifts. Dehydration can cause fatigue, headaches, and reduced cognitive function, all of which hinder productivity. Maintaining hydration levels helps improve focus and reduce stress (Keller et al., 2021). *Maintaining a balanced diet, reported by 65.5% of respondents*, is crucial for physical and mental health. A nutrient-dense diet, rich in fruits, vegetables, and whole grains, reduces stress, boosts immunity, and increases energy levels, which is vital during periods of intense work pressure (Parker et al., 2020; Bowers et al., 2021). *Limiting screen time, reported by 64.3% of the respondents*, is a common strategy to manage physical health, particularly in remote work settings. Prolonged screen exposure can disrupt sleep patterns and increase stress levels. Managing screen time also benefits mental well-being and stress reduction (Harris et al., 2020; Adams et al., 2021). *Ensuring proper sleep, reported by 63.8% of respondents*, is essential for both physical and mental well-being. Adequate sleep is crucial for stress management, as insufficient sleep increases emotional reactivity and impairs cognitive function. Consistent sleep schedules are vital for restoring energy and reducing burnout, which is common among remote workers (Robinson et al., 2021; Hughes et al., 2020). *Physical exercise, reported by 61.1% of the respondents, which is widely recognized as an effective way to cope with stress and maintain physical health*. Regular exercise improves physical health, reduces anxiety and depression, and boosts mood by stimulating endorphin production. It also contributes to better sleep, which is crucial for managing stress and reducing fatigue (Smith et al., 2020; Anderson et al., 2021; Bowers et al., 2021). *Having a consistent bedtime routine, reported by 54.4% of respondents, which is essential for maintaining physical and mental health*. A structured bedtime routine improves sleep quality and relaxation,

while a consistent sleep schedule reduces the likelihood of insomnia and other sleep disorders (Smith et al., 2020).

The analysis shows that taking of short break in between is commonly practice by the respondents and more than one-third of the total respondents does not take regular physical exercise and does not maintain regular bedtime routine. Moreover, the data shows that physical health coping mechanisms adopted by the respondents need to be improved so as to enhance their physical wellbeing.

Table No. 17 Mental & Emotional health Coping

Sl. No.	Aspects	Mechanisms	Frequency (N=252)	Percentage (%)
1.	Mental & Emotional health	Emotional disclosure	198	78.6
		Actively addressing the source of stress	188	74.6
		Shared experience exchange	186	73.8
		Cognitive restructuring	167	66.3
		Practice mindfulness	155	61.5
		Journaling	136	54.0
		Professional counselling session	136	54.0

Source: Computed

Table no. 17 presents the mental & emotional health coping adopted by the respondents. The *mental and emotional coping strategies* of the respondents were assessed through emotional disclosure, actively addressing the source of stress, shared experience exchange, cognitive restructuring, mindfulness practice, professional counselling sessions, and journaling. The data on emotional and mental health coping revealed that more than three-fourths (78.6%) of the respondents had adopted emotional disclosure as a strategy for coping with their mental health problems. They reported that sharing their emotional problems with close ones and trusted individuals had been very beneficial to them. Nearly three-fourths (74.6%) of the respondents reported having actively addressed the source of their stress. Several respondents stated that by working through the challenges, they had been able to identify practical solutions and, in some cases, had improved their problem-solving skills. A little less than three-fourth (73.8%) of the respondents reported that shared experiences exchanged with colleagues had been highly beneficial. They mentioned

that discussing their problems with individuals who had similar experiences had helped them cope more effectively with their emotional challenges and enhanced their coping mechanisms. More than two-thirds (66.3%) of the respondents reported having adopted cognitive restructuring to replace self-defeating thoughts with more constructive ones, which had helped improve their ability to handle stress and manage their emotions. Mindfulness was particularly helpful for people working in stressful environments as it helped manage emotions and build mental strength. More than three-fifths (61.5%) of the respondents practiced mindfulness, with activities like taking quiet time before bed and doing deep breathing exercises being common among the respondents. While, more than half (54.0%) of the total respondents had turned to journaling by writing down their thoughts, feelings, and emotions had helped them release stress and cope with the difficult challenges they had faced in their demanding roles. Similarly, the same proportion of more than half (54.0%) of the total respondents reported that they had sought professional help and tele-counselling service was common practice by the respondents.

The *mental & emotional health coping strategies* used by the respondents to manage mental and emotional health during challenging times are discussed as follows; *Emotional disclosure, reported by 78.6% of the respondents, is a frequently used coping strategy.* Sharing emotions has been shown to reduce stress and improve emotional well-being. Expressing emotions helps alleviate emotional burden and process distressing experiences, while verbalizing negative emotions in supportive environments contributes to emotional release and stress reduction (Pennebaker et al., 2019; Moreno et al., 2020). *Actively addressing the source of stress, reported by 74.6% of the respondents, involves confronting and managing stressors directly rather than avoiding them.* This aligns with problem-focused coping mechanisms, which tackle stress at its root and typically lead to more effective stress management. Engaging with stressors helps develop better coping mechanisms, reducing anxiety. Active problem-solving strategies also contribute to emotional resilience in high-stress environments (Carver et al., 2010). *Exchanging shared experiences, reported by 73.8% of the respondents, is a significant coping strategy.* Discussing challenges with others facing similar issues fosters a sense of community and solidarity,

reducing feelings of isolation. The exchange of coping strategies within social networks can also empower individuals by offering alternative perspectives on managing stress (Lazarus & Folkman, 1984). *Cognitive restructuring, reported by 66.3% of the respondents, involves changing negative thought patterns to reduce stress and improve emotional well-being.* This technique is effective in stress management by helping individuals reframe irrational or distorted thoughts, leading to better emotional regulation. It has been linked to reductions in anxiety and depression (Beck et al., 2020). *Mindfulness practice, reported by 61.5% of the respondents, is a popular coping mechanism for emotional regulation and stress management.* It involves being fully present and aware without judgment (Kabat-Zinn, 2020), and has been shown to reduce physiological stress responses while enhancing emotional regulation. Mindfulness techniques, such as deep breathing and meditation, lead to significant reductions in anxiety and stress (Grossman et al., 2021). *Journaling, reported by 54.0% of the respondents, is an effective strategy for coping with stress.* It helps individuals process emotions and reflect on stressful experiences. Expressive writing provides clarity and emotional release by putting thoughts and feelings into words, which reduces emotional overload and improves mood (Pennebaker, 2020; Baikie & Wilhelm, 2005). *Professional counselling, reported by 54.0% of the respondents, provides access to trained professionals who help manage stress and mental health.* Therapy sessions offer a structured environment for expressing and exploring emotions, aiding in stress processing. Counselling provides valuable coping skills and strategies for emotional distress, offering personalized interventions that improve both short-term and long-term emotional well-being (Beutler et al., 2020; Hanson et al., 2020). The coping strategies identified by respondents highlight the importance of both personal and professional approaches to stress management. Emotional disclosure, active problem-solving, and sharing experiences foster emotional release, resilience, and a sense of community. Cognitive restructuring and mindfulness techniques enable individuals to reframe negative thoughts and reduce physiological stress responses, while journaling provides a powerful tool for emotional processing. Professional counselling offers structured support, enhancing both short-term and long-term

emotional well-being. Collectively, these strategies demonstrate the effectiveness of multifaceted coping mechanisms in managing stress and promoting mental health.

Therefore, the analysis shows that emotional disclosure was the most common coping strategy adopted by the respondents in times of mental and emotional problems, while seeking professional counselling was the least adopted coping strategy. Therefore, there is a need to improve accessibility and awareness of professional counselling services.

Table No. 18 Workplace Coping

Sl. No.	Aspects	Mechanisms	Frequency (N=252)	Percentage (%)
1.	Workplace	Practice time management	206	81.7
		Take a break	203	80.6
		Communication with peers	197	78.2
		Swap duties within the team	195	77.4
		Attend refresher courses and training on COVID-19	188	74.6
		Report shortage of PPE to higher authority	180	71.4
		Use social media to combat loneliness	180	71.4

Source: Computed

Table no. 18 shows the workplace coping of the respondents. The *workplace coping* was assessed based on practices time management, taking breaks, communication with peers, swapping duties within the team, attending refresher courses and training on COVID-19, and reporting shortages of PPE to higher authorities. The analysis of the data indicated that a significant proportion of the respondents had adopted various coping mechanisms to effectively manage their work-related challenges. The data showed that a maximum of more than four-fifths (81.7%) of the respondents reported *practicing time management* effectively to manage their workload. This highlighted the importance of organizing tasks and prioritizing responsibilities, which were essential in reducing stress and improving efficiency. *Taking short breaks* during work was another widely adopted strategy to enhance focus and prevent burnout. A little more than four-fifths (80.6%) of the respondents stated that they regularly took a minute break while on duty to refresh

themselves and maintain concentration throughout their shifts. This approach helped improve productivity and prevented fatigue. Communication with peers was also a key coping strategy in the workplace. Nearly four-fifths (78.2%) of the respondents reported that they resolved personal workplace issues through *communication with their colleagues*. This suggested that promoting a supportive environment and discussing challenges openly played a significant role in maintaining a positive work atmosphere. In situations where fatigue impacted performance, more than three-fourths (77.4%) of the total respondents indicated that they *swapped duties within the team* when they felt too tired to perform their tasks effectively. This practice not only ensured that the work continued smoothly but also helped prevent burnout by distributing the workload. The importance of continuous learning and staying updated with safety protocols, especially during the pandemic, was reflected in the responses. Nearly three-fourths (74.6%) of the respondents reported that they *attended refresher courses and training on COVID-19*, which helped them stay informed about the latest safety measures, treatment methods, and prevention strategies. This commitment to learning was crucial in adapting to evolving situations and ensuring the safety of both individuals and colleagues. However, a little more than seven-tenths (71.4%) of the respondents had *reported shortages of any of the PPE to higher authorities* to ensure prompt action. This highlighted the proactive approach of the respondents in ensuring that necessary resources were available for safe operations. Hence, social media usage also emerged as another coping technique for managing stress and combating feelings of loneliness. A similar proportion of respondents, more than two-third (71.4%) of the respondents reported *using social media to combat loneliness* to distract themselves from work stress, often by expressing their emotions through online mode. This further showed how digital platforms acted as a support system, helping people share their experiences and take care of their emotional well-being.

The workplace coping strategies employed by employees to manage stress, particularly in the context of the ongoing challenges posed by the COVID-19 pandemic, demonstrate how individuals are adapting their work practices to maintain productivity, emotional well-being, and health safety. The survey results indicate that

time management, taking breaks, and communication with peers are the most commonly used strategies. *Practicing time management, reported by 81.7% of the respondents, is a widely adopted coping mechanism in the workplace.* It improves productivity and reduces stress by ensuring tasks are completed efficiently and within deadlines. Effective time management decreases feelings of being overwhelmed, thereby reducing stress levels. Employees who manage their time well experience a greater sense of control over their workload (Blanchard et al., 2021; Kearns et al., 2020). *Taking regular breaks, reported by 80.6% of the respondents, is a common strategy for coping with workplace stress.* Breaks help employees' recharge, improving both mental and physical well-being. They reduce cognitive fatigue, enhance focus, and boost productivity. Short breaks also significantly reduce stress and prevent burnout by allowing time for relaxation. The quality of breaks, including engaging in relaxing activities, is crucial for effectively reducing stress (Jensen & Lee, 2021; Bourgeois et al., 2020). *Maintaining good communication with peers, reported by 78.2% of the respondents, is crucial for emotional support and collaborative problem-solving in the workplace.* Open communication reduces feelings of isolation and stress, fostering a sense of connection. Effective communication is key to maintaining mental health in high-stress environments, especially during crises like the COVID-19 pandemic (Gagnon et al., 2020). *Swapping duties within a team, reported by 77.4% of the respondents, is an effective strategy to prevent stress overload.* It promotes role flexibility and helps employees share workloads more evenly. Job rotation and task swapping reduce stress by preventing monotony and allow employees to develop new skills, boosting job satisfaction and reducing feelings of stagnation (Kwak et al., 2020; Mohr et al., 2021). *Attending refresher courses and training on COVID-19 protocols, reported by 74.6% of the respondents, is essential for reducing anxiety and ensuring workplace safety.* Regular updates on health and safety guidelines help employees feel more confident and less stressed about returning to work during a pandemic. These training programs also enhance employees' preparedness to deal with potential risks, reducing stress and increasing their sense of control (Brown et al., 2020; Kane et al., 2021). *The use of social media to combat loneliness, reported by 71.4% of employees, reflects a growing reliance on virtual communication tools to maintain*

social connections. Social media facilitates work-related socialization, helping mitigate the negative impacts of remote work and isolation. It provides employees with access to a broader support network, making it an effective tool for combating loneliness (Morrison et al., 2021). The coping strategies identified by respondents emphasize the importance of proactive approaches to stress management in the workplace. Time management, regular breaks, and good communication with peers are key strategies that enhance productivity, reduce stress, and foster emotional well-being. Swapping duties, attending refresher courses, and using social media for socialization further contribute to maintaining balance and combating isolation. Together, these strategies provide a comprehensive framework for employees to manage stress, improve job satisfaction, and ensure mental and physical well-being in high-pressure work environments.

The analysis suggests that while effective time management, communication, and short breaks are common practices among respondents, there is still room for improvement in other areas such as proactive duty swaps, attending training, and social media usage for emotional support.

Table No. 19 General coping

Sl. No.	Aspects	Mechanisms	Frequency (N=252)	Percentage (%)
1.	General Coping	Digital socialization	209	82.9
		Public awareness initiatives	203	80.6
		Seek external support	192	76.2
		Suggest for on-site psychological support services	189	75.0
		Compliance with health protocols	188	74.6
		Work adjustment	184	73.0
		Practicing self-care	182	72.2
		Peer-assisted coping	181	71.8

Source: Computed

Table no. 19 depicts the general coping strategy adopted by the respondents. The *general coping* was assessed on digital socialization, public awareness initiatives, seeking external support, suggesting on-site psychological support services, compliance with health protocols, work adjustment, practicing self-care,

and peer-assisted coping. The data showed that a maximum of more than four-fifths (82.9%) of the respondents reported using *digital socialization* to connect with friends, family, and significant others, which helped them cope with isolation and loneliness. This indicated the importance of maintaining social connections virtually to mitigate the emotional challenges posed by physical distancing. Proportionately, a little more than four-fifths (80.6%) of the respondents also took an active role in *raising public awareness* on COVID virus and information on the consequences through their personal WhatsApp accounts and social media handles. This has promoted the awareness level by providing promotional education addressing misconceptions about the virus and alleviating the unnecessary pressure they faced, demonstrating a collective effort to spread accurate information and reduce panic. When institutional support fell short, a little more than three-fourths (76.5%) of the respondents *sought external support* for coping with their problems, particularly those related to mental and emotional health. This reflected the necessity of accessing additional resources when internal support systems were inadequate, underscoring the need for external interventions in times of crisis. In response to the mental and emotional challenges, three-fourths (75.0%) of the respondents suggested the implementation of *on-site psychological support services*. This reflected a proactive approach to enhancing the well-being of individuals by providing immediate resources for mental health support. Nearly three-fourths (74.6%) of the respondents emphasized their *compliance with health protocols* to minimize the risk of infection and ensure their safety during the pandemic. Adhering to these protocols was a key strategy for maintaining both physical and mental health during uncertain times. In addition, work-related adjustments were also necessary for many of the respondents and nearly three-fourths (73.0%) reported that the heavy demands during the pandemic often required them to *adjust their work schedules*, collaborating with colleagues to recover from physical, mental, and emotional exhaustion. This demonstrated the flexibility required to manage increased workloads and stress levels during a global crisis. Moreover, a little more than seven-tenths (72.2%) of the respondents engaged in *self-care practices* to support their overall well-being. These activities included exercising, meditating, or enjoying hobbies, all of which helped maintain balance and provide relief from the stresses of daily life. Meanwhile, more

than two-third (71.8%) of the respondents reported using *peer-assisted coping* strategies, seeking support from colleagues and peers to manage their stress and challenges. This suggested that social support within the workplace was a crucial factor in handling the mental and emotional burdens of the pandemic.

The results indicate various general coping strategies employed by the respondents to manage stress in a work environment, particularly during challenging times such as the COVID-19 pandemic. These strategies range from digital socialization to seeking external support, highlighting how individuals adapt to maintain their mental well-being and productivity. The following section explores these coping mechanisms and their effectiveness as reported in the academic literature, integrating findings from several studies to provide a comprehensive understanding. *Digital socialization, reported by 82.9% of the respondents, refers to using online platforms to connect with others, particularly during social distancing or remote work.* This strategy highlights the increasing importance of virtual connections in maintaining social ties. Online interactions offer an essential outlet for stress relief and enhance work-life balance by fostering social engagement (Rosen et al., 2021). *Public awareness initiatives, reported by 80.6% of the respondents, such as workplace campaigns and informational resources on stress management, health, and wellness, were identified as effective coping strategies.* These initiatives help employees feel more informed and better equipped to handle workplace stress. They also educate employees on coping mechanisms and foster a culture of openness regarding mental health (Anderson et al., 2021). *Seeking external support, reported by 76.2% of the respondents, such as counselling or reaching out to support networks outside of the workplace, was a prevalent coping strategy.* This approach helps individuals manage stressors that may not be addressed within the workplace. External support systems, including family, friends, and professional counsellors, provide essential emotional assistance, reducing the negative impact of stress. Employees who access external support networks report higher coping effectiveness and improved emotional resilience (Schneider et al., 2020; Smith et al., 2021). *The suggestion for on-site psychological support services, reported by 75.0% of the respondents, reflects the growing recognition of mental health services as vital for*

employee well-being. On-site counselling and mental health resources can significantly reduce stress and improve workplace morale. Access to these services allows employees to address mental health issues promptly, preventing stress from escalating. Additionally, on-site services help destigmatize mental health care, making it more accessible to employees (McNally et al., 2021). *Compliance with health protocols, reported by 74.6% of the respondents, such as wearing PPE, maintaining social distancing, and adhering to hygiene guidelines, was another common coping strategy.* These protocols help employees feel safer and reduce anxiety about health risks. By following health protocols, employees experience lower levels of health-related stress, as they feel more secure in their work environment. Compliance also boosts confidence in workplace health measures, reducing fear and uncertainty (Jones et al., 2020). *Work adjustment, reported by 73.0% of employees, such as modifying work hours or tasks, was another effective coping strategy.* Adjusting work to accommodate personal or health needs helps maintain productivity while reducing stress. Flexible work arrangements enable employees to balance their professional and personal lives, reducing burnout. Employees with adjustable work schedules report higher well-being and lower stress levels (Bryson et al., 2020; Greenhaus et al., 2021). *Practicing self-care, reported by 72.2% of employees, such as engaging in physical exercise, mindfulness, or healthy eating, is a widely adopted coping strategy.* Self-care promotes both physical and mental health, helping employees manage stress. Mindfulness and meditation significantly reduce stress by improving emotional regulation, while regular physical activity boosts mood and reduces anxiety, fostering resilience to stress (Kabat-Zinn, 2020; Miller et al., 2020). *Peer-assisted coping, reported by 71.8% of employees, involves seeking support from colleagues or sharing coping strategies within a team.* This strategy emphasizes the role of social connections in managing workplace stress. Peer-assisted coping enables employees to share experiences and strategies, fostering collective resilience. Peer support creates a network of emotional resources that helps reduce stress and strengthens social bonds, allowing employees to manage stress more effectively (Harrison et al., 2020; Bennett et al., 2021). The coping strategies identified by employees highlight the importance of both individual and collective approaches to managing workplace stress. Digital socialization, public

awareness initiatives, and seeking external support emphasize the value of social connections, information sharing, and professional assistance in reducing stress. On-site psychological support, compliance with health protocols, and work adjustments help foster a secure and supportive work environment. Additionally, practicing self-care, peer-assisted coping, and flexible work arrangements contribute to emotional resilience, stress management, and improved well-being. The analysis shows that while respondents have adopted several coping strategies, there are areas for further enhancement, particularly in ensuring the accessibility of on-site psychological support services, enhancing peer support systems, and encouraging better work adjustments to prevent exhaustion.

The findings from the study on coping strategies highlight a range of physical, mental, emotional, and workplace-related coping mechanisms utilized by employees during the pandemic. These strategies are aimed at managing the challenges posed by remote work and the ongoing stress caused by COVID-19. The results emphasize the importance of self-care, emotional disclosure, and effective time management in promoting employee well-being.

This chapter revealed that physical health issues were the most common occupational health problems reported by the respondents. Regarding coping strategies, workplace coping was the most frequently adopted approach among the respondents.

The next chapter will examine the *Social support received by the respondents*, which is categorized into four types: mental and emotional support, instrumental support, informational support, and appraisal support.

SOCIAL SUPPORT OF THE HEALTHCARE WORKERS

CHAPTER VII

SOCIAL SUPPORT OF THE HEALTHCARE WORKERS

The healthcare workers during the COVID-19 pandemic had faced many challenges, both in terms of physical and emotional and how well they were able to handle these challenges largely depended on the support they received. Therefore, social support received by the respondents was categorised into four type of social support such as, mental and emotional support, instrumental support, informational support, and appraisal support.

7.1. MENTAL & EMOTIONAL SUPPORT

Mental and Emotional Support refers to the emotional and psychological assistance that healthcare workers received in their work environment. This includes support from colleagues, supervisors, and family, as well as access to mental health resources such as counselling services, stress management programs, and relaxation techniques. These support systems help healthcare workers manage the emotional and psychological challenges they face, particularly in high-stress situations like the COVID-19 pandemic. The following table provides an analysis of how healthcare workers perceive the availability and effectiveness of mental and emotional support measures in their workplace.

The table no 20. shows the mental and emotional support of the respondents. The scale is self-constructed using a three-point system whereby 1 = agree, 2 = partially agree, 3 = disagree. The responses are converted into mean scores; the scores fall as follows: agree mean score between 1.00 and 1.49; partially agree mean score between 1.50 and 2.49; disagree mean score between 2.50 and 3.00. The average mean scores of 1.68 suggests that, overall, respondents feel they partially agree with the availability of mental and emotional support.

Table No. 20 Mental & Emotional support

Sl. No.	Types	Min	Max	Mean	Std. Dev.
1.	Psychological first aid	1	3	1.81	.722
2.	Access to psychiatrists and psychologist's consultation	1	3	1.80	.710
3.	Counselling service	1	3	1.76	.746
4.	Recognition and appreciation	1	3	1.73	.686
5.	Relaxation sessions	1	3	1.71	.692
6.	Peers support	1	3	1.68	.594
7.	Stress management	1	3	1.67	.701
8.	Educational resources on mental health	1	3	1.66	.693
9.	Colleagues support	1	3	1.54	.633
10.	Family support	1	3	1.44	.613
Average Mean				1.68	

Source: Computed

Table no. 20 shows the mental & emotional support of the respondents. The mean scores were arranged based on the descending mean score, with *psychological first aid* support being partially agreed upon among the respondents, having a mean score of 1.81. Psychological first aid includes active listening, showing empathy, providing information about available resources, and ensuring safety, without requiring professional counselling or therapy. A mean score of 1.80 of the respondents reported that they had *access to psychiatrists and psychologists*, indicating that respondents partially agreed that they access this professional support when needed. A mean score of 1.76 indicated that the respondents reported accessing *counselling services*, revealing that they utilized this service according to their needs, with some opting for telephonic counselling outside of the institutional service. A mean score of 1.73 showed that the respondents reported *receiving recognition and appreciation* from both their colleagues and institutional authorities for their dedication and contributions to their work. The *relaxation sessions* had a mean score of 1.71, indicating that respondents partially agreed that such sessions were available and utilized for their relaxation and rest. The most commonly reported relaxation

therapies included meditation, stretching, and listening to music. *Peer support* was one of the most common types of support that was available and beneficial to them, with a mean score of 1.68. In a stressful environment, *managing stress* was crucial, with a mean score of 1.67, respondents reported using techniques like mindfulness, deep breathing, physical exercise, and journaling to *manage stress*. *Educational resources on mental health* had a mean score of 1.66, indicating that respondents partially agreed they had access to resources like books, pamphlets, brochures, and webinars. The colleagues' support score of 1.54 indicated that most respondents partially agreed that they received support from their colleagues, which included motivation, understanding, empathy, and active listening. Lastly, the respondents reported that *family support* was one of the most effective forms of mental and emotional support during the pandemic, as they often relied on it, with a mean score of 1.44.

Therefore, the mental and emotional support of the respondents showed that support from the family and colleagues had obtained the highest mean score amongst the list and the psychological first aid, access to psychiatrist and psychologist had the lowest mean score. Thus, the table on the mental and emotional support received by the respondents was moderate with an average mean score of 1.68.

The high value of *psychological first aid* (Mean = 1.81) suggests that individuals perceive this support to be somewhat helpful. Psychological first aid has been extensively studied, demonstrating its positive effects in crisis situations. Psychological first aid helps individuals in high-stress environments by providing immediate emotional and practical support (Mitchell et al., 2020). The *access to psychiatrists and psychologists* (Mean = 1.80) ranks similarly, pointing to a lack of sufficient availability of mental health professionals for healthcare workers. The World Health Organization (2020) highlighted the shortage of mental health professionals and its impact on the wellbeing of workers globally. *Counselling services are considered moderately helpful, with a mean score of 1.76*. Several studies highlight the positive impact of counselling in reducing stress among healthcare professionals. Counselling services are particularly effective in reducing burnout, and employee assistance programs, which often include counselling, have

been shown to significantly improve emotional well-being (Al Zahrani, 2021; Watson et al., 2020). *Recognition and appreciation, while important, received a lower-than-expected average score of 1.73, indicating its impact is often perceived as less significant.* However, the importance of recognition in improving emotional well-being is well-established. Workplace recognition reduces burnout and increases job satisfaction, and regular recognition improves overall workplace morale. Additionally, employee appreciation has been linked to better job retention (Wang et al., 2017). *Relaxation sessions, which may include techniques like meditation or breathing exercises, scored just above the average mean score of 1.71.* Many studies have shown that relaxation techniques significantly improve mental health. Techniques such as progressive muscle relaxation reduce stress and improve psychological well-being in high-pressure jobs, and mindfulness-based stress reduction programs are effective in lowering stress and enhancing emotional well-being (Rauschenberg et al., 2019; Goyal et al., 2021). *Peer support, although helpful, ranked lower than other support types with a mean score of 1.68.* Peer support has been shown to positively influence mental health, particularly in work environments. It enhances psychological well-being by providing individuals with a sense of belonging and emotional validation, and better peer support helps workers cope with stress and challenges (Boudah et al., 2016). *Stress management, with a mean score of 1.67, indicates its moderate effectiveness.* Several studies support the benefits of stress management programs in healthcare settings. Stress management programs can improve job satisfaction and reduce anxiety among healthcare workers, and it has been confirmed that stress management interventions in workplace settings have a positive effect on workers (Hedges et al., 2018). *Educational resources, though valuable, were ranked low with a mean score of 1.66.* Studies show that educational resources on mental health are beneficial but often underutilized. Mental health training programs for employees are essential for enhancing awareness and reducing stigma, and access to mental health education leads to more open discussions and better coping strategies among workers (Clarke et al., 2020). *Colleague support, with a mean score of 1.54, indicates a moderate role in emotional support.* However, research shows that colleague support plays an important role in mitigating workplace stress. Emotional and practical support from colleagues is crucial for job

satisfaction and mental well-being, and having supportive colleagues reduces stress and promotes teamwork. More efforts are needed to improve colleague support in the workplace to reduce anxiety and stress among healthcare workers (LeBlanc et al., 2019). *Family support, with a mean score of 1.44, suggests a more significant form of support in the healthcare workers' workplace context.* Family support plays a crucial role in emotional well-being, significantly reducing stress, especially in the face of work-related challenges. It helps reduce burnout and enables workers to balance personal and professional life. Additionally, family support is essential in managing work-life conflict (Franke et al., 2020).

The findings highlight the varying mental and emotional support mechanisms for healthcare workers. While access to mental health professionals and counselling services is crucial, there remains a significant gap in availability, as reflected in the moderate effectiveness of these services. Recognition and appreciation, though important, have a lower impact, suggesting room for improvement in fostering a culture of recognition. Relaxation techniques and peer support, while helpful, also show moderate effectiveness and indicate the need for enhanced focus on these areas. Stress management programs and educational resources, despite their benefits, are often underutilized, signalling a need for better engagement and accessibility. Family support plays a vital role in emotional well-being and work-life balance, further emphasizing the importance of personal support systems. Overall, a more comprehensive and accessible approach to support services, alongside a stronger culture of recognition and peer support, is necessary to reduce stress and improve the overall well-being of healthcare workers.

7.2. INSTRUMENTAL SUPPORT

Instrumental Support refers to the practical resources and assistance that healthcare workers feel are available to them in their work environment. This type of support includes tangible measures such as the provision of personal protective equipment (PPE), financial incentives, flexible work schedules, transportation, and childcare services. It also covers access to meals, accommodation, training, and essential healthcare resources like COVID-19 testing and vaccination. These resources are designed to ease the challenges healthcare workers face and help them

perform their duties more effectively. The table below presents an analysis of how these support measures are available to healthcare workers.

The data presented in the table no. 21 shows the respondents' instrumental support. The scale is self-constructed using a three-point system whereby 1 = agree, 2 = partially agree, 3 = disagree. The responses are converted into mean scores; the scores fall as follows: agree mean score between 1.00 and 1.49; partially agree mean score between 1.50 and 2.49; disagree mean score between 2.50 and 3.00. The average mean scores of 1.6 suggests that, overall, respondents feel they partially agree with the availability of mental and emotional support.

Table No. 21 Instrumental support

Sl. No.	Provision of support	Min	Max	Mean	Std. Dev.
1.	Onsite mental health support	1	3	1.81	2.107
2.	Financial incentives	1	3	1.71	0.672
3.	Flexible work schedules	1	3	1.65	0.665
4.	Provision of meals and accommodation	1	3	1.64	0.720
5.	Employee assistance programs	1	3	1.64	0.625
6.	Adequate breaks and recovery time	1	3	1.63	0.693
7.	Access to COVID-19 testing and vaccination	1	3	1.55	0.663
8.	Training on infection control	1	3	1.53	0.621
9.	Provision of PPE while on duty	1	3	1.49	0.634
Average mean				1.63	

Source: Computed

The data was arranged in descending order, starting with the support measures that were most accessible and partially agreed upon by the respondents. The measures with the least agreement were listed at the end. *Onsite mental health support* had the highest mean score of 1.8, indicating that the respondents partially agreed with the support provided, which included stress relief activities, and counselling services. A mean score of 1.71 indicated that the respondents partially agreed they had received financial incentives for the extra shifts they worked during

the pandemic. A mean score of 1.65 indicated that healthcare workers partially agreed that flexible work schedules were available to them during the pandemic. It was reported that they were able to swap shifts with colleagues in times of inconvenience. A mean score of 1.64 revealed that the *provision of meals and accommodation* was available during the pandemic, but it was not consistently provided to all respondents. This was particularly applicable to respondents whose homes were far from the workplace and who faced inconvenience traveling during the pandemic due to lockdown restrictions. Similarly, a mean score of 1.64 indicated that *employee assistance programs* were available during the pandemic, with services such as employee legal rights support and virtual therapy sessions being accessible to most of employees. A mean score of 1.63 revealed that respondents partially agreed that *adequate breaks and recovery time* were provided to them during the pandemic. It was reported that, due to limited staffing and resources, respondents did not receive sufficient time for breaks, rest, and recovery. A mean score of 1.55 revealed that respondents partially agreed they had *access to COVID-19 testing and vaccination*. This indicated that, while some healthcare institutions provided these services, many respondents reported having limited or inconsistent access. A mean score of 1.53 indicated that respondents partially agreed with the *provision of infection control* training. Reports indicated that while some institutions effectively disseminated the information, others failed to provide sufficient information and consistent training. A mean score of 1.49 for the *provision of PPE while on duty* revealed that the majority of respondents strongly agreed that PPE was provided during their duty.

The above table showed that the availability of the provision of PPE has obtained the highest scores among the list and the availability of the on-site mental health support has obtained the lowest score. Finally, the table on the instrumental support received by the respondents was moderate with an average mean score of 1.68.

The results of the *instrumental support* in this survey reveal a range of responses across different support provisions offered to healthcare workers. Each of these provisions has a varied level of significance, ranging from mental health

support to the provision of personal protective equipment (PPE). The mean scores for these provisions suggest that while they are important, the perceived availability and effectiveness of such supports vary. *The availability of onsite mental health support, with a mean score of 1.81, indicated that healthcare workers perceive less mental health support.* HCWs in high-stress environments often face long-term psychological consequences without proper mental health provisions. Mental health support was essential for healthcare workers during the COVID-19 pandemic, as it helped them cope with stress and anxiety (Joubert et al., 2020; Bhugra et al., 2020). *Financial incentives were perceived as another important form of support, with a mean score of 1.71, but this support was inconsistent and unlikely to occur regularly across respondents.* This finding aligns with several studies emphasizing the positive impact of financial rewards on employee motivation. Financial rewards were highly valued by HCWs working on the frontline during the pandemic, as they acknowledged the added risks and challenges these workers faced (Kaur & Kaur, 2021; McNamara et al., 2020). *Flexible work schedules were perceived as moderately available, with a score of 1.65.* Flexible scheduling can mitigate stress and enhance worker satisfaction. Flexible work arrangements allowed HCWs to better manage their time, reducing stress levels during the COVID-19 pandemic (Spector & Fox, 2021). *The provision of meals and accommodation is perceived as moderately available with a mean score of 1.64, with healthcare workers valuing this support.* Studies have shown that these provisions are particularly important for those working during the COVID-19 pandemic. HCWs in quarantine facilities appreciated meal and accommodation provisions, as it allowed them to focus entirely on their work without external distractions (Taylor et al., 2020). *Employee Assistance Programs (EAPs) were perceived as moderately accessible, with a mean score of 1.64.* EAPs have been shown to reduce stress levels among healthcare workers by providing counselling services, helping them cope with personal or work-related issues. These programs also contribute to improved job satisfaction and reduced turnover rates by offering crucial mental health support (Sorrells et al., 2020).

The availability of instrumental support for healthcare workers (HCWs) highlights critical areas for improvement. Onsite mental health support, financial

incentives, and flexible work schedules are valued, but often fall short in consistency or accessibility, limiting their effectiveness. Support provisions such as meals, accommodation, and Employee Assistance Programs (EAPs) were also seen as moderately available and important for HCWs, especially during high-stress periods like the COVID-19 pandemic. These findings underscore the need for more consistent and accessible support mechanisms to address the diverse needs of healthcare workers, enhance job satisfaction, and reduce stress and turnover.

7.3. INFORMATIONAL SUPPORT

Informational Support refers to the availability and clarity of information provided to healthcare workers to help them perform their duties effectively, especially during critical situations like the COVID-19 pandemic. This type of support includes guidance on the proper use of PPE, instructions on handling COVID-19 patients, and resources for managing work-related stress. It also encompasses frequent briefings on safety measures, peer mentoring, and sharing experiences and strategies among colleagues.

Table no.22 shows the informational support provided to healthcare workers. The scale is self-constructed using a three-point system whereby 1 = agree, 2 = partially agree, 3 = disagree. The responses are converted into mean scores; the scores fall as follows: agree mean score between 1.00 and 1.49; partially agree mean score between 1.50 and 2.49; disagree mean score between 2.50 and 3.00. The average mean score was 1.55, suggesting that, overall, respondents partially agreed with the availability of informational support.

Table No. 22 Informational support

Sl. No.	Provision of support	Min	Max	Mean	Std. Dev.
1.	Peer-to-peer mentoring and advice	1	3	1.68	0.717
2.	Sharing of experiences and strategies among colleagues	1	3	1.63	0.640
3.	Guidance/advice on work-related challenges	1	3	1.60	0.716
4.	Work-related stress management techniques	1	3	1.59	0.653
5.	Frequent briefing on safety measures	1	3	1.56	0.656
6.	Clear instructions on handling COVID-19 patients	1	3	1.50	0.641
7.	Information on COVID-19 related	1	3	1.44	0.644
8.	Clear information on PPE usage	1	3	1.42	0.642
Average Mean				1.55	

Source: Computed

The mean score of 1.68 for *peer-to-peer mentoring and advice* indicated that most respondents partially agreed that such support was available to them. Many respondents reported sharing resources, such as reading materials, and providing feedback on each other's performance. The *sharing of experiences and strategies among colleagues* had a mean score of 1.63, showing partial agreement with the exchange of experiences. Sharing experiences, such as handling difficult patients and coping with high-stress situations, helped colleagues learn from each other and improve their work practices. *Guidance/advice on work-related challenges* had a mean score of 1.60, suggesting that respondents partially agreed they received advice. This included assistance with managing workloads, handling difficult patient cases, coping with stress, improving time management, and addressing interpersonal conflicts within the workplace. *Work-related stress management techniques* had a mean score of 1.59, indicating partial agreement that stress management resources were provided. This included relaxation techniques, mindfulness exercises, stress reduction workshops, access to counselling services, and strategies for improving work-life balance. *Frequent briefings on safety measures* had a mean score of 1.56, indicating partial agreement that these briefings were regularly provided. This included updates on infection control procedures, the use of PPE, SOPs for COVID-19 patients, and steps to prevent workplace risks. *Clear instructions on handling COVID-19 patients* had a mean score of 1.50, which included infection control measures, patient management protocols, and safety procedures for preventing virus transmission. *Information on COVID-19-related topics* had a mean score of 1.44, which indicated that respondents agreed they received relevant information about the virus, including safety protocols, symptoms, transmission methods, and prevention measures. *Clear information on PPE usage* had the lowest mean score of 1.42, indicating that respondents strongly agreed they received clear instructions regarding the use of PPE.

Therefore, the above table presents the respondents informational support received, among the various forms of support, training on infection control and provision of PPE has obtained the highest mean scores. In contrast, peer-to-peer

mentoring, advice, and the sharing of experiences and strategies among colleagues has received the lowest mean scores. Overall, the average informational support received by the respondents was moderate, with a mean score of 1.55.

The data on informational support reveals insights into the availability and effectiveness of information-sharing practices within healthcare settings, especially in the context of work-related stress and COVID-19 management. The mean scores for the various items indicate moderate levels of informational support across different areas, with values ranging between 1.42 and 1.68. Below is a detailed discussion of these findings, supported by previous studies.

Peer-to-peer mentoring and advice, with a mean score of 1.68, indicate that healthcare workers somewhat feel supported by their colleagues' advice, but the support is not consistent. Peer mentoring has been found to positively influence professional development and reduce burnout among healthcare workers. Peer-to-peer support is significant in fostering resilience in healthcare settings, particularly during crises, and enhances team cohesion and collaborative problem-solving (Hargreaves et al., 2019; Schwartz et al., 2020). *Sharing experiences and strategies among colleagues received a mean score of 1.63, indicating a moderate level of support among colleagues.* Such practices are crucial for fostering a sense of community and collective knowledge within healthcare teams. Sharing strategies helps HCWs navigate complex situations more efficiently, and exchanging coping strategies has been reported to help manage emotional strain more effectively (Harvey et al., 2019). *Guidance or advice on work-related challenges, with a mean score of 1.60, indicates that while healthcare workers receive some level of guidance, there is room for improvement.* A lack of clear guidance in stressful situations can lead to confusion, burnout, and decreased job satisfaction, while mentorship and advice on professional challenges directly improve workplace coping strategies (Thompson et al., 2020). *The work-related stress management techniques, with a mean score of 1.59, indicate that healthcare workers feel moderately supported but could benefit from more comprehensive resources.* Stress management techniques, such as mindfulness and relaxation exercises, are effective tools in preventing burnout among HCWs. During the COVID-19 pandemic, healthcare

workers reported that these techniques were vital in managing heightened work pressures (McKinley et al., 2020; Morrison, 2021). *Frequent briefing on safety measures, with a mean score of 1.56, is a critical component of informational support, especially in the context of COVID-19.* Regular safety updates ensure healthcare workers are informed of the latest protocols to prevent the spread of the virus. Consistent briefings on safety protocols contributed to higher levels of safety compliance and lower stress levels, and they also helped reduce anxiety about personal safety, fostering a safer work environment (Annesley et al., 2020; Cruz et al., 2021). *Clear instructions on handling COVID-19 patients, with a mean score of 1.50, highlight that healthcare workers, although somewhat informed, still feel there is a need for better guidance.* The importance of clear communication in managing patient care during a pandemic cannot be overstated. The lack of clear protocols during the early stages of the pandemic led to confusion and anxiety among healthcare professionals (Williams et al., 2021). *The information on COVID-19, with a mean score of 1.44, indicates that healthcare workers feel sufficiently informed about the pandemic.* However, this is concerning, as timely and accurate information is critical during health crises. The dissemination of reliable and up-to-date information is key to managing the spread of infectious diseases (Liu et al., 2020). *Clear information on PPE usage, with a mean score of 1.42, indicates better adherence to PPE usage among healthcare workers.* Proper guidance on PPE is essential in protecting healthcare workers and preventing the spread of infectious diseases. Providing clear and consistent information about PPE is crucial for minimizing risk and boosting healthcare workers' confidence (Nguyen et al., 2020).

The findings indicate that while healthcare workers receive moderate informational support, there are key areas that need improvement. Peer-to-peer mentoring, sharing experiences, and guidance on work-related challenges are valued but not consistently provided, highlighting the need for stronger support systems. Stress management techniques and regular safety briefings are essential, but more comprehensive resources are needed to better equip healthcare workers in high-pressure environments. Clear communication on handling COVID-19 patients and PPE usage is crucial to ensure safety and reduce stress. Overall, improving the

consistency and clarity of informational support will significantly enhance the well-being and resilience of healthcare workers.

7.4. APPRAISAL SUPPORT

Appraisal Support refers to the feedback, recognition, and encouragement that healthcare workers receive from various sources, including their supervisors, colleagues, the community, and their families. This support involves acknowledging their hard work, appreciating their contributions, and motivating them for their continued performance, especially during the pandemic. Such recognition is crucial in maintaining morale, improving job satisfaction, and enhancing overall job performance. The table below presents the mean scores for different types of appraisal support as received by healthcare workers, providing insight into how they rated the support they received from various sources during the pandemic.

The table no 23 presents the appraisal support received by healthcare workers during the pandemic. The responses were converted into mean scores, with scores falling within the following ranges: a mean score between 1.00 and 1.49 indicated agreement, between 1.50 and 2.49 indicated partial agreement, and between 2.50 and 3.00 indicated disagreement. The overall average mean score was 1.61, suggesting that, on the whole, respondents partially agreed that they received appraisal support during the pandemic.

Table No. 23 Appraisal support

Sl. No.	Appraisal Support	Min	Max	Mean	Std. Dev.
1.	Inspiration-driven media campaign	1	3	1.74	0.737
2.	Create a team for problem-solving	1	3	1.71	0.715
3.	Promotions or career development prospects during the pandemic	1	3	1.69	0.714
4.	Recognition of efforts	1	3	1.65	0.707
5.	Gratitude shown by the community	1	3	1.60	0.639
6.	Positive feedback for patient care	1	3	1.56	0.662
7.	Appreciation from colleague	1	3	1.54	0.620
8.	Positive feedback from the authority	1	3	1.53	0.634

	Average mean score	1.61	
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Source: Computed

The *inspiration-driven media campaign* had the highest mean score of 1.74, indicating partial agreement that such campaigns were implemented to boost morale. These campaigns, which advocated for healthcare workers, showcased their efforts, and raised awareness about their contributions, served as a significant source of motivation and inspiration for them to continue their work. The mean score for *creating a team for problem-solving* was 1.71, reflecting partial agreement that teams were formed to tackle challenges during the pandemic. Respondents acknowledged the necessity of team collaboration to address various issues effectively. *Promotions or career development prospects during the pandemic* received a mean score of 1.69, suggesting that some respondents were able to secure permanent positions or encountered new career opportunities that were not previously available to them. The *recognition of efforts* had a mean score of 1.65, indicating partial agreement that their hard work was acknowledged. Respondents reported that institutions, society, and colleagues recognized their contributions and efforts. *Gratitude shown by the community* received a mean score of 1.60, reflecting partial agreement that the community expressed appreciation for healthcare workers' efforts during the pandemic. *Positive feedback for patient care* had a mean score of 1.56, suggesting partial agreement that respondents received acknowledgment for their patient care and work during the crisis. *Appreciation from colleagues* was slightly higher, with a mean score of 1.54, showing partial agreement that peers expressed appreciation for each other's efforts. Finally, the mean score for *positive feedback from the authority* was 1.53, indicating that respondents partially agreed that they had received feedback from their authority, which included praise for their services and acknowledgment of their work.

Therefore, the above table shows the appraisal support received by the respondents showed that receiving positive feedback from the authority and appreciation from colleague has obtained received the highest mean score and while problem-solving and motivation boost media campaign received the lowest mean score. Thus, the appraisal support was moderate with a mean score of 1.61.

Appraisal support was measured across various aspects such as positive feedback from authority, appreciation from colleagues, recognition, career development prospects, and more. The mean scores across all items fall between 1.53 and 1.74, with corresponding standard deviations ranging from 0.620 to 0.737. This indicates relatively low to moderate appraisal support across the board, with some variance observed.

The perception of receiving positive feedback from authority, with a mean score of 1.53, suggests that authority figures may not be providing sufficient feedback. Recognition and positive feedback from supervisors are crucial factors that influence employee motivation and engagement, and leadership feedback significantly impacts organizational commitment (Tessema et al., 2013; Albrecht et al., 2015). *Received appreciation from colleagues, with a mean score of 1.54, highlights the importance of peer support in fostering a positive work environment.* Mutual appreciation among co-workers enhances collective efficacy and reduces burnout. Additionally, a supportive peer network is linked to better well-being and job satisfaction (Tuckey et al., 2012). *Positive feedback related to patient care is an essential aspect of healthcare work. The mean score of 1.56 indicates a somewhat favourable but still limited response in this domain.* Studies highlight the importance of patient-centered feedback for HCWs. HCWs who receive positive feedback from patients report lower levels of emotional exhaustion, and acknowledging HCWs' contributions through patient appreciation can act as a powerful motivational tool (Andersson et al., 2018; Joubert et al., 2015). *The community's expression of gratitude, with a mean score of 1.60, reflects a potential gap in recognition from external parties.* External recognition from the community can greatly influence the mental well-being of healthcare workers, particularly in high-pressure environments. Community acknowledgment can enhance healthcare workers' emotional resilience, especially during challenging times such as the COVID-19 pandemic (Dunn et al., 2018). *Recognition of efforts, with a mean score of 1.65, indicates that there is some level of acknowledgment for employees' hard work, but it remains relatively low.* Recognition is crucial for emotional well-being and job commitment, and it drives organizational loyalty while helping build high-performance cultures (Bakker et al.,

2019). *Creating teams for problem-solving, with a mean score of 1.71, indicates a need for more support in this area.* Team-based problem-solving encourages knowledge sharing and reduces the risk of errors (Tucker & Edmondson, 2003; Kaufman et al., 2015). *The motivation boost from media campaigns, with a moderate score of 1.74, shows that external motivators are somewhat effective.* Media campaigns can positively impact employee motivation and engagement, and research has demonstrated that motivational campaigns can effectively boost morale, particularly in high-stress environments (Kroll et al., 2017).

The findings indicate that while there is some level of appraisal support, it remains relatively low to moderate across various domains. Healthcare workers report limited positive feedback from authority figures, colleagues, and patients, with external recognition also lacking. This highlights the need for more consistent and meaningful acknowledgment of efforts. While peer support and team-based problem-solving are valued, there is room for improvement in these areas. Media campaigns provide a moderate boost to motivation but could be more effective with better targeting. Overall, enhancing recognition, feedback, and external support systems is essential for improving the emotional well-being, job satisfaction, and resilience of healthcare workers.

In summary, among the four types of social support by the respondent healthcare workers showed that the informational support has rated the highest with an average mean score of 1.55 while, the mental and emotional support was lowest rated with highest mean score of 1.66. However, all the four types of social support have a moderate score.

The next chapter will focus on the well-being of the respondents, assessing it across four dimensions: mental well-being, subjective well-being, social well-being, and psychological well-being. Additionally, this chapter will include the hypothesis testing formulated for the study.

WELL-BEING OF THE RESPONDENTS

CHAPTER VIII

WELL-BEING OF THE RESPONDENTS

To understand the well-being of the respondents, the well-being of the respondents was assessed based on four dimensions such as mental well-being, subjective well-being, social well-being and psychological well-being. Before the main survey was conducted, these tools were tested in a preliminary run. Using multiple scales was important because no single scale can fully capture the many dimensions of well-being. This comprehensive approach is especially useful when assessing healthcare workers during the pandemic, as it helps capture the mental, social, and psychological challenges they uniquely face.

8.1. Mental Well-being of the Respondents

This scale was designed to measure positive mental health by focusing on aspects like feeling good and functioning well in daily life. It includes statements that reflect a person's thoughts and feelings and it helps in providing a clear picture of their overall mental well-being. There are 22 items in the Mental well-being scale.

Table No. 24 Mental Well-being of the Respondents

Sl. No.	Statement	Min	Max	Mean	Std. Dev.
1.	I enjoy learning new things.	1	5	3.25	1.10
2.	I think clearly during my shifts.	1	5	3.25	1.01
3.	I feel cared for by others.	1	5	3.23	1.02
4.	I can make decisions on my own.	1	5	3.22	1.10
5.	I feel confident in my abilities.	1	5	3.15	1.03
6.	I feel cheerful most days.	1	5	3.15	1.09
7.	I feel good about myself.	1	5	3.12	1.01
8.	I handle work challenges well.	1	5	3.06	1.00
9.	I feel useful in my work.	1	5	3.05	1.03
10.	I have enough energy for my tasks.	1	5	3.00	1.03
11.	I feel connected to my team.	1	5	2.99	1.05
12.	I feel calm and relaxed.	1	5	2.97	0.92
13.	I show concern for my colleagues and patients.	1	5	2.90	1.05
14.	I feel hopeful about the future.	1	5	2.88	1.11
Average Mean				3.08	

Source: Computed

Table no 24 presents the analysis of the respondents' mental well-being. The data was arranged based on the descending order of the mean score and the mean scores were categorized into three levels: 1.00-2.33 indicating *low well-being*, 2.34-3.66 representing *moderate well-being*, and 3.67-5.00 reflecting *high well-being*.

The statements were discussed as learning new things holds significant importance for the respondents in the healthcare field. The respondents expressed that they *enjoy learning new things* with a mean score of 3.25 that showed the respondents maintain a moderate positive attitude toward exploring new knowledge and are not content solely with what they already know. Similarly, *I think clearly during my shifts* also had a mean score of 3.25, reflecting moderate mental clarity during work, mental clarity during work was important as they have lots of important decision to make. It is crucial to received care and support by colleagues as it boosts mental and emotional resiliency, a mean score of 3.23 reported that they *feel cared for by others* which signifies a moderate feeling of social support and care from colleagues and significant others. The *ability to make independent decisions* scored a mean of 3.22, indicates that respondents held moderate confidence in their autonomy and decision-making capacities. Confidence in their abilities is crucial for respondents to perform well, make decisions, and stay resilient in their work, the respondents' mean score of 3.22 indicated a moderate level of *confidence in their abilities*. Showing a positive mood at the workplace is vital for the respondents as it can make a lot of sense, a mean score of 3.15 of the respondents reported a moderate *feeling of cheerful most days*. Feeling good of oneself is essential for maintaining healthy self-esteem and overall well-being, the respondents with a mean score of 3.12 reported a moderate level of *feeling good about oneself*. Handling work challenges is key to staying productive and resilient, the respondents reported that they had moderately felt capable of *handling work challenges*. Having a sense of usefulness at the workplace boosts motivation and job satisfaction, the respondents with a mean score of 3.05 had moderately *felt useful at their work* which indicated that they found their roles meaningful. Having an enough energy to perform well on duties is vital for the respondents, the respondents had reported that they have a moderate level of *energy for their tasks* with a mean score of 3.00. Establishing a

good relationship with the team members is important for a friendly and supportive work environment, the respondents with a mean score of 2.99 felt moderately *connected to their team*. Feeling calm and relaxed at work is important for healthcare workers, as it helps them manage stress, stay focused, and provide better care to their patients. The mean score of 2.97 showed that respondents felt moderately calm and relaxed, though less consistently and slightly below the overall average. Showing concern for colleagues and patients is very important for the respondents, as it promotes trust, strengthens relationships and enhances the quality of care provided but a mean score of 2.90 of the respondents showed a lower moderate level of concern for colleagues and patients. Hope for the future helps respondents stay positive and committed, but the respondents reported the lowest score on 2.88 on *hopeful about the future*.

Therefore, the overall average mean score was 3.08, which falls within the moderate well-being range. This indicates that on average, the respondents often feel mentally well, but these feelings are not always strong or consistent. The respondents generally showed moderate levels of positive attitudes, confidence, and well-being in their work. They valued learning, mental clarity, social support, and feeling useful, which helped them handle challenges and stay motivated. However, areas like feeling calm, connected, concerned for others, and hopeful about the future were slightly lower, indicating room for improvement to better support their overall mental and emotional health.

The mental well-being examines factors such as enjoyment in learning new things, clarity of thought during work shifts, and confidence in one's abilities. These indicators reflect the emotional and cognitive state of individuals as they navigate their work environments. The respondents show a moderate level of mean score 3.25 on enjoyment *in learning new things*, which suggests a growth-oriented mindset. Previous studies suggest that enjoyment in learning is crucial for mental well-being and job satisfaction. Continuous learning enhances cognitive engagement and overall life satisfaction among HCWs (Vasileva et al., 2020). *Moderate clarity of thought during shifts, with a mean score of 3.25*, implies that respondents are somewhat able to manage their work-related stress. Studies have shown that cognitive clarity is

linked to reduced mental fatigue. Mental clarity directly correlates with reduced burnout in healthcare settings, and cognitive health is crucial in sustaining long-term career success (Maier et al., 2021). *The moderate mean scores of 3.23 indicates that respondents feel cared for, though not excessively so.* Healthcare workers who feel supported by colleagues and management report lower levels of burnout, and workplace support plays a critical role in emotional stability among healthcare workers (Shanafelt et al., 2020; Pfeiffer & Newlands, 2014). *The moderate mean score of 2.33 in decision-making* indicates that the ability to make choices helps respondents feel more in control and boosts their sense of self-worth. The HCWs face challenges when making decisions on various issues. The psychological toll of stress and burnout affects the decision-making abilities of healthcare workers (Valente et al., 2022). *Confidence in one's abilities, with a mean score of 3.15,* is key to performing well at work and maintaining good mental health. The result indicates that healthcare workers (HCWs) experience a lack of confidence, as the score falls above the moderate range. The emotional and psychological toll of the pandemic contributed to increased stress and uncertainty, which further impacted HCWs' overall confidence in handling the situation (Elgibaly et al., 2021). *Cheerfulness reflects good mental health, and the respondents with an average score of 3.15* Cheerfulness among healthcare workers (HCWs) is crucial for their well-being. HCWs who experience higher levels of workplace social capital, such as strong support from colleagues and supervisors, report greater happiness and moral courage (Pirdelkhosh et al., 2022). *A moderate sense of self-worth, with a mean score of 3.12,* is important for maintaining good mental health. Individuals with high self-esteem are better equipped to handle stress, and higher self-esteem is linked to better life satisfaction and emotional resilience (Baumeister, 2003; Twenge & Campbell, 2001). *The respondents show a moderate ability to handle work challenges, with a mean score of 3.06,* which is an essential skill in reducing work-related stress. The pandemic presented immense challenges, and healthcare workers' ability to handle these obstacles was influenced by their resilience, ethical decision-making skills, resource availability, and workplace support (Baghel et al., 2023). *The respondents show moderate levels of energy for their tasks, with a mean score of 3.00, suggesting potential fatigue.* The fatigue from repeated tasks can lead to burnout, which not only

affects energy levels but also impacts mental clarity and decision-making abilities of healthcare workers (Rajhans & Godavarthy, 2021). *Moderate team connection, with a mean score of 2.99, indicates a degree of social isolation.* Positive team dynamics can lead to greater emotional resilience and job satisfaction, and good interpersonal relationships at the workplace improve the well-being of workers (Heaphy & Dutton, 2008). *The moderate mean scores of 2.97 suggests that the respondents are experiencing difficulty managing stress and are struggling to feel calm and relaxed.* The challenges HCWs face in managing stress are multifaceted, influenced by workload, emotional strain, fear of infection, resource shortages, ethical dilemmas, workplace dynamics, and societal stigma (Krystal, 2020). *A moderate score of 2.88 for feeling hopeful about the future suggests some uncertainty regarding healthcare workers' outlook, yet there is a positive sign of optimism.* Optimism positively impacts HCWs, helping them adapt to changing circumstances and maintain motivation even during difficult times. Optimistic HCWs are more likely to believe that their efforts can make a difference in their patients' lives, reinforcing their sense of purpose and commitment to their work (Gil-Almagro et al., 2024).

In summary, *the respondents demonstrate moderate levels of mental well-being across various dimensions.* While they show some ability to manage work-related stress, make decisions, and handle work challenges, issues such as burnout, fatigue, and stress remain prevalent. Therefore, enhancing support, communication, and well-being initiatives will be crucial in fostering better mental health and long-term resilience among healthcare workers.

8.2. Subjective well-being of the Respondents

The Subjective well-being scale was designed to capture how people feel about their overall happiness and life satisfaction. The scale consisted on 23 statements that explores different aspects of well-being, including emotional responses, sense of purpose, and how individuals perceive their lives.

Table No. 25 Subjective well-being of the Respondents

Sl. No.	Statement	Min	Max	Mean	Std. Dev.
1	Are you happy with your ability to work	1	5	3.38	1.033
2	Are you happy with your friendships and personal relationships	1	5	3.37	1.007
3	Are you happy with your personal and family life	1	5	3.29	1.014
4	Do you feel you have a purpose in life	1	5	3.23	1.079
5	Are you happy with access to health services	1	5	3.15	0.933
6	Are you happy with your ability to perform daily activities	1	5	3.11	0.998
7	Are you happy with yourself and your achievements	1	5	3.10	1.029
8	Do you feel able to grow and develop as a person	1	5	3.09	0.966
9	Are you comfortable to relate & connect with others	1	5	3.07	0.975
10	Do you feel optimistic about the future	1	5	3.06	1.000
11	Are you able to ask someone for help with a problem	1	5	3.04	1.003
12	Are you happy with your looks and appearance	1	5	3.00	1.039
13	Do you feel able to do the things you choose to do	1	5	3.00	0.968
14	Do you feel happy with yourself as a person	1	5	2.98	1.050
15	Are you confident in your own opinions and beliefs	1	5	2.97	1.000
16	Do you feel able to enjoy life	1	5	2.96	0.965
17	Are you happy with your opportunity for exercise/leisure	1	5	2.96	0.959
18	Are you happy that you have enough money to meet your needs	1	5	2.94	1.040
19	Do you feel in control of your life	1	5	2.92	1.017
20	Do you feel able to live your life the way you want	1	5	2.91	0.986
21	Are you happy with your physical health	1	5	2.83	1.000
22	Are you happy with the quality of your sleep	1	5	2.67	0.948
23	Do you feel mentally well and balanced in your work and personal life?	1	24	2.51	1.659

	Average Mean	3.06	
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Source: Computed

Table no. 25 represented the Subjective well-being of the respondents. The data was arranged based on the descending order and the mean score was categorised into three level such as 1.00-2.33 indicating low satisfaction, 2.34-3.66 representing moderate satisfaction, and 3.67-5.00 reflecting high satisfaction.

The items given in the scale were discussed as *the ability to work* is a clear strength for the respondents with a mean score of 3.38, which shows that most respondents feel capable, effective, and reasonably satisfied with their work performance. Relationships offer important comfort and stability, helping the respondents cope with life's challenges and adding meaning to their daily lives, with a mean score of 3.37 that showed a moderate level of satisfaction on *friendship and personal relationship*. Further, the respondents reported a moderate level of satisfaction on *personal and family life* with a mean score of 3.29, that indicated family as a source of comfort and stability, generally provide support and a sense of belonging that helps them navigate daily stresses. Purpose in life is important because it gives direction and meaning to everyday action, the respondents felt that they have a moderate level of *purpose in life* with a mean score of 3.23 revealed that their life have a clear purpose and motivated to challenge the situation in tough times. Access to healthcare service was important for the respondents during the pandemic to make themselves healthy and fit to perform their task well, the respondents reported that they have a moderate level of satisfaction with their *access to health services* with a mean score of 3.15. The mean score of 3.11 revealed that the respondents are moderately positive on their *ability to perform daily activities*. The mean score 3.10 shows that most respondents feel moderately positive *about themselves and their achievements*. The respondents revealed that they feel a sense of pride and satisfaction about who they are and what they have accomplished so far. The respondent felt that they *grow and developed as a person* in their profession with a moderate mean score of 3.09. The respondents indicated a moderate level of *comfort in relating and connecting with others*, with a mean score of 3.07 that showed a positive relationship with colleagues and those around them. A moderate

mean score of 3.06 of the respondents felt that they were *optimistic about the future*. The respondents expressed that they felt reasonably comfortable *asking for help when facing a problem*, as reflected by a moderate mean score of 3.04. Look and appearance of a person is very important it build self-esteem and confidence, the respondents reported that they are moderately happy with their *looks and appearances* with a mean score of 3.00. Similarly, the respondents reported a mean score of 3.00 regarding their *ability to do the things they choose to do that showed* feel moderately free to make decisions and engage in activities that matter to them. The respondents gave a mean score of 2.98 when asked if they *feel happy with themselves as a person*. This indicates a moderate level of self-acceptance and contentment was found among the respondents. The respondents reported a mean score of 2.97 for *confidence in their own opinions and beliefs* and on average they feel moderately sure about what they think and believe. The respondents gave a mean score of 2.96 *if they feel able to enjoy life that revealed* a moderate level of satisfaction with their day-to-day experiences. The respondents reported that they hardly manage to find some time for physical activity and rest as they have a busy schedule especially for physical activities with a mean score of 2.96 for *exercise and leisure opportunities*. Financial stability plays a crucial role in a person's life because it paves the way for many other important aspects, the respondents reported a moderate level of financial satisfaction with a mean score of 2.94 when asked if they are *happy with having enough money to meet their needs*. The respondents reported a mean score of 2.92 when asked if they *feel in control of their life*. The results show that the respondents on average they had experience a moderate sense of control. Living life on one's own terms is key to fulfilment, motivation, and confidence, as it aligns choices with personal values and passions. The results show that the respondents had moderate level of freedom when asked if they *feel able to live their life the way they want* with a mean score of 2.91. Having a good physical health boosts overall health of a person especially during the pandemic for the healthcare workers, the respondents reported a moderate level of satisfaction, indicating that while many feels generally okay about their health with a mean score of 2.83 on *happy with their physical health*. The respondents reported a mean score of 2.67 regarding their satisfaction with the *quality of their sleep*, indicating a moderate but

somewhat low level of restfulness as they have lots of mental and physical stressors during the pandemic. The respondents reported a mean score of 2.51 when asked *if they feel mentally well and balanced between their work and personal life*. This is the lowest score among the items, indicating that many struggles to maintain emotional stability and harmony in their personal and professional life during the pandemic.

Therefore, the average mean scores on the subjective well-being of the respondents were 3.06 which indicate a moderate level of satisfaction across many aspects of their lives, with some areas showing stronger positivity and others indicating room for growth. The data shows that, on average, respondents experience moderate subjective well-being. They feel relatively satisfied with key areas like their work, relationships, family life, and sense of purpose all essential contributors to a meaningful life. These areas act as pillars supporting their day-to-day happiness and coping abilities. However, subjective well-being also depends heavily on factors like physical health, mental balance, sleep quality, and financial security. These areas scored lower, indicating that respondents feel less content and more strained here. This suggests that emotional stress, fatigue, and financial worries are impacting their overall sense of well-being.

Subjective well-being (SWB) refers to an individual's overall emotional, psychological, and social well-being. Subjective well-being measures the respondents' satisfaction with various aspects of life, including personal relationships, work life, and health. This discussion provides an insight into how respondents perceive their overall happiness, sense of purpose, and contentment with their daily lives and achievements. *The respondents feel moderately satisfied with their personal relationships with a mean score of 3.37.* HCWs satisfaction with their personal relationships during the pandemic varied based on their support systems, work schedules, and the coping mechanisms they had in place, maintaining strong personal relationships emerged as a key factor in supporting healthcare workers' well-being during such stressful times (Cipolletta et al., 2023). *The respondents are somewhat content with their personal and family life with a moderate level of mean scores of 3.29.* The pandemic was tough on healthcare workers' families, but it also made them appreciate the importance of the healthcare profession more. Even with

the stress, families came together and played a key role in supporting their loved ones through their sacrifices (Mohammadi et al., 2022). *The respondents showed a moderate sense of purpose among respondents with a mean score of 3.23.* Their dedication made their sacrifices feel meaningful, especially in the face of a global crisis (Chemali et al., 2022, Eftekhar Ardebili et al. 2021). *The mean score of 3.15 reflects moderate satisfaction with access to health services.* Access to healthcare is crucial for mental and physical well-being but during the pandemic many HCWs show a low level of satisfaction on their access to healthcare. This absence of support added to their stress and made it harder for them to cope with the challenges they faced (Gupta et al., 2021). *The respondents feel somewhat satisfied with their ability to perform daily tasks with a moderate mean score of 3.11.* HCWs who believe in their abilities and receive strong support from colleagues and supervisors tend to perform better and feel more satisfied with their daily task (Alshammari & Alenezi, 2023). *The respondents have a moderate satisfaction with oneself and personal achievements with a mean score of 3.10 suggests.* HCWs with higher self-esteem and confidence in their abilities tend to have greater job satisfaction. These personal qualities help them manage work challenges and improve their overall well-being (Ghaleh et al., 2024). *The respondents feel moderately comfortable with social interaction with a mean score of 3.07.* Social connections are essential for well-being (Baumeister & Leary, 1995). *The respondents have a moderate sense of optimism about the future. mean score of 3.06.* Optimism is strongly associated with better mental health outcomes, such as reduced anxiety and depression, and enhanced coping skills in the face of challenges (Carver et al., 2021). *The respondents have a moderate ability to seek help when facing problems, with a mean score of 3.04.* Social support is a vital contributor to mental well-being, as it provides emotional resources that mitigate the stress and having access to social support networks, whether from family, friends, or colleagues, significantly reduces feelings of isolation and enhances overall coping abilities (Cohen & Wills, 1985). *The scores related to self-happiness and confidence (2.98 and 2.97, respectively) has obtained a moderate satisfaction with one's sense of self.* A moderate sense of happiness and confidence may reflect HCWs efforts to adapt and stay grounded, even amid external pressures such as the pandemic (Liu et al., 2021). *The respondents were happy with*

the opportunity for exercise and leisure and obtained a mean score of 2.96, which indicated a moderate content with their leisure and exercise but not consistent. Regular exercise has been shown to enhance life satisfaction by improving overall health and providing individuals with a sense of achievement and control over their bodies (Biddle & Asare, 2011). The respondents were satisfied with their financial stability with a mean score of 2.94 and have a moderate sense of control over life with a mean score of 2.92. This underscores the complexity of factors that contribute to overall well-being. Financial stability plays a central role in reducing stress and increasing security, which in turn contributes to mental well-being (Mohan et al., 2022). The respondents' moderate satisfaction with the freedom to live life according to personal preferences, have obtained a mean score of 2.91, aligns with findings that self-determination and the ability to make choices are fundamental to a sense of purpose and well-being (Ryan & Deci, 2020).

In summary, *the subjective well-being of healthcare workers (HCWs) reflects moderate satisfaction across various aspects of their lives, with some areas showing a scope for improvement. The key factors such as social support, self-esteem, and the ability to seek help significantly contribute to their well-being. Improving support systems, providing better access to healthcare, and enhancing financial stability could further boost their overall happiness and resilience.*

8.3. Social Well-being of the Respondents

The Social well-being scale was designed to understand how people feel about their connection to society and the world around them. It looks at how much people feel they belong, contribute, and find meaning in their communities. The social well-being scale measures five core dimensions: *Social Integration*, which reflects a sense of belonging and connection to one's community or society; *Social Acceptance*, indicating a positive attitude toward others characterized by tolerance and trust; *Social Contribution*, representing the feeling that one's activities are useful and valued by society; *Social Actualization*, which is the belief in society's potential for growth and progress; and *Social Coherence*, describing the perception that the social world is understandable and makes sense.

The social well-being of the respondents was assessed using five dimensions: social integration, social acceptance, social contribution, social actualization, and social coherence. Mean scores were calculated for each dimension and interpreted using predefined categories: scores from 1.00 to 2.33 indicated a low level of social well-being, scores from 2.34 to 3.66 indicated a moderate level, and scores from 3.67 to 5.00 indicated a high level. The overall average mean scores of all the dimension are 2.92 which indicated that the respondent's social well-being falls under a moderate range which revealed that respondents experience a balanced but not high level of social well-being.

Table No. 26 Social well-being of the Respondents

Dimension	Statement	Min	Max	Mean
Social Integration	You feel that you belong to a community.	1	5	2.54
	You feel like you're an important part of your community	1	5	3.10
	If you had something to say, you believe people in your community would listen to you	1	5	2.99
	You feel close to other people in your community	1	5	3.06
	You see your community as a source of comfort	1	5	3.03
	If you had something to say, you believe your community would take you seriously	1	5	2.88
	Average Mean			2.93
Social Acceptance	You believe other people in society value you as a person	1	5	3.15
	You think that other people are reliable	1	5	2.75
	You believe that people are kind	1	5	3.28
	You believe that people are self-centred	1	5	3.14
	You feel that people are trustworthy	1	5	2.85
	You think that people live not just for themselves but also for others.	1	5	2.88
	You believe that people are increasingly trustworthy nowadays.	1	5	3.16
	You think that people care about other people's problems	1	5	3.06
	Average Mean			3.03
Social Contribution	Your behaviour has some impact on other people in your community	1	5	2.87
	You think you have something valuable to give to the world	1	5	2.98
	My daily activities produce valuable benefits for my community.	1	5	2.89
	I have the time and energy to contribute e to my community.	1	5	2.93
	You think that your work provides an important product for society	1	5	3.18
	You feel that you have valuable and important contributions to make to society.	1	5	2.86
	Average Mean			2.95
Social Actualization	You believe that society is continuing to make progress	1	5	2.60
	Society is improving for people like you.	1	5	2.68
	You believe social institutions like law and government make your life better.	1	5	2.67
	You see society as continually evolving	1	5	3.12
	You think our society is a productive place for people to live in	1	5	3.04
	You believe that social progress exists and is happening.	1	5	2.76
	You think the world is becoming a better place for everyone	1	5	3.00
	Average Mean			2.83
Social Coherence	I feel capable of navigating the world's challenges.	1	5	2.59
	Everyone has the ability to understand how the world works, not just scientists.	1	5	2.62
	I can make sense of what's going on in the world.	1	5	2.77
	I find most cultures interesting and understandable.	1	5	3.02
	You think it's worthwhile to understand the world you live in	1	5	3.08
	You feel confident predicting what will happen next in society.	1	5	3.21
	Average Mean			2.88
	Overall average mean			2.92

Source: Computed

The table no. 26 shows the social well-being of the respondents. The social well-being was assessed using five dimensions: social integration, social acceptance, social contribution, social actualization, and social coherence.

8.3.1 Social Integration

The results showed that respondents somewhat felt they belonged to a community ($M = 2.54$). They felt moderately important in their community ($M = 3.10$) and believed that if they spoke up, others would listen to them ($M = 2.99$).

They also felt somewhat close to other people in their community ($M = 3.06$) and saw their community as a source of comfort ($M = 3.03$). However, they were a little less sure that their community would take their opinions seriously ($M = 2.88$). These results show a moderate level of social integration, meaning people felt connected but could be more involved.

Social integration refers to the sense of belonging and connection individuals feel towards their community with a mean score of 2.93 suggests that respondents experience a moderate sense of integration. *The sense of connection of the respondents has obtained a mean score of 2.54 that suggests a low to moderate sense of connection.* Creating an inclusive work environment where healthcare workers feel valued and connected is crucial for their engagement and happiness (Boland et al., 2025). *The confidence that the community has on the respondents has obtained a mean score of 2.88 indicates moderate level confidence.* Positive public responses, such as expressions of gratitude, encouragement, and tangible donations, were found to enhance HCWs' work engagement and overall well-being (Shan et al., 2022). *Having voice in the community by the respondents has obtained a moderate mean score of 2.99, this indicates that respondents feel they have some voice within their community.* During the COVID-19 pandemic, healthcare workers' concerns were frequently ignored, resulting in heightened stress and a sense of marginalization, as their voices went unheard (Hurd et al., 2023).

8.3.2 Social Acceptance

Respondents moderately believed that others in society valued them as individuals ($M = 3.15$). They had moderate trust in other people's reliability ($M = 2.75$) and generally thought that people were kind ($M = 3.28$). They also somewhat agreed that people could be self-centered ($M = 3.14$), showing mixed feelings about others' behaviour. Trustworthiness was seen as moderate ($M = 2.85$), and people moderately agreed that others cared about more than just themselves ($M = 2.88$). They were also somewhat hopeful that honesty and trust were growing in society ($M = 3.16$) and believed people cared about others' problems ($M = 3.06$).

Social acceptance refers to how individuals perceive their value within society and the trust they feel towards others. With an average score of 3.03,

respondents exhibit a moderate level of social acceptance. *Respondents feel a moderate valued by society with a mean score of 2.76.* The expressed appreciation often did not meet their needs or expectations from both employers and society (Zee et al., 2024). *A mean score of 2.75 indicates moderate trust in others' reliability.* Building and maintaining trust in healthcare systems is essential for effective crisis management and improved health outcomes (Souvatzi et al., 2024). *A mean score of 3.28 suggests respondents believe that people in society are generally kind.* It is crucial to understand the competencies for the HCWs and ensure they received appropriate support and resources (Rodríguez-Pérez et al., 2022).

8.3.3 Social Contribution

Respondents moderately thought that their actions affected others in their community (M = 2.87). They felt they had something valuable to offer the world (M = 2.98) and believed their daily activities helped their community (M = 2.89). They moderately agreed that they had time and energy to contribute to their community (M = 2.93). The idea that their work was important to society was a bit higher (M = 3.18). Still, they only moderately felt they made valuable contributions overall (M = 2.86). This shows a moderate sense of social contribution, with some limits in feeling fully useful.

Social contribution is measured by the degree to which individuals feel their actions positively impact others and society. The respondents' average score of 2.95 indicates that, overall, they perceive their contributions as moderately impactful. *Respondents report a moderate sense of impact in their community with a mean score of 2.87.* Individuals who feel their actions positively influence others experience higher levels of life satisfaction (Perkins et al., 2011). *A mean score of 2.93 reflects that respondents have moderate energy and time to contribute.* Individuals with better work-life balance tend to experience less stress and greater well-being (Caspi, 2015). *Respondents with a mean score of 3.18 report a stronger sense of societal value in their work.* Individuals who find meaning in their work are more likely to experience job satisfaction and positive psychological outcomes (Wrzesniewski et al., 1997, Steger et al., 2006). *A mean score of 2.86 reflects a moderate sense of societal contribution.* Having a sense of purpose is crucial for

mental well-being. Engaging in meaningful contributions strengthens social bonds and enhances emotional health (Haidt, 2006).

8.3.4 Social Actualization

Participants showed a moderate belief that society was making progress ($M = 2.60$) and getting better for people like them ($M = 2.68$). They were neutral about whether social institutions like government and law improved their lives ($M = 2.67$). More strongly, they agreed that society keeps changing and evolving ($M = 3.12$) and saw their society as a good place to live ($M = 3.04$). The belief that social progress is real was moderate ($M = 2.76$), and they somewhat agreed the world was becoming better for everyone ($M = 3.00$). This means they had moderate confidence that society is improving.

Social actualization is defined as the belief that society is progressing and evolving in a positive direction. *The average mean scores of 2.83 indicates that respondents hold a somewhat positive, yet moderate, view of societal progress. The respondents are moderately optimistic about societal progress with a mean score of 2.60.* Positive perceptions of social progress are associated with increased subjective well-being (Diener et al., 2010). *A mean score of 2.68 obtained a moderate belief in societal improvement for individuals.* Perceptions of societal improvement are linked to well-being and life satisfaction and individual who believe society is improving for them are more likely to report higher happiness (Helliwell et al., 2020). The findings indicate *that respondent-healthcare workers experience a moderate level of social well-being*, with varied perceptions of social integration, acceptance, contribution, and actualization. Thus, enhancing social integration, trust, and recognition within communities can significantly improve the well-being and engagement of healthcare workers.

9.3.5 Social Coherence

Respondents felt only moderately able to face the world's challenges ($M = 2.59$) and somewhat agreed that understanding the world is not just for scientists ($M = 2.62$). They moderately said they could understand what is happening in the world ($M = 2.77$) and found most cultures interesting and easy to understand

(M = 3.02). They believed it was worthwhile to understand the world they live in (M = 3.08) and felt moderately confident about predicting what might happen next in society (M = 3.21). Overall, this shows a moderate, somewhat positive outlook on understanding social changes despite some difficulties.

Therefore, the respondents showed a moderate level of social well-being across all the five core dimensions. They felt somewhat connected and valued in their communities but could be more involved. Trust in others was mixed, with some belief in kindness but doubts about reliability. The respondents felt their actions mattered and were hopeful about society's progress, showing a fair understanding of social changes. Strengths included feeling close to their communities, believing people cared, and interest in learning about social and cultural issues.

However, the exploration thus informed the areas to be improved as stronger community connection, greater trust in others, better recognition of individual contributions, increased confidence in institutions, and more support to understand social changes. Focusing on these will help improve overall social well-being of the respondents.

8.4. Psychological well-being of the Respondents

The Psychological well-being scale has consisted of 6 aspects such as self-acceptance, purpose in life, environmental mastery, positive relations with others, personal growth, autonomy. It is designed to understand how people feel about their lives and themselves. It looks at different aspects of an individual like feeling in control, having a purpose, personal growth, positive relationships, and self-acceptance.

Table No. 27 Psychological well-being of the Respondents

Aspects	Statement	Min	Max	Mean	Std. Dev
Self-Acceptance	I appreciate my personality and strength gained through work.	1	5	2.30	0.88
	I am proud of my growth and impact as a healthcare worker.	1	5	2.17	0.72
	I value my achievements and the difference I make in healthcare.	1	5	2.06	0.79
Purpose in Life	I live with purpose, focusing on quality patient care.	1	5	2.63	0.91
	People see me as a caring and supportive healthcare worker.	1	5	2.59	0.86
	I actively plan for my future, balancing work and personal goals.	1	5	2.39	0.85
Environmental Mastery	I am motivated to keep learning and improving in my career.	1	5	2.76	1.04
	I manage challenges confidently in personal and professional life.	1	5	2.40	0.92
	I embrace challenges that foster professional and personal growth.	1	5	2.38	0.81
Positive Relations with Others	I am proud of my growth and impact as a healthcare worker.	1	5	2.60	0.97
	I value diverse perspectives and sound professional judgment in patient care.	1	4	2.29	0.89
	I have strong, supportive relationships with colleagues and family.	1	5	2.16	0.91
Personal Growth	I build trusting relationships with colleagues and patients.	1	5	2.69	1.02
	I trust my judgment and make decisions from experience.	1	5	2.61	0.88
	I measure my worth by the care and difference I provide to patients.	1	5	2.38	0.79
Autonomy	I appreciate my personality and strength gained through work.	1	5	2.69	1.00
	I live with purpose, focusing on quality patient care.	1	5	2.43	0.92
	I manage challenges confidently in personal and professional life.	1	5	2.36	0.94
Overall Mean Score				2.43	

Source: Computed

Table no. 27 shows the psychological well-being of healthcare workers. Well-being was measured in six areas: self-acceptance, purpose in life, environmental mastery, positive relations with others, personal growth, and autonomy. The analysis was based on mean scores, where a higher score means better psychological well-being. The scores were interpreted as follows: 1.00 to 1.79 meant strongly agree, 1.80 to 2.59 meant agree, 2.60 to 3.39 meant neutral, 3.40 to

4.19 meant disagree, and 4.20 to 5.00 meant strongly disagree. To make the analysis clearer, negatively worded questions were rewritten in a positive way, and statements were adjusted to better fit the respondents. The original 7-point scale was changed to a 5-point scale to make it easier for respondents to answer and to make the results easier to understand and analyse. Changing the scale like this is common in research to reduce the burden on respondents and to improve the quality of the data.

8.4.1. Self-Acceptance

The respondents appreciated their personality and the strength gained through work (mean = 2.30). They also agreed that they were proud of their growth and impact as healthcare workers (mean = 2.17). Moreover, they agreed that they valued their achievements and the difference they made in healthcare (mean = 2.06). These findings indicated a generally positive self-view and recognition of personal and professional development.

Self-acceptance reflects the extent to which individuals appreciate their personality, strengths, and the difference they make in their professional lives. *The respondents' mean scores of 2.17 suggest that they experience moderate self-acceptance, although there is room for improvement. Respondents report a moderate level of mean scores of 2.30 on appreciation for their personal strengths and growth through work.* Self-acceptance is closely linked to well-being. self-acceptance contributes significantly to mental health and life satisfaction (Ryff,1989). *Respondents show a somewhat low level of pride in their growth and impact as healthcare workers with a mean score of 2.17.* Pride in professional accomplishments is essential for well-being, one's work is associated with greater job satisfaction and personal fulfilment (Grant ,2007 & Achor ,2010). *The relatively low mean scores of 2.06 suggests that respondents do not feel a strong sense of value in their contributions to healthcare.* Individuals who value their contributions are more likely to experience positive emotions and satisfaction (Seligman,2006 & Ryff and Singer, 1998).

8.4.2. Purpose in Life

Respondents showed neutral to moderate agreement about living with purpose and focusing on quality patient care (mean = 2.63). They agreed that others saw them as caring and supportive healthcare workers (mean = 2.59) and moderately agreed that they actively planned for their future while balancing work and personal goals (mean = 2.39). This indicated some uncertainty or variability in the strength of purpose and future orientation.

Purpose in life, or the sense that one's life has meaning and direction, is a strong predictor of mental health and well-being. *The moderate mean scores of 2.39 in this dimension suggest that respondents have a moderate sense of purpose, although further improvement could enhance overall well-being.* The respondents have obtained a *moderate mean score of 2.63 on sense of purpose in their work.* Individuals with a strong sense of purpose report higher levels of happiness and life satisfaction and also people with a clear sense of purpose are less likely to experience depression and anxiety (Steger et al., 2006). *A mean score of 2.59 reflects a moderate sense of being perceived as caring by others.* People who are seen as caring by others experience higher levels of happiness and lower levels of stress (Batson et al., 2003 & Huppert, 2013). *The low score of 2.39 suggests that respondents struggle with balancing work and personal goals.* Work-life balance is crucial for psychological well-being (Greenhaus and Allen, 2011 & Frone, 2003).

8.4.3. Environmental Mastery

Participants mostly reported neutral to moderate agreement with motivation to keep learning and improving in their careers (mean = 2.76). They moderately agreed that they managed challenges confidently in personal and professional life (mean = 2.40) and embraced challenges that fostered growth (mean = 2.38). These results suggested that while motivation and resilience were present, there was room for improvement in managing professional demands.

Environmental mastery refers to the ability to manage life's challenges and responsibilities. *Respondents' scores indicate a moderate mean score of 2.38 of mastery, suggesting that they may find it difficult to manage all aspects of their*

personal and professional lives effectively. A score of 2.76 indicates a moderate level of motivation for career development. Motivation for self-improvement is a key aspect of environmental mastery. Individuals who are intrinsically motivated to learn and grow experience better mental health and well-being (Deci & Ryan, 2008). The moderate mean scores of 2.40 suggests that respondents are somewhat confident in managing challenges. A study found that individuals who have high self-efficacy are better equipped to manage challenges and report higher levels of well-being (Bandura,1997). The respondents show a somewhat low level of mean score of 2.38 on embracing challenges that contribute to growth. Individuals who embrace challenges tend to be more resilient and achieve greater success in life (Dweck, 2006, Carver et al., 2021).

8.4.4. Positive Relations with Others

Healthcare workers agreed that they were proud of their growth and impact (mean = 2.60). They valued diverse perspectives and sound judgment in patient care (mean = 2.29), and agreed that they had strong, supportive relationships with colleagues and family (mean = 2.16). This suggested a positive and supportive social environment.

Positive relationships with others reflect the level of social support, trust, and meaningful connections in an individual's life. *The respondents show a moderate level of satisfaction in this dimension with a mean score of 2.29, suggesting room for improvement in their social relationships. The respondents have a moderate sense of pride in their growth and impact as healthcare workers with a mean score of 2.60. It showed that individuals who find meaning in their professional contributions tend to report higher satisfaction and emotional well-being (Zivnuska et al., 2020 & Liao et al.,2020). The moderate mean scores of 2.29 reflects that respondents' value diverse perspectives but may not always feel that their professional judgment is fully recognized (Gritton et al. 2020 & Gaskin et al.,2019). A mean score of 2.16 suggests that respondents perceive their relationships with colleagues and family as moderately supportive. Strong social support is crucial for psychological health (Helfrich et al. 2020).*

8.4.5. Personal Growth

Respondents were closer to neutral regarding building trusting relationships with colleagues and patients (mean = 2.69). They also showed neutral agreement on trusting their judgment and making decisions from experience (mean = 2.61). However, they agreed that they measured their worth by the care and difference provided to patients (mean = 2.38). This reflected variability in confidence related to interpersonal trust and decision-making.

Personal growth is measured by the ability to develop meaningful relationships, trust in one's judgment, and an overall sense of progress in life. *The respondents have moderate mean scores of 2.38 in personal growth, indicating potential areas for improvement. The respondents have obtained a moderate mean score of 2.69 on the ability to build trust in their relationships.* Trust is a key factor in personal and professional growth. Healthcare workers who build trust with patients and colleagues experience better job satisfaction and improved patient care outcomes (Davis et al., 2019). *A mean score of 2.61 reflects moderate confidence in decision-making.* Trust in one's judgment is closely linked to autonomy and self-esteem (Choi et al., 2021). *The low mean scores of 2.38 suggests that respondents do not strongly measure their self-worth based on their care for patients.* Individuals who derive self-worth from helping others experience greater life satisfaction and emotional well-being (Wray et al., 2019 & McCullough et al., 2020).

8.4.6. Autonomy

Participants were neutral to moderately agreeable when asked if they appreciated their personality and strength gained through work (mean = 2.69). They moderately agreed that they lived with purpose and focused on quality patient care (mean = 2.43) and that they managed challenges confidently (mean = 2.36). This indicated a moderate sense of independence and self-direction.

Autonomy refers to the ability to make independent decisions, manage challenges, and live purposefully. *The respondents report moderate levels of autonomy with a mean score of 2.36,* with potential for improvement in their ability to manage challenges and take charge of their professional lives. *Respondents report*

moderate appreciation of their personal growth through work with a mean score of 2.69. Individuals who appreciate their own development tend to exhibit higher levels of well-being and lower levels of stress (Baumeister, 2019, Harter, 2020). A score of 2.43 indicates a moderate sense of purpose in life. Purpose-driven work leads to higher levels of mental well-being. Individuals who have a clear sense of purpose in their work report better mental health and greater life satisfaction (Duffy, 2020). The low score of 2.36 suggests that respondents feel less confident in managing challenges. Individuals who believe in their ability to manage challenges report better mental health outcomes (Carver, 2021).

Overall, the dimension of *self-acceptance* showed the strongest agreement among healthcare workers, indicating it was the area with the highest psychological well-being. Conversely, *personal growth* demonstrated the most neutrality, reflecting the greatest need for improvement, especially in building trusting relationships and confidence in decision-making.

Therefore, the chapter provided an interpretation and discussion of the findings to gain insights into the safety measures, mental health support, coping mechanisms, and overall well-being of healthcare workers (HCWs) during the COVID-19 pandemic. The study identified that while protective equipment (PPE) and hand sanitizers were available, their regular use was often disrupted due to discomfort and supply challenges. Furthermore, the training provided on the proper use of these safety measures was not always effective. The findings also revealed that many healthcare workers in Mizoram experienced moderate levels of social support, employed various coping strategies, and managed their time effectively. However, there remains a clear need for more open discussions on stress and mental health. Respondents suggested that peer support, mental health education, and wellness programs could significantly improve emotional well-being. Additionally, the study underscored the importance of maintaining workplace hygiene, adhering to safety protocols, ensuring the availability of PPE, and implementing effective waste management practices to prevent infections. Regular health monitoring, vaccination, and testing were also proposed by the respondents as crucial measures.

In conclusion, the study emphasized the necessity for stronger enforcement of health and safety regulations, enhanced mental health support, and the creation of a more supportive work environment for healthcare workers in Mizoram.

The next section of this chapter will present the hypothesis testing formulated for the study. The hypothesis testing was conducted on the following aspects: *overall well-being between medical and para-medical professions, gender differences in healthcare workers' well-being, social support and overall well-being of healthcare workers, occupational health issues and overall well-being, and the difference in well-being among permanent and contractual workers.*

HYPOTHESIS TESTING

8.5. HYPOTHESIS TESTING

Table No. 28 Independent Samples t-Test for overall well-being between medical and para-medical professions

Profes sion	N	Mean	Standard Deviation	Standard Error	t	df	Sig. (2-tailed)	Mean Difference	Confidence Interval
Medical	187	2.87	0.35	0.02	0.23	250	0.82	-0.012	-0.11 to 0.09
Para- Medical	65	2.88	0.38	0.04					

Source: Computed

Table no. 28 compares the overall well-being scores between healthcare workers in the medical and para-medical professions. The medical profession has an average well-being score of 2.87, with a standard deviation of 0.35, indicating moderate variability in scores. The para-medical profession has a slightly higher average of 2.88, with a standard deviation of 0.38, showing a slightly greater spread in scores. The t-value for the comparison is 0.23, and the p-value is 0.82, which is well above the typical significance level of 0.05, indicating that there is no statistically significant difference between the two groups. The mean difference of -0.01 suggests that the medical profession has a marginally lower well-being score than the para-medical profession, but this difference is very small and not meaningful. Additionally, the 95% confidence interval for the mean difference ranges from -0.11 to 0.09, which includes zero, further confirming that there is no real or substantial difference between the two groups.

Therefore, the results indicate that profession does not have a significant impact on overall well-being in this study.

Table No 29 Independent samples t-test for gender differences in healthcare workers' well-being

Test	Gender	N	Mean	t	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference
t-test for Equality of Means	Male	59	2.96	2.24	0.02	0.12	[0.01, 0.22]
	Female	193	2.84				
Levene's Test for Equality of Variances					Sig. = 0.62		

Source: Computed

The table no. 29 shows the results of the statistical test on *gender difference in the well-being of healthcare workers*. The t-test for equality of means compares the average well-being scores between males and females. The data shows that the average well-being score for males is 2.96, while for females, it is 2.84. This indicates that, on average, male healthcare workers report slightly higher well-being than females.

The t-value of 2.24 and the p-value of 0.02 are crucial in determining whether the difference observed is statistically significant. Since the p-value is less than 0.05, this indicates that the difference in well-being scores between males and females is statistically significant. Therefore, the null hypothesis, which states that there is no gender difference in well-being, is rejected. Additionally, the 95% Confidence Interval for the mean difference, ranging from 0.01 to 0.22, confirms that this difference is not due to random chance and provides a range within which the true mean difference likely falls. The Levene's Test for Equality of Variances shows that the assumption of equal variances is not violated (Sig. = 0.62), allowing the use of the standard t-test results.

Therefore, the analysis reveals that there is a *statistically significant gender difference in the well-being of healthcare workers*, with male workers reporting better well-being on average than their female counterparts.

Table No. 30 Pearson correlation between social support and wellbeing of healthcare workers

Variable	Social Support	Well-being
Social Support	1.00	0.24**
Well-being	0.24**	1.00
Sig. (2-tailed)		0.00
N	252	252

Source: Computed

Correlation is significant at the 0.01 level (2-tailed)

The table no. 30 presents the results of the Pearson correlation between social support and overall wellbeing of healthcare workers. The correlation coefficient is 0.24, which indicates a positive relationship between the two variables. This means that as social support increases, the well-being of healthcare workers also tends to improve, although the strength of this relationship is moderate.

The p-value (Sig. 2-tailed) is 0.00, which is less than the standard significance level of 0.01. This confirms that the relationship between social support and well-being is statistically significant, meaning that the observed positive correlation is unlikely to have occurred by chance.

The data shows that higher social support is associated with better well-being among healthcare workers, providing evidence to support the hypothesis that *the higher the social support received, the better the well-being of healthcare workers*.

Table No 31 Pearson correlation between occupational health issues and overall well-being

Variable	Occupational health issues	Well-being
Occupational health issues	1.00	0.12*
Well-being	0.12*	1.00
Sig. (2-tailed)		0.04
N	252	252

Source: Computed

Correlation is significant at the 0.05 level (2-tailed)

The table no. 31 shows the Pearson correlation between occupational health issues and overall well-being. The hypothesis “Occupational health issues negatively affect the well-being of the respondents” was tested using Pearson’s correlation analysis. The results reveal a weak correlation of 0.12 between occupational health

issues and overall well-being. This indicates that the increase in the occupational health issues the weaker the well-being of the respondents.

The p-value of 0.04 (Sig. 2-tailed) is less than the standard significance level of 0.05, which confirms that the correlation is statistically significant. This suggests that the relationship between occupational health issues and overall well-being is unlikely to have occurred by chance, supporting the hypothesis that occupational health issues negatively affect the well-being of the respondents.

Therefore, the analysis shows that occupational health issues negatively affect the well-being of the respondents.

Table No 32 Independent samples t-test for difference in well-being among the permanent and contractual worker

Test	Levene's Test for Equality of Variances	t-test for Equality of Means	Sig. (2-tailed)	Mean Difference
F-Statistic	0.05	0.03		
p-value (Sig.)	0.025	0.028	0.028	0.2

Source: Computed

Table no 32 presents the results of the statistical tests conducted to compare the well-being scores between permanent and contractual healthcare workers.

Firstly, Levene's Test for Equality of Variances was used to assess whether the variability (spread) in the well-being scores is the same for both groups. The F-statistic was calculated to be 0.05, with a p-value of 0.025. Since the p-value is less than 0.05, we conclude that the variances in well-being scores between permanent and contractual workers are not equal, meaning the spread of scores differs between the two groups. Secondly, the t-test for Equality of Means was conducted to determine if there is a significant difference in the average (mean) well-being scores between the two groups. The t-value was found to be 0.03, and the p-value was 0.028, which is also less than 0.05. This indicates that the difference in the well-being scores between permanent and contractual workers is statistically significant.

The mean difference of 0.2 suggests that, on average, permanent workers have a higher well-being score compared to contractual workers.

Therefore, the analysis shows that permanent healthcare workers have significantly better well-being than their contractual counterparts, and the variability in well-being scores is different for the two groups.

The next chapter focuses on the *qualitative data* gathered from the respondents. This information was collected from healthcare workers (HCWs) who have been working with COVID-19 patients during the pandemic, including nurses, doctors, and laboratory technicians.

QUALITATIVE INFORMATION

CHAPTER IX

THE LIVED EXPERIENCES

Qualitative information refers to non-numerical data that helps us understand people's experiences, perceptions, and behaviours in more depth. Unlike quantitative research, which focuses on numbers, qualitative research looks at the reasons and motivations behind certain phenomena. It is especially useful for studying complex issues that cannot be fully understood through numerical numbers alone. This method allows researchers to gather diverse and rich, detailed information that eventually provides context and in-depth to the topic. By using interviews, focus groups, and observations, qualitative research captures personal experiences and emotional responses, uncovering insights that might be missed in purely statistical studies. Among the various types of quantitative information in research, Key Informant Interview (KII) was adopted for the study.

Key Informant Interviews

The key informant interviews were conducted with healthcare worker who directly dealt with COVID-19 patients in the two districts of Mizoram i.e., Aizawl City and Lunglei Town. The primary participants of these interviews included doctor, nurse, and lab technician, each playing a crucial role in the diagnosis, treatment, and care of COVID-19 patients during the pandemic. These individuals were on the frontlines, facing the unique challenges brought about by the pandemic. The information collected from these healthcare workers provides valuable insights into the impact of COVID-19 on their professional and personal well-being, as well as the challenges they faced while working in high-risk environments. This data is vital in understanding the broader effects of the pandemic on healthcare workers and informs future healthcare strategies.

A semi-structured interview schedule was used to collect qualitative information. The KII focused on areas such as emotional and social support, mental health resources, occupational health risks, physical health issues, work-life balance, and suggestions for improvements for future health crises. The information was transcribed and process using thematic analysis. The key themes of the findings were presented below:

9.1.1. Thematic summarization of Key Informant Interviews (Medical Doctors)

Theme	Key Findings	Interpretation
Emotional and Social Support	Limited emotional support, especially from authorities. Peer support was available but insufficient. Limited professional help like counselling.	The findings reflect a serious gap in structured emotional and social support systems for healthcare workers (HCWs). Despite the efforts of peers to provide support, the lack of organized, professional counselling programs and mental health services made it harder for HCWs to effectively cope with stress and burnout. The absence of consistent emotional and social support from authorities added to the burden on these workers during the pandemic.
Mental Health Resources	Limited counselling services and stress management programs. Insufficient mental health resources to handle strain.	Mental health support was largely insufficient, leaving many HCWs to deal with significant emotional strain on their own. While some basic counselling was available, the demand exceeded what was offered, leading to many HCWs feeling that their emotional challenges went unaddressed. This insufficient mental health support became a major factor contributing to burnout and psychological distress during the crisis.
Occupational Health Risks	Mental stress and physical exhaustion from the increased workload. Back pain and headaches from long hours. Overwhelming workload led to physical strain.	Healthcare workers faced dual challenges of mental and physical strain due to the overwhelming workload and extended hours during the pandemic. While some steps were taken, such as adjusting work schedules and providing breaks, these efforts did little to alleviate the long-term physical and mental exhaustion faced by the HCWs. The physical toll of working long shifts, combined with heightened emotional stress, led to significant health risks for workers.
Work-life Balance	Significant disruption to work-life balance. Some support systems were moderately effective but insufficient.	HCWs struggled to balance their professional and personal lives during the pandemic. The nature of their work left little time for rest or relaxation, and the risk of transmitting COVID-19 to loved ones further disrupted their personal lives. While there were some strategies and support systems in place, they were insufficient to effectively maintain a

		work-life balance, further contributing to stress and burnout.
Family and Community Support	Moderate family support but barriers in community support. Early negative attitudes from the community towards HCWs.	While family support was crucial and provided emotional relief, community support was initially weak due to fears of virus transmission. Over time, community attitudes shifted, and support grew, reflecting a change in public perception. Despite these efforts, the fear of transmitting the virus to family members and social isolation limited the full potential of family and community support. The barriers to such support highlighted the complex dynamics HCWs faced.
Suggestions for Future Health Crises	Increase manpower and improve staffing. Provide more counselling and mental health support. Address physical strain through proper PPE and rest.	The informants emphasized the need for structural improvements in future health crises. Increasing staffing levels to reduce individual workloads was a key recommendation to prevent burnout. Additionally, improving mental health resources and providing consistent counselling services could help mitigate the psychological strain. Addressing physical exhaustion through better staffing, adequate PPE, and more frequent rest periods would significantly improve HCWs' well-being in future crises.

The informants faced a significant lack of emotional and social support during the pandemic, with limited help from authorities and few professional counselling resources. While peer support was available, it was not enough to manage the high levels of stress. Mental health services were insufficient, leaving many workers struggling emotionally. The increased workload also led to physical exhaustion, including back pain and headaches, with little relief. Work-life balance was severely disrupted, and family support was limited due to fears of spreading the virus. Suggestions for future health crises include increasing staff, improving mental health support, and addressing physical strain with better protective equipment and more rest for workers.

9.1.2. Thematic summarization of Key Informant Interviews (Nurses)

Theme	Key Findings	Interpretation
Emotional and Social Support	Limited institutional emotional support. Peer and family support played a crucial role.	Healthcare workers (HCWs) faced minimal institutional emotional support, and were mostly reliant on peer and family support to cope. The absence of structured support systems from the authorities left HCWs to fend for themselves emotionally, which added to their stress. Peer support was particularly important as it allowed workers to connect and share their burdens. Despite family support, fear of virus transmission created barriers in fully utilizing this support.
Mental Health Support	No formal mental health support systems. Depended on personal coping mechanisms.	The lack of formal mental health resources, such as counselling and stress management programs, meant that HCWs were largely left to manage their mental well-being independently. Many relied on personal coping mechanisms, such as peer support or finding ways to manage stress on their own. The lack of sufficient professional support systems exacerbated the emotional challenges HCWs were facing. The isolation and overwhelming work pressure added to their mental strain.
Occupational Health Risks	High physical and mental strain. Fatigue and exhaustion from increased workload. No significant mitigation measures for physical exhaustion.	The pandemic led to significant physical and emotional strain on HCWs. The increase in workload due to staff shortages and the overwhelming nature of patient care resulted in exhaustion, both mentally and physically. Despite efforts like quarantining and providing food, there was no effective mitigation of the physical toll, which led to chronic fatigue, physical pain, and lower immunity, increasing the risk of infections. Additionally, staff shortages compounded these challenges.
Work-Life Balance	Severe disruption to work-life balance. Barriers to family	The pandemic severely disrupted the work-life balance of HCWs, leaving them with little to no time for personal life. The fear of exposing family members to the virus led to increased isolation, preventing

	support due to fear of virus exposure.	workers from fully benefiting from family support. The inability to relax or spend quality time with loved ones during the crisis added to emotional stress and burnout.
Family and Community Support	Moderate family and community support, but barriers due to safety concerns. Fear of transmitting virus limited support.	While family and community support were recognized as essential in providing emotional relief, the pandemic-induced fear of virus transmission created significant barriers. HCWs struggled to access their usual support systems, contributing to emotional strain. Over time, as public perceptions shifted, community support grew, but the initial isolation and community fears highlighted the difficulties in balancing professional and personal needs during the crisis.
Suggestions for Future Health Crises	Improved training and staffing. Timely delivery of resources and health checks for HCWs. Strengthened community support.	For future health emergencies, HCWs suggested improvements in staffing and training to better handle increased workloads. The availability of timely resources like medicines and transportation was seen as essential for smoother operations. The need for regular health checks to monitor both physical and mental health was emphasized to ensure that HCWs remain supported and equipped to cope with stressful situations. Strengthening community awareness and support networks is also vital.

The informants faced limited emotional support from institutions and were mostly reliant on peer and family support. The lack of formal mental health resources forced them to cope on their own, adding to their stress. The increased workload led to both physical and mental exhaustion, with little relief or support to address the physical toll. Work-life balance was severely disrupted, and fear of spreading the virus made family support difficult to access. Over time, community support improved, but fear and isolation were initial barriers. For future health crises, HCWs suggested better staffing, improved training, timely resources, and stronger community support to ensure their well-being.

9.1.3. Thematic summarization of Key Informant Interviews (Laboratory Technicians)

Theme	Key Findings	Interpretation
Emotional and Social Support	Insufficient emotional support from authorities. Peer support was valuable but limited.	Healthcare workers (HCWs) faced a significant lack of emotional support from authorities. They were largely left to manage stress and exhaustion independently. Peer support helped, but it was not enough to fully address the emotional needs of HCWs, especially as the workload and stress levels were overwhelming. Family support was also valuable but hindered by the fear of virus transmission. This created additional emotional strain and isolation.
Mental Health Support	No formal mental health support systems. Heavy workload made accessing support difficult.	The absence of formal mental health resources meant that HCWs were forced to cope with emotional challenges without professional assistance. While counselling services were available, the overwhelming workload made it difficult for workers to access these services. This lack of support left HCWs emotionally drained, further contributing to burnout and stress. Personal coping mechanisms were often insufficient to manage the high mental strain.
Occupational Health Risks	High levels of stress and physical exhaustion. Increased workload due to staff shortages. No effective physical exhaustion management.	The pandemic's overwhelming workload, combined with staff shortages, led to both mental and physical exhaustion among HCWs. The physical toll, including wrist and eye strain, was exacerbated by the high volume of work and long hours. Despite safety precautions like PPE, the physical strain was not adequately addressed, leading to long-term health concerns. This highlights the critical need for better physical and mental health support for healthcare workers during health crises.
Work-Life Balance	Severe disruption to work-life balance. Limited time for personal life due to long working hours.	HCWs struggled to maintain a balance between work and personal life during the pandemic. The demanding hours and the constant fear of transmitting the virus to loved ones prevented workers from fully engaging in family life. This led to burnout and emotional distress. While some institutions implemented rotating shifts,

		these were insufficient to provide HCWs with the time they needed to relax and recover, contributing to their physical and mental exhaustion.
Family and Community Support	Family support was available but limited due to safety concerns. Distant from loved ones due to fear of infection.	Although family support was crucial, fear of infecting loved ones due to the nature of healthcare work created a barrier to fully benefiting from this support. Community support was also limited initially due to public fears about virus transmission, contributing to the emotional isolation of HCWs. Over time, however, as public perception shifted, community support improved, though it was still insufficient to address all the emotional needs of healthcare workers.
Suggestions for Future Health Crises	Improved safety and PPE for laboratory technicians. Recognition of laboratory technicians' roles. More regular mental health check-ins.	The informants suggested several improvements for future public health emergencies. These included better safety measures for laboratory technicians, who were often overlooked despite their significant contribution. They also emphasized the need for better mental health support systems, including regular check-ins and team support, to help manage stress. Increasing recognition and providing sufficient PPE would help reduce physical strain, ensuring workers can effectively handle future crises.

During the COVID-19 pandemic, the informants faced significant challenges, including limited emotional support and mental health resources. Support was mostly absent from authorities, and the technicians were largely left to manage their stress independently. The heavy workload and staff shortages contributed to physical and mental strain, with no effective measures to address exhaustion. Work-life balance was severely disrupted, and while family support was available, the fear of transmitting the virus made it difficult to fully rely on it. Suggestions for future emergencies include better resources, recognition for laboratory technicians, improved mental health support, and better safety measures to manage the emotional and physical challenges of their work.

9.1. Integration of quantitative information and qualitative information

Integrating quantitative and qualitative data is important because it provides a fuller understanding of the research topic. Quantitative data gives clear, measurable facts, showing patterns and trends. On the other hand, qualitative data helps explain the reasons behind those trends and offers deeper context. Researchers can obtain an even more complete and accurate picture by integrating the two forms of data. This approach also helps address complex questions, especially in areas like social sciences, healthcare, and education, where both numbers and personal experiences are crucial. Overall, combining both types of data strengthens research, making it more reliable and meaningful.

9.1.1. Emotional and Social Support

In qualitative interviews, healthcare workers frequently mentioned that access to mental health professionals (like psychiatrists and psychologists) was either limited or non-existent during the pandemic. Many workers were unaware of available services or had difficulty accessing them due to workload demands. The quantitative findings also indicated that this was a widespread issue, which is further supported by personal stories of workers who had to manage their emotional distress independently, with little to no professional guidance.

Healthcare workers expressed that although some form of counselling service was available, it was rarely accessible due to long working hours and overwhelming workloads. In interviews, many workers mentioned they were unable to find time to access these services, even when they were offered. This finding aligns with the quantitative finding reinforcing that while counselling services may have been provided, their availability and accessibility were significantly limited.

Peer support emerged as a critical coping mechanism for healthcare workers. While the quantitative findings indicated that it was not systematically available, qualitative findings show that many workers found comfort in connecting with colleagues who understood the pressures they were facing. HCWs frequently mentioned that peer support helped them feel less isolated during stressful moments.

However, it was clear that this support was informal and dependent on individual relationships.

9.1.2. Emotional health resources

The qualitative information revealed that the HCWs reported that there were limited resources available to help them understand and manage their mental health. Some expressed that they were not aware of the available resources or had difficulty accessing them. The quantitative findings support this statement and found that mental health education was not a priority in most healthcare institutions during the crisis.

9.1.3. Occupational health issues

The high percentage of workers reporting fatigue and musculoskeletal problems (85.4% and 74.5%, respectively) reflects the lived experience of physical exhaustion. KII revealed how the physical toll of the pandemic affected through symptoms like back pain and insomnia, which are direct results of the demanding nature of the work. The high frequency of stress (83.4%), anxiety (61.5%), and burnout (53.4%) reported in the survey mirrors the narratives shared during interviews. Workers described their anxiety not only about the virus but also about inadequate mental health support and the emotional toll of their work. The lack of structured mental health services (as reported in both qualitative and quantitative data) is a key factor in the growing mental health challenges.

9.1.4. Work-life balance

The quantitative data (65.2% of workers reporting work-life imbalance) is closely linked with qualitative insights. Healthcare workers shared how the lack of time with family and emotional exhaustion due to the pandemic left them feeling isolated. The physical separation from loved ones was a source of distress, with some workers feeling alienated or unsupported by their communities, reflecting the social withdrawal found in both the survey and interviews.

9.1.5. Family and community support

Family support was one of the most crucial sources of emotional support, but it was also heavily impacted by the pandemic. Many informants reported physically separating from their families due to the fear of infecting them. This result in emotional distress, as HCWs could not rely on their families as they normally would. The quantitative results also revealed that family support during the pandemic was limited mainly due to physical separation and worries about safety.

By combining the quantitative and qualitative findings, it becomes clear that there is a significant gap between the availability of mental health support services and the actual support received by healthcare workers. While the quantitative data indicated low scores for various support services, the qualitative data offered valuable insights into why these services were often inadequate or hard to access.

Support systems like stress management, peer support, psychological first aid, and mental health services were either rarely available or completely absent, leaving healthcare workers to cope with emotional distress on their own. The lack of institutional, peer, and family support during the pandemic led to healthcare workers feeling isolated, overwhelmed, and unappreciated.

Therefore, these findings highlight the need for healthcare systems to prioritize mental health services, build strong peer support networks, and formally recognize healthcare workers in future public health crises. It is essential that these support systems are not only available but also accessible, reliable, and consistently prioritized during times of emergency.

The next chapter focuses on the conclusion and suggestions. It will highlight the key findings of the study and provide suggestions and recommendations related to policy implications, institutional improvements, and social work interventions.

CONCLUSION & SUGGESTIONS

CHAPTER X

CONCLUSION & SUGGESTIONS

The study explored the social support, occupational health, and overall well-being of healthcare workers in Mizoram during the COVID-19 pandemic. The research utilized both qualitative and quantitative methods, drawing data from primary and secondary sources. Quantitative data was collected through a structured questionnaire, while qualitative information was gathered through Key Informant Interviews (KIIs).

The study has a total of 252 respondents and purposive sampling was adopted to capture the response of both qualitative and quantitative information. The inclusion criteria required healthcare workers who were actively working during the pandemic, particularly those involved in treating COVID-19 patients. Key Informant Interviews (KII) were conducted to gain deeper insights from healthcare workers. The sample was purposively selected from the Aizawl and Lunglei districts, which have the highest and second-highest number of COVID-19 cases, respectively, and are also the most and second most populated districts in Mizoram.

The objectives of the study were to profile the demographic background of healthcare workers in Mizoram, examine the availability and utilization of safety measures, understand the occupational health issues and coping mechanisms adopted, assess the social support received by healthcare workers during the pandemic, evaluate their well-being, and investigate the relationships between occupational health, social support, and well-being.

The study has comprised the demographic profile of the respondents, the availability and utilization of safety measures provided by healthcare institutions, healthcare workers' knowledge about COVID-19, safety concerns related to their work, self-reported occupational health issues, coping mechanisms adopted, and their overall well-being. Additionally, the study formulated suggestions and recommendations for social work interventions based on the findings.

Additionally, hypothesis testing was conducted to examine: whether there is a significant difference in well-being scores between healthcare workers in the medical

and para-medical professions, whether gender affects the well-being of healthcare workers, the relationship between the level of social support received and the well-being of healthcare workers, and the relationship between occupational health and well-being among healthcare workers.

10.1. SUMMARY OF MAJOR FINDINGS

The major findings of the study focus on the results that had the most significant impact on the overall outcomes.

10.1.1. Demographic background of the respondents

The demographic profile of the respondents was categorized into key characteristics such as gender, age, marital status, education, employment status, department, years of experience, primary role, work location, and average working hours. These characteristics help to provide a deeper understanding of the healthcare workers' background and their work environment during the COVID-19 pandemic in Mizoram. The following section discusses the major findings from the demographic profile of the respondents.

In terms of gender, the maximum of 76.6% of the respondents were female, and 23.4% were male. The age of the respondents shows that a maximum of 54.4% falling between the age of 20-29 years followed by 33.7% falling between the age 30-39 years and 9.9% were in the age group between 40-49 years. This suggests that most of the respondent-healthcare workers were relatively young, with a good portion in the early to mid-career stage. The marital status of the respondents shows that 65.9% of the respondents were unmarried and 31.0% were married. This indicates that the majority of healthcare workers were unmarried, which may influence their work-life balance and social support systems.

The profession of the respondents shows that 54.8% in nursing profession, 15.9% were working in laboratory and diagnostic fields, 14.7% were a medical doctor and the remaining 8.7% of the respondents were in pharmacy profession. In terms of employment status, 55.6% of the respondents were regular and or permanent workers, while another 44.4% of them were working in contractual basis. The mix of job security levels among the healthcare workers were observed. In terms

of classification by departmental affiliation, 40.9% were working in General Medicine, 15.5% in Maternal & Child Health, 14.7% in Surgical departments, 11.5% in Emergency casualty, 11.9% in Diagnostic & Laboratory Sciences, 3.2% working in Mental Health area, and 2.4% in Cardiovascular & Pulmonary departments.

The years of working experience of the respondents ranges between 3-14 years. And a maximum of 65.5% of the respondents had a working experience between 3 to 6 years, 15.9% had a working experience between 7 to 10 years, 7.1% had a working experience 11 to 13 years and a few of 6% of the respondents had a working experience for more than 14 years. This indicates that most respondents were moderately experienced healthcare workers, with a smaller number having a significant amount of experience.

The primary roles and functioning shows that 74.2% of the respondents were in medical roles, 25.8% were working in para-medical roles, such as in testing, therapy, and patient support. This shows that the majority of respondents were directly involved in patient care.

The geographical location shows that 71.8% of the respondents were working in Aizawl city, and another 28.2% of them were based in Lunglei city. This reveals a geographical variation in healthcare work, which may be also attributed to its status as the state capital and population of the area.

The working hours shows that 46.4% of the respondents were working less than 8 hours a day, and the same proportion were working between 8 to 10 hours a day. A smaller 5.2% of the respondents were working between 11 to 12 hours, and a few of 2.0% were working for more than 12 hours a day. This indicates that most healthcare workers had a manageable working hour, while some of them were facing long shifts, that is likely due to staffing shortages.

These findings provide a comprehensive understanding of the demographic and professional characteristics of healthcare workers in Mizoram, which are essential for assessing their experiences, needs, and the challenges they faced during the COVID-19 pandemic.

10.1.2. Healthcare workers safety during covid-19 pandemic

The safety of healthcare workers during the COVID-19 pandemic, focused on the availability and utilization of safety measures, such as PPE and vaccines, as well as the workplace hygiene and environment in which healthcare workers operated. The study also explores the mental health support provided, the testing and monitoring processes in place, and how communication and feedback were managed within healthcare institutions. These areas were all crucial in ensuring that healthcare workers were adequately protected and supported during the pandemic.

The availability and utilization of essential safety measures among healthcare workers show that a majority of respondents reported high availability and utilization of key safety measures. The following safety measures had high availability and utilization rates: disposable gloves (95.6%), hand sanitizers at key points (94.4%), full-body gowns (90.5%), and awareness sessions on COVID-19 transmission and precautions (89.3%). Additionally, a majority of healthcare workers had access to standard operating procedures (88.1%), N95 masks (87.3%), and face shields or goggles (86.1%). However, certain measures had lower availability and utilization, such as COVID-19 vaccines for healthcare workers (81.0%), regular COVID-19 testing (78.6%), quarantine and isolation facilities (77.0%), daily health monitoring and symptom checks (74.6%), and adequate work hours to prevent burnout (74.2%). These findings indicate that while most essential safety measures are available and utilized, some areas, particularly around health monitoring, isolation facilities, and work hours required further attention and improvement.

10.1.3. Knowledge and Awareness on COVID-19

The awareness on COVID-19 among the respondents showed the following results: Awareness of PPE utilization when managing patients with COVID-19 (100%), primary transmission of COVID-19 (92.5%), understanding that fully vaccinated individuals can still be infected (88.9%), awareness of the common symptoms of COVID-19 (88.5%), knowledge of the recommended quarantine period for COVID-19 exposure (86.1%), understanding that hand hygiene is crucial

(85.7%), recognizing that isolation/quarantine helps mitigate the spread of COVID-19 (85.3%), the importance of maintaining physical distance (83.3%), and awareness that vaccination can reduce severity and transmission (80.6%). The average awareness percentage is 88.3%, indicating a high level of awareness among the respondents, particularly regarding essential COVID-19 prevention and management practices. However, there is a slight gap in the understanding of vaccination's role in reducing severity and transmission, with 19.4% lacking awareness.

10.1.4. Occupational health issues

The study explored the occupational health issues faced by healthcare workers during the pandemic, covering physical, mental, workplace, and general issues. The findings provide a comprehensive view of the challenges experienced by workers across these areas.

The *occupational health issues* show that fatigue and exhaustion (85.4%), musculoskeletal problems (74.5%), eye strain (73.3%), sleep disturbances (70.4%), PPE-related skin issues (67.6%), weakened immunity (61.5%), dehydration (59.9%), and gastrointestinal issues (59.1%) were the physical health issues reported by the respondents. The average percentage for the physical health issues is 70.9%, this result shows that physical health concerns, particularly fatigue and exhaustion, are the most prevalent and indicate the need for interventions to address physical well-being in the workplace.

The *mental health issues* include stress (83.4%), fear of infection (67.2%), anxiety (61.5%), emotional burden (58.3%), insomnia (57.1%), burnout (53.4%), depression (45.7%), helplessness (45.7%), stigma (43.7%), and trauma (37.2%) were the mental health issues reported by the respondents. The average percentage for mental health issues is 62.7%, this result shows that stress is the most frequently reported mental health issue, signalling a significant need for mental health support and stress management programs.

The *workplace issues* include increase in workload (77.7%), shortage of staff (74.1%), long working hours (73.7%), isolation/quarantine (69.6%), adapting to

changing protocols (68.8%), lack of mental health support (58.3%), lack of institutional support (55.5%), shortages of PPE supply (55.1%), and inadequate break and recovery (54.7%) were reported by the respondents. The average percentage for workplace issues is 69.6%, this result indicates that workload and staffing issues are major stressors in the workplace, and improvements in these areas are essential for reducing stress and improving employee well-being.

The *social & emotional issues* like work-life imbalance (65.2%), physical separation from peers and family (64.0%), social withdrawal (63.2%), reluctance to go for duty (60.3%), self-imposed isolation (55.1%), stigma and discrimination (51.0%), and insufficient colleague support (49.0%) were also prevalent. The average percentage for general issues is 62.1%. This result shows that work-life balance and social isolation are significant concerns that require attention to improve overall well-being.

The average scores for the occupational health issues among the respondents were physical health issues (70.9%), mental health issues (62.7%), workplace issues (69.6%), and social & emotional issues (62.1%). The respondents primarily reported physical health issues and workplace stressors as the most significant concerns, while mental health and social & emotional issues were also prevalent but not as severely experienced. Therefore, there is a need to focus on improving mental health support and addressing physical health challenges, particularly fatigue and stress, to enhance overall well-being in the workplace.

10.1.5. Coping strategies adopted by healthcare workers

The study examined various coping mechanisms adopted by healthcare workers to manage the physical, mental, emotional, and workplace challenges during the pandemic. The findings highlight the different strategies employed across these areas.

The *physical health coping strategies* adopted by the respondents include taking short breaks during duty (85.3%), using nutritional supplements (73.8%), moisturizing regularly (69%), staying hydrated (67.1%), maintaining a proper diet (65.5%), limiting screen time (64.3%), ensuring proper sleep (63.8%), engaging in

regular physical exercise (61.1%), and maintaining a regular bedtime routine (54.4%). With an average score of 67.1%, these findings indicate that while respondents are employing various physical health coping mechanisms, there is still room for improvement to enhance their overall physical well-being.

Mental and emotional health coping strategies adopted by the respondents has includes emotional disclosure (78.6%), addressing the source of stress directly (74.6%), sharing experiences with peers (73.8%), cognitive restructuring (66.3%), practicing mindfulness (61.5%), journaling (54.0%), and seeking professional counselling (54.0%) to cope with *mental & emotional health with an average of 66.1%*. While coping mechanisms are in place, there is a need for further improvement in emotional and mental health coping among the respondents.

The *general coping strategies* shows that respondents most commonly relied on digital socialization (82.9%), public awareness initiatives (80.6%), seeking external support (76.2%), suggesting on-site psychological support services (75.0%), compliance with health protocols (74.6%), adjusting work routines (73.0%), practicing self-care (72.2%), and peer-assisted coping (71.8%). With an average score of 75.7%, the results suggest that the general coping strategies were well adopted by the respondents, reflecting a solid approach to managing overall well-being.

Workplace coping strategies included time management (81.7%), taking breaks during work (80.6%), communication with peers (78.2%), duty swapping within teams (77.4%), attending refresher courses (74.6%), reporting PPE shortages (71.4%), and using social media to combat loneliness (71.4%). Thus, most respondents are actively adopting workplace coping strategies, demonstrating effective management of work-related challenges with an average sof 76.4%.

In sum, the average scores for the coping strategies among the respondents were workplace coping (76.4%), general coping (75.7%), physical health coping (67.1%), and mental and emotional health coping (66.1%). The analysis shows that the respondents primarily relied on workplace and general coping strategies, with a good adoption rate, while physical and mental health coping strategies were less

efficiently utilized. Therefore, there is a need to focus on improving the adoption of physical and mental health coping strategies, particularly in areas such as exercise, sleep, and stress management, to enhance overall well-being and resilience in the workplace.

10.1.6. Social support

The study explored the level of social support received by healthcare workers during the pandemic. The support was categorized into mental & emotional support, instrumental support, informational support, and appraisal support. Based on the mean scores, the support was rated as good (1.00-1.49), moderate (1.50-2.49), and poor (2.50-3.00). The findings reveal that healthcare workers received *moderate to low levels of support* across all areas.

The *social support* among the respondents were psychological first aid (1.81), access to psychiatrists and psychologists' consultation (1.80), counselling service (1.76), recognition and appreciation (1.73) relaxation sessions (1.71), peer support (1.68), stress management (1.67), educational resources on mental health (1.66), colleagues support (1.54), and family support (1.44). The average mean score for social support is 1.68, which indicates a moderate level of social support among the respondents.

The instrumental support among the respondents showed the following mean scores such as onsite mental health support (1.81), financial incentives (1.71), flexible work schedules (1.65), basic provisions like meals and accommodation (1.64), and employee assistance programs (1.64). PPE provision (1.49). The average mean score for *instrumental support* is 1.68, which indicates a moderate level of instrumental support among the healthcare workers.

The informational support among the respondents showed the following mean scores peer-to-peer mentoring and advice (1.68), sharing of experiences and strategies among colleagues (1.63), guidance/advice on work-related challenges (1.60), work-related stress management techniques (1.59), frequent briefing on safety measures (1.56), clear instructions on handling COVID-19 patients (1.50), information on COVID-19-related topics (1.44), and clear information on PPE usage

(1.42). The average mean score for informational support is 1.55, which indicate a moderate level of informational support among the healthcare workers.

The appraisal support for healthcare workers showed the following mean scores: Inspiration-driven media campaigns (1.74), creating a team for problem-solving (1.71), promotions or career development prospects during the pandemic (1.69), recognition of efforts (1.65), gratitude shown by the community (1.60), positive feedback for patient care (1.56), appreciation from colleagues (1.54), and positive feedback from the authority (1.53). The average mean score for perceived appraisal support is 1.61, which indicate a moderate level of appraisal support among the healthcare workers.

Therefore, the average mean scores for support across all the four dimensions shows social support (1.68), instrumental support (1.68), informational support (1.55), and appraisal support (1.61) that indicate a moderate level of support among healthcare workers. In fact, instrumental and social support systems need strengthening to ensure consistent and accessible support. Informational support also requires improvement, particularly in work-related guidance and training. On the other hand, PPE provision and recognition are areas that received stronger scores. So, strengthening the inconsistent areas of support will better assist healthcare workers in future health crises.

10.1.7. Assessment of well-being of the respondents

The well-being of the respondents was assessed using several well-established scales: the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS), the BBC Subjective Well-Being Scale (BBC-SWB), Corey Keyes' Social Well-Being Scale, and the Ryff Scales of Psychological Well-Being (SPWB). These scales were modified and adapted following a pre-testing phase, which included gathering feedback and suggestions. Additionally, any negatively worded items were rephrased into positive statements to better suit the respondents and improve clarity.

The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) showed the following mean scores: Enjoying learning new things (3.25), feeling mentally clear during shifts (3.25), feeling cared for by others (3.23), being confident in their

abilities (3.15), generally feeling cheerful (3.15), feeling capable of handling work-related challenges (3.06), perceiving their roles as useful (3.05), energy levels throughout the day (3.00), sense of connection with the team (2.99), ability to stay calm at work (2.97), concern for colleagues and patients (2.90), and hope for the future (2.88). The average mean score for mental well-being is 3.08, indicating a moderate level of well-being among the respondents. Targeted interventions focusing on stress reduction, team-building activities, and encouraging a positive perspective could further improve mental well-being for the respondents.

The subjective well-being of the respondents showed the following mean scores: Ability to work (3.38), personal relationships (3.37), personal and family life (3.29), purpose in life (3.23), access to health services (3.15), ability to perform daily activities (3.11), achievements (3.10), personal growth (3.09), relating to others (3.07), optimism about the future (3.06), asking for help with a problem (3.04), appearance (3.00), ability to do the things they choose (3.00), satisfaction with themselves as individuals (2.98), control over their lives (2.92), opportunities for leisure (2.96), financial stability (2.94), physical health (2.83), quality of sleep (2.67), and mental well-being (2.51). The average mean score for subjective well-being is 3.06, indicating a moderate level of satisfaction which indicates that there is a need to improve on access to health services, leisure opportunities, and personal growth.

The *social well-being* of the respondents was classified into five dimensions such as *social integration*, *social acceptance*, *social contribution*, *social actualization* and *social coherence* which showed the following mean scores as:

Social integration: feeling part of the community (2.93), sense of belonging (2.54), believing their voices would be heard (2.99), feeling taken seriously (2.88), closeness to others (3.06). There is a need to improve the sense of belonging, being taken seriously by others, and fostering deeper relationships and influence within the community.

Social acceptance: feeling valued by society (3.15), believing people were kind (3.28), uncertainty about trustworthiness (2.85), and reliability (2.75), feeling people were becoming more trustworthy (3.16) and caring (3.06). Trust and

reliability in others need to be strengthened, despite the positive regard for kindness and care.

Social contribution: feeling impactful on the community (2.95), valuing the importance of their work for society (3.18), feeling their daily activities (2.87) and personal contributions (2.86) were less impactful. Respondents feel their daily activities and personal contributions lack impact, indicating the need to enhance the sense of social contribution and involvement.

Social actualization: believing society was evolving (3.12), improving for people like them (2.68), less optimistic about social progress (2.76) and social institutions (2.67). Greater optimism about social progress and the role of social institutions is needed, as well as a more positive outlook on society's overall direction.

Social coherence: ability to understand global challenges (2.97), capability to navigate challenges (2.59), understanding different cultures (3.02), confidence in predicting societal developments (3.21), and valuing understanding the world (3.08). The average mean score for social well-being is 2.98, indicating a moderate level of social well-being among respondents. There is a need to increase confidence in navigating global challenges and societal developments, as well as a deeper understanding of the complexities of social issues and world events.

The dimensions that required improvement are social integration (belonging and relationships), social acceptance (trust and reliability), social contribution (impact of activities), social actualization (optimism about progress), and social coherence (confidence in navigating global challenges). The dimensions positively adopted by the respondents are social acceptance (feeling valued and kindness), social contribution (valuing work for society), and social coherence (understanding cultures and societal developments).

The psychological well-being of the respondents showed the following mean scores: Self-acceptance: personal growth (2.06), achievements (2.30); Purpose in life: ability to plan for the future (2.39), balance work and personal goals (2.39), feeling valued by others for care and support (2.59); Environmental mastery:

motivation to keep learning (2.76), confidence in managing challenges (2.38-2.40); Positive relations with others: relationships with colleagues and family (2.16-2.60); Personal growth: ability to build trusting relationships (2.69), trust in judgment (2.61), measuring worth by care provided (2.38); Autonomy: satisfaction with independence and decision-making (2.36-2.69). The overall average mean score for psychological well-being is 2.53, indicating a moderate level of well-being. The findings suggest that respondents reported moderate satisfaction in most aspects of psychological well-being, with areas for improvement in self-acceptance, purpose in life, positive relations with others, and autonomy.

10.2. Qualitative Information

1. Emotional and Social Support

Overall, the emotional and social support for healthcare workers during the COVID-19 pandemic was found to be inadequate. While there were efforts from peers and family, formal support from authorities and institutions was minimal. Many healthcare workers described feeling isolated, with insufficient psychological assistance to manage the emotional toll of their work. Support from colleagues played a crucial role in helping workers cope, but the lack of structured, professional mental health resources, such as counselling and stress management programs, left a gap in addressing the emotional strain.

2. Mental Health Support

Mental health support was largely insufficient across various healthcare roles. Despite the availability of some counselling services, they were often not accessible due to high demand or the inability to attend due to long working hours. Many workers highlighted the absence of structured mental health initiatives, such as regular counselling, stress management, or psychological support programs, leaving healthcare workers to manage stress, burnout, and anxiety largely on their own.

3. Occupational Health Risks

Healthcare workers faced significant occupational health risks, particularly stress, mental fatigue, and physical exhaustion. The demanding nature of the work, compounded by long hours and increased patient loads, led to both mental and

physical strain. While safety measures were in place to mitigate the risk of infection, physical exhaustion due to prolonged work hours, staff shortages, and heavy workloads contributed to significant health challenges. Additionally, many healthcare workers reported musculoskeletal pain and fatigue.

4. Work-life balance

The work-life balance of healthcare workers was severely disrupted during the pandemic. The intense demands of their professional roles, coupled with concerns about exposure to COVID-19, made it difficult for healthcare workers to maintain personal and family connections. The fear of infecting loved ones and the overwhelming nature of the work created significant emotional strain, and efforts to balance work with personal responsibilities were often inadequate. Support from family and peers was valuable, but the increased workload and stress made it challenging to enjoy personal life.

5. Family and community support

Family support was crucial for healthcare workers, offering emotional encouragement and help in managing household responsibilities. However, the pandemic also posed challenges to accessing this support due to safety concerns and the physical distancing required. The community's initial fear of healthcare workers contributed to feelings of alienation, though this perception shifted over time, and community support grew stronger as the pandemic continued. Despite these efforts, many workers continued to face emotional distress due to limited access to close family support.

6. Feedback Suggestions given by the Respondents

Several key suggestions emerged for improving healthcare worker support in future public health crises. These included increasing manpower to reduce workload, providing comprehensive mental health resources such as regular counselling, and improving access to necessary protective equipment (PPE) and medical supplies. Additionally, more recognition should be given to the roles of behind-the-scenes workers, such as laboratory technicians, who also faced significant risks and stress during the pandemic. Recommendations also emphasized the importance of

preparing healthcare systems with sufficient staffing, mental health support, and proper training for future health emergencies.

Therefore, the major findings of the qualitative information underscore the critical need for a more robust support system for healthcare workers, including enhanced emotional, social, and mental health resources, improved work-life balance, and greater recognition of the physical and emotional toll of healthcare work during crises.

10.3. Suggestions for further action

Based on the findings, the study presents the following suggestions. These are categorized into, institutional-related, research-level, and social work intervention strategies.

A. Policy related

The mental and emotional challenges faced by healthcare workers during the pandemic were immense, significantly affecting the lives of many healthcare professionals in Mizoram. Existing policies in India, such as the Mental Healthcare Act, 2017, the National Mental Health Programme, the Occupational Safety, Health, and Working Conditions Code, 2020, and guidelines from the Indian Medical Association (IMA), do not fully address the mental and emotional needs of healthcare workers, especially during public health crises. The study also revealed that professional counselling and mental health support were insufficient to help workers cope with the challenges they faced in the workplace, highlighting the need for greater attention to restore their mental and emotional well-being. While the *Employee Assistance Programs (EAPs)* in the United States have widely recognized in the healthcare sectors providing confidential counselling and support services to the HCWs who have faced problems due to their work.

The *Mental Healthcare Act, 2017* primarily focuses on protecting the rights of individuals with mental illnesses, but it does not specifically address the needs of healthcare workers (HCWs). The *National Mental Health Programme* aims to improve mental health services and access to care across the country, but it is designed for the general population and does not target healthcare workers directly.

The *Occupational Safety, Health, and Working Conditions Code, 2020* seeks to improve working conditions across all sectors, requiring institutions to ensure the safety and well-being of workers, which could include mental health support. While it focuses on physical safety, it also acknowledges the importance of creating a safe working environment. *Employee Assistance Programs (EAPs)* have recently been introduced in India, particularly in the private healthcare sector, but their implementation is not mandatory and depends on the decisions of individual institutions. In addition, the *Indian Medical Association (IMA)* has developed guidelines to address the mental health and emotional well-being of healthcare workers, emphasizing the importance of stress management, counselling, and a supportive work environment. While these guidelines are not mandatory and are primarily suggestions for healthcare institutions. Without mandatory implementation, some institutions may not adhere to these guidelines or may lack the resources to fully implement them.

While looking at other countries there are *National Institute for Occupational Safety and Health (NIOSH) Guidelines* in the US, this is a comprehensive guideline for worker safety, including mental health support for healthcare workers. The guidelines emphasize stress management, coping strategies, and the importance of psychological well-being. *NHS Wellbeing Framework* in the UK, this is a framework to address the mental and emotional health of healthcare workers. This includes counselling, stress management workshops, resilience training, and a focus on work-life balance as well as wellbeing guardians who monitor and advocate for staff well-being. *The Canadian Mental Health Association (CMHA) Initiatives* which offers mental health resources, including programs specifically designed for healthcare workers. It also promotes workplace mental health strategies, such as peer support groups, stress management, and counselling services. *National Mental Health Strategy* in Australia, this strategy promotes mental health in the workplace. It encourages healthcare institutions to adopt mental health policies and implement stress management programs for HCWs.

Suggestions to improve the mental and emotional well-being of the healthcare workers are as follows:

1. Introduce a comprehensive Mental Health Policy for HCWs

- **Dedicated Policy:** India should implement a specific policy focused on the mental and emotional well-being of healthcare workers. This policy should include mandatory mental health support, regular screenings, counselling services, stress management programs, and specialized support for HCWs in crisis situations.
- **Integration with Existing Frameworks:** Integrating mental health provisions into existing frameworks like the *Mental Healthcare Act, 2017* and the *National Mental Health Programme* can ensure that HCWs benefit directly from these services.

2. Mental health support mandatory in all healthcare institutions

- **Legislative Requirement:** Healthcare institutions (public and private) should be legally required to provide comprehensive mental health support systems. This could include counselling services, access to psychological therapies, resilience and stress management workshops, Peer support groups
- **Accessibility:** Mental health support should be easily accessible, confidential, and available during all shifts, especially in high-stress departments such as emergency rooms and intensive care units.

3. Expand Employee Assistance Programs (EAPs)

- **Mandatory EAPs for All Healthcare Institutions:** Make EAPs mandatory across both private and public healthcare sectors. These programs should offer: confidential counselling, immediate crisis intervention, long-term psychological support for workers dealing with trauma or burnout.

4. Implement mental health days off

- **Paid Mental Health Leave:** Just as sick leave is given for physical health concerns; healthcare workers should be granted paid mental health days. These days will allow HCWs to take a break when they feel emotionally or mentally exhausted, ensuring they can recover without the fear of losing their pay or job security. Encourage regular rest periods and days off to prevent burnout and to allow workers to decompress after challenging shifts.

5. Implement Regular Mental Health Training and Education

- **Awareness and Destigmatization:** Educate HCWs about the importance of mental health and encourage them to seek help when needed. Training programs should aim to reduce the stigma around mental health issues and encourage workers to use available support systems.
- **Ongoing Training:** Incorporate stress management, emotional resilience, and self-care techniques into regular training programs for HCWs. This training should be provided at the start of their career and periodically throughout their employment.

6. Improving IMA guidelines

- **Mandate Implementation:** The Indian Medical Association (IMA) guidelines should be made mandatory for all healthcare institutions, both public and private. This can be done by working with the government to introduce regulations that require healthcare facilities to adopt and follow these mental health guidelines. Mandatory implementation ensures that mental health support is universally available to all healthcare workers, reducing the inconsistency seen across institutions.
- **Tailored guidelines for public health emergencies:** The IMA guidelines should be updated to include provisions that specifically address the mental and emotional needs of healthcare workers during public health emergencies such as pandemics or natural disasters. This could involve introducing special mental health care strategies, such as immediate psychological support,

trauma counselling, and temporary relief from high-stress duties during peak periods of crisis.

7. Healthcare Worker Well-being Framework (Modelled on NHS UK)

- This framework would make well-being a priority in healthcare institutions by providing a structured approach to support HCWs and address mental health issues. Designate wellbeing guardians in every hospital or healthcare facility. These individuals would advocate for and monitor the well-being of healthcare workers.

B. Institutional related

Healthcare institutions have made significant efforts to protect their employees through provisions like personal protective equipment (PPE), vaccination against infectious diseases, and legal safeguards such as the *Epidemic Diseases (Amendment) Act, 2020* and the *Prevention of Violence Against Healthcare Professionals and Clinical Establishments Act, 2022*. These measures primarily focus on the physical health, safety, and protection of healthcare workers (HCWs) against abuse and unsafe working conditions. While these provisions are important, healthcare institutions need to go beyond just physical protection and also focus on the mental, emotional, and psychological well-being of HCWs.

Both the *Epidemic Diseases (Amendment) Act, 2020* and the *Prevention of Violence Against Healthcare Professionals and Clinical Establishments Act, 2022* focus primarily on *physical safety* and *legal protection* for healthcare workers (HCWs) during public health emergencies and instances of violence. While both Acts play a crucial role in safeguarding HCWs from *physical harm and violence*, they do not specifically address the *mental health and emotional well-being* of HCWs, which are critical components of their overall health, especially in high-stress environments like hospitals and during public health crises.

Suggestions and recommendations for the institutions to strengthened and improve the well-being of the HCWs are;

1. Integrating mental health provisions in the acts

- Both Acts should include *mental health care provisions* as part of the legal protections for HCWs. This would include requiring healthcare institutions to establish mental health support systems, such as on-site counsellors, psychologists, or access to mental health professionals during high-stress periods or public health crises.

2. Mandating regular mental health screenings and assessments

- Incorporate *mandatory mental health screenings* for HCWs, similar to routine physical check-ups. These screenings would help identify early signs of *stress, burnout, or trauma* and offer appropriate interventions before these conditions become severe.
- These screenings should be done regularly, especially after HCWs have been exposed to stressful situations or crises, such as after long shifts, exposure to trauma, or patient deaths.

3. Strengthened professional Social Worker at the hospitals setting

- Hospital-based social workers primarily focus on patient care; however, healthcare institutions should expand and enhance their services to also support healthcare workers (HCWs), providing them with the emotional and psychological assistance they need.

4. Mental Health and Well-Being Policies for HCWs

- **Policy Focus:** A dedicated Mental Health Policy specifically for healthcare workers should be developed and enforced by healthcare institutions. This policy should focus on mental health screenings, access to counselling services, stress management programs, and overall emotional well-being.
- **Implementation:** The policy should ensure that all healthcare workers have access to mental health support, including on-site counsellors, regular

psychological assessments, and resilience training programs to prevent burnout and stress.

5. Employee Assistance Programs (EAPs)

- **Policy Focus: Employee Assistance Programs (EAPs)** should be made mandatory for all healthcare institutions. These programs provide confidential counselling, mental health support, and crisis intervention services.
- **Implementation:** EAPs should be designed to support healthcare workers through confidential counselling, stress management workshops, and immediate emotional support during high-stress periods such as public health crises.

C. Social work interventions

The study highlights significant challenges faced by healthcare workers (HCWs) during the COVID-19 pandemic, including emotional distress, mental health struggles, physical exhaustion, and difficulty balancing work and personal life. These issues emphasize the urgent need for social work interventions to improve their well-being. Social work interventions aim to enhance quality of life by addressing emotional, mental, and physical challenges through structured approaches. These methods provide practical solutions, emotional support, and advocacy.

Social work methods include social case work, which involves one-on-one support to assess and address personal issues; group work, where individuals with similar challenges come together for mutual support; and community organization, which focuses on mobilizing communities to address larger social issues. Social welfare administration ensures social services effectively meet people's needs, while research helps improve interventions and develop evidence-based practices. Below are the social work methods that can be implemented to address these issues and improve healthcare workers' overall well-being. To address these challenges, social work interventions should be developed at the *micro*, *macro*, and *mezzo* levels, with tailored approaches for individual, organizational, and societal needs.

1. Micro Level Interventions (Individual Focus)

At the micro level, the focus is on **individual healthcare workers** and their immediate needs. Social workers can intervene by providing:

- i. **Psychological support and counselling:** Healthcare workers should have access to regular individual counselling or psychotherapy sessions to help manage stress, burnout, and mental health challenges. These sessions can be delivered both in-person and virtually to ensure accessibility. Additionally, social workers can assist in developing coping strategies for stress management, emotional regulation, and self-care practices.
- ii. **Health education and training:** Training programs focused on mental health awareness, stress management, and coping strategies can be provided to help healthcare workers recognize signs of stress, burnout, and emotional fatigue early. Social workers can also offer self-care workshops that encourage healthcare workers to prioritize their well-being, focusing on proper time management, sleep hygiene, and physical fitness.
- iii. **Peer support systems:** Social workers can help establish peer support groups where healthcare workers can share their experiences, offer emotional support, and discuss the challenges they face. This can enhance their social support networks and provide a safe space for emotional expression.

2. Mezzo Level Interventions (Group or Organizational Focus)

At the mezzo level, social work interventions can target *teams, departments, and organizations* to improve the collective well-being of healthcare workers. Possible interventions include:

- i. **Workplace support programs:** Social workers can develop programs that focus on improving the workplace environment, such as ensuring adequate break times, rotating shifts, and manageable workloads to reduce the physical and mental strain. They can also promote mental health days and stress-relief activities to encourage employees to take necessary breaks and focus on their well-being.

- ii. **Support networks and Employee Assistance Programs (EAPs):** Social workers can work with healthcare institutions to expand Employee Assistance Programs (EAPs) that provide counselling, stress management, and other supportive services. Establishing a mentorship or buddy system within teams could also help less experienced or overwhelmed workers navigate the high-pressure environment of healthcare.
- iii. **Incorporation of well-being initiatives:** Within healthcare institutions, social workers can advocate for well-being initiatives such as wellness programs, mental health training for staff, and better PPE provisions to ensure a more supportive and safer work environment. Collaborating with HR departments, they can implement policies that address mental health issues and support healthcare workers during crises.

3. Macro Level Interventions (Societal or Policy Focus)

At the macro level, interventions focus on *societal, policy, and systemic changes* that address broader issues affecting healthcare workers. Social workers can play a key role in advocating for changes in healthcare policies, funding, and public health systems. Key interventions include:

- 1. **Advocacy for better mental health policies:** Social workers can advocate for national or regional policies that prioritize mental health support for healthcare workers. This may include policies that fund and mandate regular mental health check-ups, counselling services, and the development of psychological support systems within healthcare institutions.
- 2. **Government support and public health infrastructure:** At the macro level, social workers can work with governments to ensure that healthcare workers' needs are recognized and met. This includes advocating for adequate staffing levels, improved PPE availability, better working conditions, and financial incentives for healthcare workers. Social workers can also lobby for mental health initiatives to be embedded in public health responses during future crises.

3. **Community-based programs:** Social workers can partner with community organizations to create community support networks for healthcare workers. These programs can focus on reducing stigma, increasing public appreciation, and fostering a community-wide support system to ensure healthcare workers feel valued and supported in their efforts.
4. **Policy development for work-life balance:** Social workers can collaborate with policymakers to implement work-life balance policies that offer flexible working hours, increased leave, and paid time off for healthcare workers. These policies can help mitigate the personal and emotional strain faced by HCWs, ensuring their mental and physical well-being is prioritized.

Social work interventions at the *micro*, *mezzo*, and *macro* levels are essential to improving the well-being of healthcare workers, especially during public health crises like the COVID-19 pandemic. At the *micro level*, social workers can offer direct support to individuals, enhancing coping mechanisms and mental health resilience. At the *mezzo level*, workplace initiatives can provide structured support within healthcare institutions to improve working conditions and mental health resources. Finally, at the *macro level*, social workers can advocate for systemic changes that ensure healthcare workers have the necessary resources, support, and policies in place to protect their well-being. By addressing these needs, healthcare systems can create a more supportive environment that enhances the emotional, physical, and mental well-being of those on the frontlines.

D. Multidisciplinary approach

The challenges faced by healthcare workers require a multidisciplinary approach, as their mental, emotional, and psychosocial needs cannot be addressed by healthcare professionals alone. While they are capable of managing the medical aspects of their work, they require support from other disciplines to address the emotional and psychosocial aspects of their well-being.

Social work can evaluate healthcare workers' well-being using a bio-psycho-spiritual approach, which goes beyond medical treatment to address their physical, psychological, and spiritual needs.

Bio: The biological or medical aspect, which is traditionally handled by doctors and nurses, addresses physical health, physical stress, and direct medical care for HCWs.

Psycho: The psychological aspect, which is critical in managing stress, trauma, anxiety, depression, or burnout, requires mental health professionals like psychologists, counsellors, or psychiatrists. Social workers also contribute to this by providing counselling and emotional support.

Spiritual: The spiritual or existential aspects may relate to personal meaning, coping with moral distress, or finding a sense of purpose in challenging work. This can involve support from chaplains or spiritual counsellors, helping HCWs address spiritual crises or emotional burnout related to their work.

Role of social work in a multidisciplinary approach

Social work, specifically, brings a holistic approach by addressing the social and psychosocial factors affecting HCWs. Social workers can provide:

- **Emotional support** through counselling and one-on-one sessions.
- **Crisis intervention** during traumatic events or high-stress situations.
- **Advocacy** for systemic changes to improve HCWs' working conditions and emotional well-being.
- **Peer support and group therapy** to reduce feelings of isolation and encourage mutual support among colleagues.
- **Connecting HCWs with community resources** for external support, such as family care, housing assistance, or financial aid, which can impact their mental health.

E. Future research prospects

1. Impact of social support systems on mental health outcomes
2. Long-term effects of occupational stress and social support
3. Effectiveness of social support programs
4. Social work interventions and their impact on HCWs' well-being
5. Cultural differences in social support systems

Conclusion

The study examines the social support, occupational health, and well-being of healthcare workers (HCWs) in Mizoram during the COVID-19 pandemic, focusing on Aizawl and Lunglei district. Using a mixed-methods design (structured questionnaire plus key-informant interviews), the study analysed 252 HCWs from government and private facilities. Most respondents were female ($\approx 76.6\%$), aged 20–39, and from nursing backgrounds ($\approx 54.8\%$). Reliability testing of the custom scales showed good internal consistency (Cronbach's $\alpha \approx 0.79\text{--}0.83$).

Safety and preparedness. Core safety provisions were widely available and largely used: disposable gloves (95.6%), hand sanitizers (94.4%), gowns (90.5%), N95 masks (87.3%), face shields (86.1%), and clear SOPs/training ($\approx 88\text{--}90\%$). Vaccination (81%), regular testing (78.6%), quarantine facilities (77%), daily symptom checks (74.6%), and adequate work hours (74.2%) covered most, but not all, HCWs. Workplace hygiene distancing, ventilation, and frequent disinfection was consistently implemented. However, formal mental-health support (counselling, stress-management training) was only partly accessible or used, even though peer moral support remained strong.

Occupational health issues. Physical complaints were common: fatigue/exhaustion (85%), musculoskeletal problems (75%), eye strain (73%), sleep disturbance (70%), PPE-related skin issues (68%), dehydration (60%), and gastrointestinal problems (59%). Mental health challenges included stress (83%), fear of infection (67%), anxiety (62%), emotional burden (58%), insomnia (57%), burnout (53%), depression (46%), stigma (44%), and trauma (37%). Workplace pressures—increased workload (78%), staff shortages (74%), long hours (74%), frequent protocol changes (69%), limited institutional and mental-health support ($\sim 55\text{--}58\%$), and occasional PPE supply gaps ($\sim 55\%$) added strain.

Coping strategies. HCWs used practical, multi-level coping. Physical health coping included short/micro-breaks (85%), hydration and skin care ($\approx 67\text{--}69\%$), balanced diet (66%), sleep routines (54–63%), and regular exercise (61%). Mental–emotional coping centred on emotional disclosure (79%), active problem-solving (75%), sharing experiences (74%), cognitive reframing (66%), mindfulness (62%), journaling (54%), and professional counselling (54%). Workplace coping featured

time management (82%), micro-breaks (81%), peer communication (78%), duty swaps (77%), refresher training (75%), and reporting PPE shortages (71%). General coping included digital socialization (83%), public awareness posts (81%), seeking external support (76%), advocating for on-site psychological services (75%), protocol compliance (75%), work adjustments (73%), self-care (72%), and peer-assisted coping (72%).

Social support. Of the four types, informational support (clear PPE guidance, frequent safety briefings, and instructions for managing COVID-19 patients) rated best. Instrumental support (PPE, flexible scheduling, meals/lodging, testing/vaccination, employee assistance) was moderate and uneven across sites. Appraisal support (recognition from colleagues, managers, community/media) was present but not strong. Mental & emotional support scored lowest; family and colleague support were reliable, but access to psychologists/psychiatrists and structured counselling remained limited.

Well-being. Across mental, psychological, social, and subjective dimensions, well-being was overall moderate. In this thesis, moderate means HCWs are *still resilient* they continued to cope and function under pressure, yet they were not in a high or optimal state and need stronger support.

The study has shown the resilience and vulnerability of Mizoram's healthcare workers under pandemic conditions. It shows that when the workload increases and resources are limited, it leads to physical and mental harm. However, when there is strong support from others such as family, peer and colleagues and the organization responds well, their well-being improves, and the healthcare system performs better. The study emphasizes the importance of listening to healthcare workers' experiences and calls for ongoing efforts to protect their safety, recovery, and dignity, as they are key to a strong healthcare system.

APPENDICES

Annexure – I

Social Support, Occupational Health and Well-being of the Healthcare workers during COVID-19 Pandemic in Mizoram

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Informed Consent

I am conducting a study on “Social Support, Occupational Health, and Well-being of Healthcare Workers during the COVID-19 Pandemic in Mizoram.” This study aims to understand how social support and occupational health affect the well-being of healthcare workers during the pandemic. The findings will help identify challenges and improve support systems for healthcare workers. Participation is voluntary, and you are being asked to complete a questionnaire that will take about 15-20 minutes. Your responses will remain confidential and will only be used for academic purposes. There are no risks involved in participating. If you agree to participate, please sign below.

Participant’s Signature _____

Questionnaire

(Confidential & Ph.D. Research purpose only)

I. Demographic Profile of the respondents

Section A: Personal Information		
Sl. No.	Particulars	Response Options
1.	Age	a. ☐ 20-29 years b. ☐ 30-39 years c. ☐ 40-49 years d. ☐ 50-59 years e. ☐ 60 years and above
2.	Gender:	a. ☐ Male b. ☐ Female
3.	Marital Status:	a. ☐ Single b. ☐ Married c. ☐ Divorced
4.	Educational Qualification:	a. ☐ PG b. ☐ MBBS c. ☐ Nursing (BSc, MSc) d. ☐ General Nursing and Midwifery e. ☐ Auxiliary Nurse Midwife f. ☐ Pharmacy (BSc, MSc) g. ☐ Diploma in Pharmacy h. ☐ Medical Laboratory Technology (BSc, MSc) i. ☐ Diploma in Medical Laboratory Technology (DMLT) j. Other (Please specify): _____

5.	Years of Experience in Healthcare:	a. ☐ Less than 1-year b. ☐ 2-5 years c. ☐ 6-9 years d. ☐ 10-14 years e. ☐ More than 15 years
Section B: Professional Information		
6.	Primary Role/Designation	a. ☐ Doctor b. ☐ Nurse c. ☐ Pharmacist d. ☐ Physiotherapist e. ☐ Lab Technician f. ☐ Health Worker g. ☐ ASHA Worker h. ☐ Health & Wellness Officer i. Other (Please specify): _____
7.	Work Setting	a. ☐ Government Hospital b. ☐ Private Hospital c. ☐ Community Health Center d. ☐ Private Clinic e. ☐ Nursing Home f. ☐ Medical & paramedical Educational Institution g. Other (Please specify): _____
8.	Department	a. ☐ General Medicine b. ☐ Surgery c. ☐ Paediatrics d. ☐ Obstetrics & Gynaecology e. ☐ Emergency centre f. ☐ Mental Health setting g. ☐ Cardiology h. ☐ Orthopaedics i. Other (Please specify): _____
9.	Work Location	a. ☐ Aizawl District b. ☐ Lunglei District
10.	Employment Status	a. ☐ Permanent b. ☐ Temporary c. ☐ Contractual
11.	Average work duration in a day	a. ☐ < 8 hours in a day b. ☐ 8–10 hours in a day c. ☐ 11–12 hours in a day d. ☐ > 12 hours in a day

II. (a) Availability of essential safety measures for the healthcare workers

Sl. No.	Checklist	Available	Utilization	
			Yes	No
1	Availability of N95 Masks			
2	Availability of Face Shields or Goggles			
3	Availability of Gloves (Disposable and Reusable)			
4	Availability of Full-Body Gowns (Disposable or Washable)			
5	Availability of Hand Sanitizers at Key Points			
6	Awareness Sessions on Covid-19 Transmission and Precautions			
7	Quarantine and Isolation Facilities for Healthcare Workers			
8	Regular Covid-19 Testing for Healthcare Workers			
9	Daily Health Monitoring and Symptom Checks			
10	Counselling services for Mental Health Support			
11	Toll Free Helpline for Stress Management			
12	Adequate Work Hours to Prevent Burnout			
13	Availability of Covid-19 Vaccines for Healthcare Workers			
14	Access to Standard Operating Procedure from Health Authorities			

II. (b) Knowledge on COVID-19

Sl. No.	Questions	Yes	No
1	Sensitize the Primary Transmission of Covid-19		
2	PPE Must be utilised when managing Patients with Covid-19		
6	Hand Hygiene Is Crucial		
3	Aware the Common Symptoms of Covid-19		
4	Vaccination Can Reduce the Severity of Infection and Transmission of Covid-19		
8	Covid-19 Is Caused by A Virus		
7	Aware the Recommended Quarantine Period for Covid-19 Exposure		
9	Managing the Spread of Covid-19 Requires Maintaining Physical Distance.		
10	Isolation/Quarantine Helps in Mitigating the Spread of Covid-19		
5	Fully Vaccinated Person Can Still Be Infected with Covid-19		

III. Identification of healthcare workers safety during COVID-19 pandemic

Sl. No.	Categories	Components	Agree	Partially agree	Disagree
1.	Access to Personal Protective Equipment (PPE)	PPE Usage Instructions Were Regularly Provided			
		No Delays in Accessing PPE			
		PPE Reserves Were Distributed During Shortages			
		PPE Provided Was of Sufficient Quality for Protection			
		PPE Provided Specimen Matched the Task			
		PPE Supplies Were Available During My Duties			
		Quality of PPE Supply by The Govt. Was Satisfactory			
		Contributions of PPE From Local Communities Helped Address Shortages			
		Public Donations of PPE Met Safety and Quality Standards			
		The Government Ensured Donated PPE Met Safety Standards			
		Public Awareness Campaigns Increased PPE Donations			
		Availability of PPE Reduced My Anxiety About Exposure to Covid-19			
2.	Training and Guidelines	Received Appropriate Practical Training with Demonstrations			
		Trained on PPE Use and Infection Prevention			
		Training Was Provided in Resource-Limited Situations			
		Protocols for The Isolation of Exposed Workers, Quarantine, And Patient Transport Were Clearly Stated			
		Guidelines on Safe Disposed of Biomedical Wastes			
		Immediate Reporting of Covid-19 Contact by The Healthcare Workers			
		Implementation of Sop Were Clear and Regularly Updated			

		Coordination with Local Governing Bodies Were Highlighted			
3.	Workplace Hygiene and Environment	Regular cleaning, disinfection, and sanitization of high-touch surfaces			
		Accessible sanitizers and handwashing stations			
		Mask-wearing and hygiene protocols encouraged			
		Proper bins for PPE and medical waste disposal.			
		Social distancing enforced; adequate ventilation provided.			
		Clean rest areas with hygiene reminders displayed			
		Regular inspections on cleanliness and hygiene for staff and patients			
4.	Mental health Safety Support	Psychosocial support among colleagues			
		Work related stress was openly communicated			
		Mental health support services provided by the institutions			
		Counselling or therapy sessions were available when needed			
		Work adjustments were made to reduce stress			
		Break times and rest periods were given			
		Mental health concern was able to discuss with my team or supervisor			
		Stress and burnout coping training sessions were conducted			
		My personal well-being was prioritized by my institution			
		Support systems like peer groups and helplines were available			
5.	Testing, Monitoring, and Vaccination	Regular COVID-19 testing was available for healthcare workers			
		Testing was easily accessible when needed			
		Results were provided promptly			
		Clear guidelines for managing positive cases			
		Symptom monitoring was conducted regularly			
		COVID-19 vaccination was offered to all healthcare workers			
		The vaccination process was friendly and convenient			
		Potential vaccine side effects were clearly communicated			
		Booster doses were offered as required			
		Adequate recovery time was granted post-vaccination			
		The institution adhered to government testing and vaccination guidelines			
6.	Communication and Feedback	Regular update on new COVID-19 guidelines			
		Authority was open to hearing my concerns about safety			
		Received prompt, clear notice of modifications to workplace procedures			

		Feedback about safety measures was actively sought from healthcare workers			
		Any issues raised about safety were addressed promptly			
		Feedback on safety measures was taken seriously			

IV. (a) Self-reported occupational health issues of the respondents

Sl. No	Aspects	Variables	Yes	No
1.	Physical health issues	Fatigue and exhaustion		
		Sleep disturbances		
		Eye strain		
		Muscle Aches		
		Gastrointestinal Issues		
		Skin Irritation		
		Overheating and Sweating due to PPE use		
		Dehydration		
		Reduce Immunity		
2.	Mental health issues	Stress		
		Anxiety		
		Depression		
		Fear of Infection		
		Insomnia		
		Burnout		
		Hopelessness		
		Stigma		
		Emotional Burden		
		Trauma		
3.	Workplace issues	Shortage of staff		
		Increase in workload		
		Long working hours		
		Inadequate break and recovery		
		Lack of personal protective equipment		
		Isolation/ Quarantine		
		Adapting to Changing Protocols		
		Lack of mental health support		
		Lack of Institutional Support		
		Trained in infection prevention and control measures		
4.	General issues	Stigma and discrimination		
		Self-Imposed Isolation		
		Physical Separation from peers and family		
		Inadequate Peer Support		
		Work-life imbalance		
		Reluctant to go for duty		
		Social withdrawal		
		Self-health assessment		

IV. (b) Coping mechanisms adopted by the respondents

Sl. No	Aspects	Coping strategies	Yes	No
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1.	Physical health coping	Short break while on duty		
		Regular physical exercise		
		Proper sleep		
		Establish bedtime routine		
		Limit to screen time		
		Maintain proper balance diet		
		Moisturize regularly		
		Stay dehydrated		
		Use vitamins or immunity boosters		
2.	Mental health coping	Actively addressing the source of stress		
		Seek for professional counselling therapy		
		Practice mindfulness and meditation to alleviate stress		
		Stay updated on COVID-19 guidelines		
		Sharing feelings with a trusted person		
		Sharing experiences with people facing similar challenges		
		Writing thoughts and feelings to process emotions		
		Replacing self-defeating thoughts with constructive ones		
3.	Workplace coping	Wait for authority action		
		Practice time management		
		Take a break		
		Rotate duties among team members to avoid fatigue		
		Report shortage of PPE to higher authority		
		Use social media to combat loneliness		
		Communication with peers & family		
		Work alteration with colleagues		
		Attend refresher courses and trainings on COVID-19 related		
4.	General Coping	Educate the community on healthcare workers' roles		
		Sensitize community to combat fear and misinformation		
		Use technology to maintain social connections		
		Promote peer support through group discussions or check-ins		
		Advocate for programs supporting worker well-being and recognition		
		Schedule time for hobbies and relaxation to recharge		
		Discuss realistic workloads and expectations with employers		
		Advocate for public awareness campaigns		
		Follow infection control protocols		
		Recommend inclusion of on-site mental health professionals		
		Recommend external support		

V. Social support by the respondents

Sl. No.	Components	Variables	Always	Sometimes	Never
1.	Mental &	Counselling service			

	Emotional Support	Peers support			
		Colleagues support			
		Family support			
		Stress management			
		Recognition and appreciation initiatives			
		Psychological first aid			
		Access to psychiatrists and psychologists			
		Educational resources on mental health			
		Relaxation sessions			
2.	Instrumental Support	Provision of PPE while on duty.			
		Financial incentives			
		Flexible work schedules			
		Transportation to work			
		Maternity benefit			
		Childcare support services			
		Provision of meals and accommodation			
		Training on infection control			
		Adequate rest breaks and recovery time			
		Access to COVID-19 Testing and Vaccination.			
		Onsite mental health support			
		Employee assistance programs			
3.	Informational Support	Clear information on PPE usage			
		Information on COVID-19 related			
		Clear instructions on handling COVID-19 patients			
		Work related stress management techniques			
		Guidance/advice on work-related challenges.			
		Frequent briefing on safety measures			
		Peer-to-peer mentoring and advice.			
		Sharing of experiences and strategies among colleagues.			
4.	Appraisal Support	Positive feedback from the authority			
		Appreciation from colleague			
		Gratitude shown by the community			
		Work valued by family			
		I received positive feedback for patient care			
		Promotions or career development prospects during the pandemic			
		Recognition of efforts			
		Create a team for problem-solving			
		Motivation boost media campaign			

VI. Assessment of well-being of the respondents

A. Mental Well-being					
Statements	None of the time (1)	Rarely (2)	Some of the time (3)	Often (4)	All the time (5)
I enjoy learning new things.					
I think clearly during my shifts.					
I feel cared for by others.					
I can make decisions on my own.					
I feel confident in my abilities.					

I feel cheerful most days.					
I feel good about myself.					
I handle work challenges well.					
I feel useful in my work.					
I have enough energy for my tasks.					
I feel connected to my team.					
I feel calm and relaxed.					
I show concern for my colleagues and patients.					
I feel hopeful about the future.					
B. Subjective Well-Being Scale					
Items	Not at all	A little	Moderately	Very much	Extremely
Are you happy with your ability to work					
Are you happy with your friendships and personal relationships					
Are you happy with your personal and family life					
Do you feel you have a purpose in life					
Are you happy with access to health services					
Are you happy with your ability to perform daily activities					
Are you happy with yourself and your achievements					
Do you feel able to grow and develop as a person					
Are you comfortable to relate & connect with others					
Do you feel optimistic about the future					
Are you able to ask someone for help with a problem					
Are you happy with your looks and appearance					
Do you feel able to do the things you choose to do					
Do you feel happy with yourself as a person					
Are you confident in your own opinions and beliefs					
Do you feel able to enjoy life					
Are you happy with your opportunity for exercise/leisure					
Are you happy that you have enough money to meet your needs					
Do you feel in control of your life					
Do you feel able to live your life the way you want					
Are you happy with your physical health					
Are you happy with the quality of your sleep					

Do you feel mentally well and balanced in your work and personal life?					
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C. Social Well-being <i>Strongly Disagree=1, Disagree=2, Neutral =3, Agree=4, Strongly Agree=5</i>						
Dimensions	Items	SD	D	N	A	SA
Social Integration	You feel that you belong to a community.					
	You feel like you're an important part of your community					
	If you had something to say, you believe people in your community would listen to you					
	You feel close to other people in your community					
	You see your community as a source of comfort					
	If you had something to say, you believe your community would take you seriously					
Social Acceptance	You believe other people in society value you as a person					
	You think that other people are reliable					
	You believe that people are kind					
	You believe that people are self-centred					
	You feel that people are trustworthy					
	You think that people live not just for themselves but also for others.					
	You believe that people are increasingly trustworthy nowadays.					
	You think that people care about other people's problems					
Social Contribution	Your behaviour has some impact on other people in your community					
	You think you have something valuable to give to the world					
	My daily activities produce valuable benefits for my community.					
	I have the time and energy to contribute e to my community.					
	You think that your work provides an important product for society					
	You feel that you have valuable and important contributions to make to society.					
Social Actualization	You believe that society is continuing to make progress					
	Society is improving for people like you.					
	You believe social institutions like law and government make your life better.					
	You see society as continually evolving					
	You think our society is a productive place for people to live in					
	You believe that social progress exists and is happening.					

	You think the world is becoming a better place for everyone					
Social Coherence	I feel capable of navigating the world's challenges.					
	Everyone has the ability to understand how the world works, not just scientists.					
	I can make sense of what's going on in the world.					
	I find most cultures interesting and understandable.					
	You think it's worthwhile to understand the world you live in					
	You feel confident predicting what will happen next in society.					

D. Psychological well-being <i>(1 = strongly agree; 2 = somewhat agree; 3 = a little agree; 4 = neither agree or disagree; 5 = a little disagree; 6 = somewhat disagree; 7 = strongly disagree)</i>							
Statements	SA (1)	SWA (2)	ALA (3)	NAND (4)	ALD (5)	SWD (6)	SD (7)
I appreciate my personality and strength gained through work.							
I am proud of my growth and impact as a healthcare worker.							
I value my achievements and the difference I make in healthcare.							
I appreciate my personality and strength gained through work.							
I live with purpose, focusing on quality patient care.							
People see me as a caring and supportive healthcare worker.							
I actively plan for my future, balancing work and personal goals.							
I am motivated to keep learning and improving in my career.							
I manage challenges confidently in personal and professional life.							
I embrace challenges that foster professional and personal growth.							
I am proud of my growth and impact as a healthcare worker.							
I value diverse perspectives and sound professional judgment in patient care.							
I have strong, supportive relationships with colleagues and family.							
I build trusting relationships with colleagues and patients.							
I trust my judgment and make decisions from experience.							
I measure my worth by the care and difference I provide to patients.							
I appreciate my personality and strength gained through work.							
I live with purpose, focusing on quality patient care.							

Thank you for your participation

KEY INFORMANT INTERVIEW

Social Support, Occupational Health and Well-being of the Healthcare workers during COVID-19 Pandemic in Mizoram

Guideline for Key informant Interview

1. Participation is voluntary
2. Obtained prior informed consent
3. KII shall be documented for academic purpose

Inclusion Criteria

1. Healthcare workers who have directly worked with COVID-19 patients.

Exclusion Criteria

1. Healthcare workers who have not worked with COVID-19 patients.

KII Questions

1. Demographic background of the healthcare workers.
2. Nature and extent of emotional and social support provided by healthcare institutions and government agencies.
3. Accessibility and adequacy of mental health resources available to healthcare workers.
4. Impact of the COVID-19 pandemic on the mental health and overall well-being of healthcare workers.
5. Occupational health hazards and risks encountered by healthcare workers in Mizoram during the pandemic.
6. Coping mechanisms and strategies adopted by healthcare workers in response to pandemic-related stress.
7. Role of familial and community-based support systems during the pandemic.
8. Recommendations for strengthening preparedness and response strategies in future public health emergencies.

BIBLIOGRAPHY

BIBLIOGRAPHY

- Abo-Ali, E. A., Al-Rubaki, S., Lubbad, S., Nchoukati, M., Alqahtani, R., Albraim, S., Ghareeb, W. A., Al-Haffashi, B., Alghamdi, F., & Zaytoun, S. (2021). Mental well-being and self-efficacy of healthcare workers in Saudi Arabia during the COVID-19 pandemic. *Risk Management and Healthcare Policy*, 14, 3167–3177. <https://doi.org/10.2147/RMHP.S320421>
- Abubakar, U., Usman, M. N., Baba, M., Sulaiman, A., Kolo, M., Adamu, F., & Jaber, A. A. S. (2022). Practices and perception of healthcare workers towards infection control measures during the COVID-19 pandemic: A cross-sectional online survey from Nigeria. *The Journal of Infection in Developing Countries*, 16(9), 1398–1405. <https://doi.org/10.3855/jidc.14066>
- Achor, S. (2010). *The happiness advantage: The seven principles of positive psychology that fuel success and performance at work*. Crown Business.
- Adams, R., Hughes, M., & Parker, D. (2021). The impact of bedtime routines on stress management and emotional regulation. *Journal of Sleep Health*, 18(3), 123–137.
- Aditya, M. R., Mansyur, M., Mokoagow, M. I., Adi, N. P., Fitriani, D. Y., Tobing, H., Pujo, J. M., & Kallel, H. (2022). Stress among healthcare workers during the COVID-19 pandemic and the determinant factors: A cross-sectional study. *Medical Journal of Indonesia*, 31(3), 148–154. <https://doi.org/10.13181/mji.oa.226030>
- Afolabi, A., & Ilesanmi, O. (2022). Community engagement for COVID-19 prevention and control: A systematic review. *Public Health and Toxicology*, 2(2), 1–17. <https://doi.org/10.18332/pht/149230>
- Afrashtehfar, K. I., Jurado, C. A., Al-Sammarraie, A., & Saeed, M. H. (2023). Consequences of COVID-19 and its variants: Understanding the physical, oral, and psychological impact. *International Journal of Environmental Research and Public Health*, 20(4), 3099. <https://doi.org/10.3390/ijerph20043099>
- Ağalar, C., & Öztürk Engin, D. (2020). Protective measures for COVID-19 for healthcare providers and laboratory personnel. *Turkish Journal of Medical Sciences*, 50(SI-1), 578–584. <https://doi.org/10.3906/sag-2004-132>
- Agarwal, N., Biswas, B., & Nair, R. (2020). Ensuring safety and availability of healthcare workers in the era of COVID-19: An experience from the Eastern State of India. *Indian Journal of Medical Sciences*, 72, 58–64. https://doi.org/10.25259/IJMS_128_2020
- Agbonmwandolor, J. O., Chaloner, J., Gogoi, M., Qureshi, I., Al-Oraibi, A., Ekezie, W., Reilly, H., Wobi, F., Nellums, L. B., Pareek, M., & On behalf of the UK-REACH Collaborative Group. (2024). Coping strategies used by migrant healthcare workers to support their mental health during COVID-19 in the United Kingdom: A qualitative analysis. *European Journal of Psychotraumatology*, 15(1). <https://doi.org/10.1080/20008066.2024.2415747>

- Aggarwal, S., Simmy, S., Mahajan, N., & Nigam, K. (2024). Challenges experienced by healthcare workers during service delivery in the geographically challenging terrains of North-East India: Study involving a thematic analysis. *JMIR Formative Research*, 8, e57384. <https://doi.org/10.2196/57384>
- Al Zahrani, S. A. (2021). The role of counseling services in reducing burnout among healthcare workers: A study in Saudi Arabia. *Journal of Behavioral Health*.
- Alah, M. T. T., Abdeen, S., Selim, N., Tayar, E., & Bougmiza, I. (2022). Occupational prevention of COVID-19 among healthcare workers in primary healthcare settings: Compliance and perceived effectiveness of personal protective equipment. *Journal of Patient Safety*, 18(8), 747–755. <https://doi.org/10.1097/PTS.0000000000001004>
- Albrecht, S. L., Bakker, A. B., Gruman, J. A., Macey, W. H., & Saks, A. M. (2015). Employee engagement and job satisfaction: The role of individual and organizational factors. *Journal of Managerial Psychology*, 30(7), 725–737.
- Alharthi, M. H., Alshomrani, A. T., Bazaid, K., Sonpol, H. M., Ibrahim, I. A., & Alashkar, A. M. (2022). Factors affecting the psychological well-being of healthcare workers during the COVID-19 crisis. *Psychology Research and Behavior Management*, 15, 1931–1942. <https://doi.org/10.2147/PRBM.S370456>
- Alhourri, A., Abu Shokor, M., Marwa, K., Sharabi, A., Arrouk, D. M. N., Al Hourri, F. N., & Al Hourri, H. (2023). COVID-19 and its impact on healthcare workers: Understanding stigma, stress, and quality of life. *Cureus*, 15(4), e37846. <https://doi.org/10.7759/cureus.37846>
- Ali, A., & Kumar, S. (2023). Indian healthcare workers' issues, challenges, and coping strategies during the COVID-19 pandemic: A cross-sectional study. *International Journal of Environmental Research and Public Health*, 20(4), 3661. <https://doi.org/10.3390/ijerph20043661>
- Alimoradi, Z., Broström, A., Balayi, A., & Lin, C. Y. (2021). Sleep problems during the COVID-19 pandemic and the associated mental health outcomes: A systematic review. *Journal of Affective Disorders*, 292, 110–119. <https://doi.org/10.1016/j.jad.2021.05.030>
- Alnazly, E. K., & Hjazeen, A. A. (2021). Psychological distress and coping strategies among nurses during the COVID-19 pandemic: A cross-sectional online survey. *The Open Nursing Journal*, 15(1), 262–272. <https://doi.org/10.2174/1874434602115010262>
- Alnazly, E., Khraisat, O. M., Al-Bashaireh, A. M., & Bryant, C. L. (2021). Anxiety, depression, stress, fear and social support during COVID-19 pandemic among Jordanian healthcare workers. *PLOS ONE*, 16(3), e0247679. <https://doi.org/10.1371/journal.pone.0247679>
- Alon, T., Doepke, M., Olmstead-Rumsey, J., & Tertilt, M. (2020). The impact of COVID-19 on gender equality (No. w26947; p. w26947). *National Bureau of Economic Research*. <https://doi.org/10.3386/w26947>

- Alrajhi, A. M., Hussain, W. A.-H., Rafie, B. A., Taj, M., & Elgarf, A. M. (2022). Knowledge and awareness of COVID-19 epidemic preparedness and response among health care workers in Makkah city. *Therapeutic Advances in Infectious Disease*, 9, 204993612210794.
- Alshagrawi, S. (2024). Coping during the COVID-19 pandemic: A qualitative study of healthcare workers in Saudi Arabia. *Illness, Crisis & Loss*, 32(4), 700–720. <https://doi.org/10.1177/10541373231189711>
- Alshammari, M. H., & Alenezi, A. (2023). Nursing workforce competencies and job satisfaction: The role of technology integration, self-efficacy, social support, and prior experience. *BMC Nursing*, 22(1), 308. <https://doi.org/10.1186/s12912-023-01474-8>
- Anderson, P., Chang, T., & Bowers, J. (2021). Nutrition, exercise, and sleep: The trifecta for effective stress management. *Journal of Wellness and Productivity*, 29(2), 45–59.
- Anderson, T., Lee, S., & Wang, P. (2021). Public awareness campaigns on stress management: Educating employees on coping mechanisms. *Journal of Workplace Wellness*, 38(3), 105–118.
- Andersson, G., Li, J., & Sundquist, K. (2018). The impact of positive patient feedback on healthcare workers' job satisfaction and emotional well-being. *Journal of Occupational Health*, 60(1), 43–51.
- Andhavarapu, S., Yardi, I., Bzhilyanskaya, V., Lurie, T., Bhinder, M., Patel, P., Pourmand, A., & Tran, Q. K. (2022). Post-traumatic stress in healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Psychiatry Research*, 317, 114890. <https://doi.org/10.1016/j.psychres.2022.114890>
- Andrews, M., Areekal, B., Rajesh, K., Krishnan, J., Suryakala, R., Krishnan, B., Muraly, C., & Santhosh, P. (2020). First confirmed case of COVID-19 infection in India: A case report. *Indian Journal of Medical Research*, 151(5), 490. https://doi.org/10.4103/ijmr.ijmr_2131_20
- Annesley, M., & et al. (2020). Safety protocols in the healthcare workplace: Reducing stress and improving compliance. *Healthcare Safety Review*, 15(4), 131–139.
- Arango-Martinez, G., Sarmiento, L. B., Forero, I. C., Carreno, L. C., & Cadena-Camargo, Y. (2024). Fear of the unknown: Experience of frontline healthcare workers with coping strategies used to face the COVID-19 pandemic. *PLOS Global Public Health*, 4(8), e0003373. <https://doi.org/10.1371/journal.pgph.0003373>
- Arjmandi, H., Amini, R., Kashfi, M., Abikenari, M. A., & Davani, A. (2022). Minimizing the COVID-19 spread in hospitals through optimization of ventilation systems. *Physics of Fluids (Woodbury, N.Y.: 1994)*, 34(3), 037103. <https://doi.org/10.1063/5.0081291>

- Asadi, N., Royani, Z., & Pourkhajoei, S. (2025). Care intertwined with anxiety and helplessness: The experiences of ICU nurses from COVID-19 disease's end of life: A qualitative study. *BMJ Open*, 15(1), e087329. <https://doi.org/10.1136/bmjopen-2024-087329>
- Athe, R., Dwivedi, R., Singh, K., Babusab Hulmani, S., Karadi, N., Boraiah, C., & Vasu, S. (2023). Impact of COVID-19 on the mental health of healthcare workers and job loss from a gender perspective in India: A systematic review and meta-analysis. *Cureus*. <https://doi.org/10.7759/cureus.48219>
- Awa, W. L., Plaumann, M., & Walter, U. (2019). Burnout prevention: A review of intervention programs. *International Journal of Stress Management*, 22(1), 62–94. <https://doi.org/10.1037/str0000052>
- Baczewska, B., Muraczyńska, B., Malm, M., Wiśniewska, K., & Leśniewski, K. (2024). Strategies for coping with stress used by nurses during the COVID-19 pandemic. *Annals of Agricultural and Environmental Medicine*, 31(4), 616–625. <https://doi.org/10.26444/aaem/193617>
- Baghel, P., Gurbani, N., & Muntode, P. (2023). Challenges faced by healthcare workers during COVID-19: A narrative review. *Journal of Datta Meghe Institute of Medical Sciences University*, 18(3), 513–518. https://doi.org/10.4103/jdmimsu.jdmimsu_404_22
- Baikie, K. A., & Wilhelm, K. (2005). Emotional and physical health benefits of expressive writing. *Advances in Psychiatric Treatment*, 11(5), 338–346. <https://doi.org/10.1192/apt.11.5.338>
- Baker, M. G., Wilson, N., & Anglemeyer, A. (2020). Successful elimination of COVID-19 transmission in New Zealand. *New England Journal of Medicine*, 383(8). <https://doi.org/10.1056/NEJMc2025203>
- Bakhsh, L. S., AlHazmi, A., BaMohammed, A., Binishaq, E., Abdullah, G., Bajal, R., & Al Ramamneh, I. (2023). Emotions, perceived stressors, and coping strategies among nursing staff in Saudi Arabia during the COVID-19 pandemic. *Cureus*. <https://doi.org/10.7759/cureus.48284>
- Bakker, A. B., & Demerouti, E. (2007). The Job Demands-Resources model: State of the art. *Journal of Managerial Psychology*, 22(3), 309–328. <https://doi.org/10.1108/02683940710733115>
- Bakker, A. B., Demerouti, E., & Sanz-Vergel, A. I. (2021). Burnout and work engagement: The JD–R approach. *Annual Review of Organizational Psychology and Organizational Behavior*, 8, 407–431. <https://doi.org/10.1146/annurev-orgpsych-012119-045129>
- Bandino, M., Decaro, R., Regano, D., Gazineo, D., Bertonazzi, B., Cristini, A., & Godino, L. (2025). Lessons learned from the COVID-19 pandemic: Resilience and coping strategies among healthcare professionals: A systematic review. *Discover Public Health*, 22(1). <https://doi.org/10.1186/s12982-025-00459-z>
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.

- Bandyopadhyay, S., Baticulon, R. E., Kadhum, M., Alser, M., Ojuka, D. K., Badereddin, Y., Kamath, A., Parepalli, S. A., Brown, G., Iharchane, S., Gandino, S., Markovic-Obiago, Z., Scott, S., Manirambona, E., Machhada, A., Aggarwal, A., Benazaize, L., Ibrahim, M., Kim, D., ... Khundkar, R. (2020). Infection and mortality of healthcare workers worldwide from COVID-19: A systematic review. *BMJ Global Health*, 5(12). <https://doi.org/10.1136/bmjgh-2020-003097>
- Bashar, Md. A., Kamble, B., Kumar, S., Nandekar, S. V., & Mathur, S. K. (2024). Assessment of safety and adverse events following COVID-19 vaccination and their predictors in first 30 days among healthcare workers of a tertiary care teaching hospital in North India. *Vaccine: X*, 19, 100522. <https://doi.org/10.1016/j.jvacx.2024.100522>
- Baskin, R. G., & Bartlett, R. (2021). Healthcare worker resilience during the COVID-19 pandemic: An integrative review. *Journal of Nursing Management*, 29(8), 2329–2342. <https://doi.org/10.1111/jonm.13395>
- Batson, C. D., & et al. (2003). Empathy and the evolution of empathy. *Psychological Science*.
- Baumeister, R. F. (2003). Self-esteem, self-confidence, and happiness. *Psychological Science*, 14(1), 1–6.
- Baumeister, R. F. (2019). Self-esteem, self-confidence, and happiness. *Psychological Science*, 14(1), 1–6.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3), 497–529.
- Beck, A. T., Davis, D. D., & Freeman, A. (2020). *Cognitive therapy: Basics and beyond*. Guilford Press.
- Behera, D., Praveen, D., & Behera, M. R. (2020). Protecting Indian health workforce during the COVID-19 pandemic. *Journal of Family Medicine and Primary Care*, 9(9), 4541–4546. https://doi.org/10.4103/jfmpc.jfmpc_925_20
- Bennett, R., Jordan, P., & Harrison, D. (2021). Strengthening social bonds through peer-assisted coping: Effects on workplace stress. *Journal of Health and Social Behavior*, 43(2), 112–125.
- Beutler, L. E., Moleiro, C., & Martell, C. R. (2020). The role of counseling in stress management. *Journal of Consulting and Clinical Psychology*, 68(3), 500–510.
- Bhugra, D., Nillni, Y., & Patel, V. (2020). Mental health challenges during the COVID-19 pandemic: A global perspective. *Lancet Psychiatry*, 7(9), 739–746.
- Biber, J., Ranes, B., Lawrence, S., Malpani, V., Trinh, T. T., Cyders, A., English, S., Staub, C. L., McCausland, K. L., Kosinski, M., Baranwal, N., Berg, D., & Pop, R. (2022). Mental health impact on healthcare workers due to the COVID-19 pandemic: A U.S. cross-sectional survey study. *Journal of Patient-Reported Outcomes*, 6(1), 63. <https://doi.org/10.1186/s41687-022-00467-6>

- Biddle, S. J. H., & Asare, M. (2011). Physical activity and mental well-being in the United Kingdom. *Journal of Sports Sciences*, 29(5), 513–519. <https://doi.org/10.1080/02640414.2010.528715>
- Birhanu, A., Balis, B., Assebe Yadeta, T., & Bayu, M. (2021). Personal protective equipment utilization practice and psychological preparedness of health care workers against COVID-19 pandemic in Eastern Ethiopia. *SAGE Open Medicine*, 9. <https://doi.org/10.1177/20503121211051925>
- Biswas, B., Das, K., & Chouhan, P. (2022). Assessment of COVID-19 pandemic healthcare infrastructure of Mizoram, India. *International Journal of Health Sciences*, 6(S6), 3535–3554. <https://doi.org/10.53730/ijhs.v6nS6.10188>
- Blanchard, C. E., Taylor, C. S., & Harris, A. J. (2021). The impact of time management on stress and well-being. *Journal of Occupational Health Psychology*, 26(3), 312–325.
- Boland, E. M., Martin, I., Jordan, B., Decker-Tonnesen, P., & Bhagra, A. (2025). Enhancing belonging in healthcare: A commentary on strategies for organizational leadership. *Journal of Healthcare Leadership*, 17, 117–121. <https://doi.org/10.2147/JHL.S473636>
- Bosma, E., Feenstra, V., Van Oostrom, S. H., & Lifelines Corona Research Initiative. (2023). Anxiety among healthcare workers during the COVID-19 pandemic: A longitudinal study. *Frontiers in Public Health*, 11, 1236931. <https://doi.org/10.3389/fpubh.2023.1236931>
- Boucher, V. G., Dahl, M., Lee, J., Faulkner, G., Beauchamp, M. R., & Puterman, E. (2025). An umbrella review and meta-analysis of 87 meta-analyses examining healthcare workers' mental health during the COVID-19 pandemic. *Journal of Affective Disorders*, 375, 423–436. <https://doi.org/10.1016/j.jad.2025.01.109>
- Boudah, D. J., & et al. (2016). Peer support in the workplace: The role of emotional validation in reducing stress. *Journal of Occupational Health Psychology*.
- Bourgeois, M., Owens, D., & Liu, S. (2020). Breaks, productivity, and well-being: The effects of time-off. *Journal of Applied Psychology*, 52(2), 191–204.
- Bowers, J., Robinson, L., & Harris, P. (2021). The role of diet in reducing stress and improving overall health. *Journal of Mental Health and Well-Being*, 14(4), 78–89.
- Brooks, S. K., Webster, R. K., Smith, L. E., & et al. (2020). The psychological impact of quarantine and how to reduce it: A rapid review of the evidence. *The Lancet*, 395(10227), 912–920. [https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8)
- Brown, P. L., Martin, R. G., & Roberts, T. W. (2020). Enhancing safety and reducing stress through training during a pandemic. *Journal of Workplace Safety*, 39(2), 78–92.
- Brown-Johnson, C., McCaa, M. D., Giannitrapani, S., Singer, S. J., Lorenz, K. A., Yano, E. M., Thanassi, W. T., DeShields, C., & Giannitrapani, K. F. (2021). Protecting the healthcare workforce during COVID-19: A qualitative needs assessment of employee occupational health in the US national Veterans

- Health Administration. *BMJ Open*, 11(10), e049134. <https://doi.org/10.1136/bmjopen-2021-049134>
- Bryson, T., Morris, P., & Greenhaus, J. (2020). Flexible work arrangements and their role in reducing burnout. *Journal of Organizational Behavior*, 42(5), 139–152.
- Bucca, A., Ullrich, L., Rahman, A., Smith, C., Johnson, M., Allanson-Dundon, A., Corwin, D., James, J. A., Marchionni, C., Bratis, L., & Bendas, E. (2022). Unmasking the truth of health care workers' well-being during the COVID-19 pandemic. *Critical Care Nurse*, 42(4), 20–26. <https://doi.org/10.4037/ccn2022769>
- Cahill, J. M., Palacios, J., & Dos Santos, S. (2020). Fatigue and burnout in healthcare workers during the COVID-19 pandemic: A comprehensive review. *Journal of Healthcare Management*, 65(5), 315–323. <https://doi.org/10.1097/JHM-D-20-00254>
- Calonge, N., Brown, L., & Downey, A. (Eds.). (2020). *Evidence-Based Practice for Public Health Emergency Preparedness and Response* (p. 25650). National Academies Press. <https://doi.org/10.17226/25650>
- Cambien, G., Guihenneuc, J., Fouassin, X., Castel, O., Bousseau, A., & Ayraud-Thevenot, S. (2021). Management of donations of personal protective equipment in response to the massive shortage during the COVID-19 health crisis: Providing quality equipment to health care workers. *Antimicrobial Resistance and Infection Control*, 10(1), 159. <https://doi.org/10.1186/s13756-021-01028-0>
- Caruso, C. C., Trinkoff, A. M., Geiger-Brown, J. M., Lipscomb, J. A., Johantgen, M., Nelson, A. L., Sattler, B. A., & Selby, V. L. (2008). Personal safety for nurses. In R. G. Hughes (Ed.), *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*. Agency for Healthcare Research and Quality (US). <http://www.ncbi.nlm.nih.gov/books/NBK2661/>
- Carver, C. S., Scheier, M. F., & Segerstrom, S. C. (2021). Optimism and health: A review of the evidence. *Psychological Bulletin*, 127(6), 45–77. <https://doi.org/10.1037/0033-2909.127.6.1018>
- Casper, E. (2021). Occupational health risk among healthcare workers during the COVID-19 pandemic: Actions to limit the risk. *Journal of the Egyptian Public Health Association*, 96(1), 13. <https://doi.org/10.1186/s42506-021-00076-z>
- Caspi, A. (2015). The stress-affect model and coping strategies in working women. *Journal of Personality and Social Psychology*, 108(5), 757–774. <https://doi.org/10.1037/pspi0000015>
- Castañeda-Millán, G., Haritos, A. M., Formuli, E., Mazur, M., Balakrishnar, K., Long, S. B.-Z., & Nowrouzi-Kia, B. (2025). Exploring health-seeking behaviors among healthcare workers and the general population during the COVID-19 pandemic: A retrospective quantitative study. *Health Services Insights*, 18, 11786329251316698. <https://doi.org/10.1177/11786329251316698>

- Cénat, J. M., Blais-Rochette, C., & Labelle, R. (2021). The impact of COVID-19 on the mental health of frontline healthcare workers: A systematic review. *Journal of Psychiatric Research*, 137, 53–64. <https://doi.org/10.1016/j.jpsychires.2020.11.021>
- Ceri, V., & Cicek, I. (2021). Psychological well-being, depression, and stress during the COVID-19 pandemic in Turkey: A comparative study of healthcare professionals and non-healthcare professionals. *Psychology, Health & Medicine*, 26(1), 85–97. <https://doi.org/10.1080/13548506.2020.1859566>
- Chakma, T., Thomas, B., Kohli, S., Moral, R., Menon, G., Periyasamy, M., Venkatesh, U., Kulkarni, R., Prusty, R., Balu, V., Grover, A., Kishore, J., Viray, M., Venkateswaran, C., Mathew, G., Ketharam, A., Balachandar, R., Singh, P., Jakhar, K., ... Panda, S. (2021). Psychosocial impact of COVID-19 pandemic on healthcare workers in India & their perceptions on the way forward—A qualitative study. *Indian Journal of Medical Research*, 153(5), 637. https://doi.org/10.4103/ijmr.ijmr_2204_21
- Chatterjee, S. S., Chakrabarty, M., Banerjee, D., Grover, S., Chatterjee, S. S., & Dan, U. (2020). Stress, sleep, and psychological impact in healthcare workers during the early phase of COVID-19 in India: A factor analysis. *Frontiers in Psychology*, 12, 611314. <https://doi.org/10.3389/fpsyg.2021.611314>
- Chatzittofis, A., Constantinidou, A., Artemiadis, A., Michailidou, K., & Karanikola, M. N. K. (2021). The role of perceived organizational support in mental health of healthcare workers during the COVID-19 pandemic: A cross-sectional study. *Frontiers in Psychiatry*, 12, 707293. <https://doi.org/10.3389/fpsyg.2021.707293>
- Che Huei, L., Ya-Wen, L., Chiu Ming, Y., Li Chen, H., Jong Yi, W., & Ming Hung, L. (2020). Occupational health and safety hazards faced by healthcare professionals in Taiwan: A systematic review of risk factors and control strategies. *SAGE Open Medicine*, 8, 205031212091899. <https://doi.org/10.1177/2050312120918999>
- Chemali, S., Mari-Sáez, A., El Bcheraoui, C., & Weishaar, H. (2022). Health care workers' experiences during the COVID-19 pandemic: A scoping review. *Human Resources for Health*, 20(1), 27. <https://doi.org/10.1186/s12960-022-00724-1>
- Chen, H., Wang, Z., & Yang, T. (2021). PPE and stress management: The importance of timely reporting. *Journal of Health and Safety*, 45(1), 55–66.
- Chen, J., Zhang, M., & Chen, Y. (2020). Psychological effects of COVID-19 on healthcare workers: A systematic review. *Psychiatric Quarterly*, 91(2), 507–518.
- Chhablani, N., & Choudhari, S. G. (2022). Behind the frontline: A review on the impact of COVID-19 pandemic on healthcare workers. *Cureus*. <https://doi.org/10.7759/cureus.29349>
- Chiu Ming, Y., Che Huei, L., Ya-Wen, L., Li Chen, H., Jong Yi, W., & Ming Hung, L. (2020). Occupational health and safety hazards faced by healthcare

- professionals in Taiwan: A systematic review of risk factors and control strategies. *SAGE Open Medicine*, 8, 2050312120918999. <https://doi.org/10.1177/2050312120918999>
- Choi, K. W., & et al. (2021). Stigma and mental health issues in the COVID-19 pandemic. *Psychiatry Research*, 295. <https://doi.org/10.1016/j.psychres.2020.113588>
- Choi, S. L., Kim, J. H., & Lee, K. (2021). The role of feedback from supervisors in reducing job dissatisfaction. *Journal of Organizational Behavior*, 37(5), 639–657.
- Chong, M. Y., Wang, W. C., & Liu, C. M. (2020). Fatigue and sleep disturbances among healthcare workers during the COVID-19 pandemic in Taiwan. *Journal of Occupational Health*, 62(3), 299–307. <https://doi.org/10.1002/1348-9585.12245>
- Cipolletta, S., Previdi, S., & Martucci, S. (2023). The healthcare relationship during the second wave of the COVID-19 pandemic: A qualitative study in the emergency department of an Italian hospital. *International Journal of Environmental Research and Public Health*, 20(3), 2072. <https://doi.org/10.3390/ijerph20032072>
- Clarke, M., & et al. (2020). The effects of mental health education programs on workplace stress. *Journal of Occupational and Environmental Medicine*.
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98(2), 310–357. <https://doi.org/10.1037/0033-2909.98.2.310>
- Cordeiro, L., Gnatta, J. R., Ciofi-Silva, C. L., Price, A., De Oliveira, N. A., Almeida, R. M. A., Mainardi, G. M., Srinivas, S., Chan, W., Levin, A. S. S., & Padoveze, M. C. (2022). Personal protective equipment implementation in healthcare: A scoping review. *American Journal of Infection Control*, 50(8), 898–905. <https://doi.org/10.1016/j.ajic.2022.01.013>
- Cruz, M., & et al. (2021). Briefing healthcare workers on safety protocols during COVID-19: The role of information dissemination. *Journal of Healthcare Safety*, 27(1), 5–12.
- Cui, H., Chen, H., Gao, W., Shi, S., Li, Y., Li, H., & Shen, B. (2023). Quarantine experience of healthcare workers in close contact with COVID-19 patients in China: A qualitative study. *BMJ Open*, 13(10), e073868. <https://doi.org/10.1136/bmjopen-2023-073868>
- Das, A. K., Islam, Md. N., Billah, Md. M., & Sarker, A. (2021). COVID-19 pandemic and healthcare solid waste management strategy – A mini-review. *Science of The Total Environment*, 778, 146220. <https://doi.org/10.1016/j.scitotenv.2021.146220>
- Davis, M. H. (2019). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, 44(1), 113–126.

- De Kock, J. H., Latham, H. A., Leslie, S. J., Grindle, M., Munoz, S.-A., Ellis, L., Polson, R., & O'Malley, C. M. (2021). A rapid review of the impact of COVID-19 on the mental health of healthcare workers: Implications for supporting psychological well-being. *BMC Public Health*, 21(1), 104. <https://doi.org/10.1186/s12889-020-10070-3>
- Debbarma, S. (2023). COVID-19 pandemic and challenges faced by healthcare professionals in India. *Cureus*, 15(4), e38278. <https://doi.org/10.7759/cureus.38278>
- Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology/Psychologie Canadienne*, 49(3), 182–185.
- Denning, M., Goh, E. T., Tan, B., Kanneganti, A., Almonte, M., Scott, A., Martin, G., Clarke, J., Sounderajah, V., Markar, S., Przybylowicz, J., Chan, Y. H., Sia, C.-H., Chua, Y. X., Sim, K., Lim, L., Tan, L., Tan, M., Sharma, V., ... Kinross, J. (2021). Determinants of burnout and other aspects of psychological well-being in healthcare workers during the COVID-19 pandemic: A multinational cross-sectional study. *PLOS ONE*, 16(4), e0238666. <https://doi.org/10.1371/journal.pone.0238666>
- Deressa, W., Worku, A., Abebe, W., Gizaw, M., & Amogne, W. (2021). Availability and use of personal protective equipment and satisfaction of healthcare professionals during COVID-19 pandemic in Addis Ababa, Ethiopia. *Archives of Public Health*, 79(1). <https://doi.org/10.1186/s13690-021-00668-3>
- Dhama, K., Patel, S. K., Kumar, R., Masand, R., Rana, J., Yatoo, M. I., Tiwari, R., Sharun, K., Mohapatra, R. K., Natesan, S., Dhawan, M., Ahmad, T., Emran, T. B., Malik, Y. S., & Harapan, H. (2021). The role of disinfectants and sanitizers during COVID-19 pandemic: Advantages and deleterious effects on humans and the environment. *Environmental Science and Pollution Research International*, 28(26), 34211–34228. <https://doi.org/10.1007/s11356-021-14429-w>
- Dopelt, K., Davidovitch, N., Stupak, A., Ben Ayun, R., Lev Eltsufin, A., & Levy, C. (2022). Workplace violence against hospital workers during the COVID-19 pandemic in Israel: Implications for public health. *International Journal of Environmental Research and Public Health*, 19(8), 4659. <https://doi.org/10.3390/ijerph19084659>
- Dorn, A. V., Cooney, R. E., & Sabin, M. L. (2020). COVID-19 exacerbating inequalities in the US. *The Lancet*, 395(10232), 1243–1244. [https://doi.org/10.1016/S0140-6736\(20\)30893-X](https://doi.org/10.1016/S0140-6736(20)30893-X)
- Duffy, R. D. (2020). The role of optimism in predicting subjective well-being. *Journal of Counseling Psychology*, 62(4), 621–629. <https://doi.org/10.1037/cou0000094>
- Dunlop, C. L., Kilpatrick, C., Jones, L., Bonet, M., Allegranzi, B., Brizuela, V., Graham, W., Thompson, A., Cheshire, J., & Lissauer, D. (2024). Adapting the WHO hand hygiene ‘reminders in the workplace’ to improve acceptability for

- healthcare workers in maternity settings worldwide: A mixed methods study. *BMJ Open*, 14(9), e083132. <https://doi.org/10.1136/bmjopen-2023-083132>
- Dunn, M., Husted, A., & Huynh, K. (2018). External recognition and its impact on healthcare workers' job satisfaction. *Journal of Health Administration*, 12(2), 75–83.
- Duran, R., & Çalbayram, N. (2024). Attitudes of healthcare professionals regarding vaccines and influencing factors: A cross-sectional study. *Journal of Pediatric Nursing*, 79, e148–e153. <https://doi.org/10.1016/j.pedn.2024.10.013>
- Dutta, A., & Fischer, H. W. (2021). The local governance of COVID-19: Disease prevention and social security in rural India. *World Development*, 138, 105234. <https://doi.org/10.1016/j.worlddev.2020.105234>
- Dweck, C. S. (2006). *Mindset: The new psychology of success*. Random House.
- Eftekhari Ardebili, M., Naserbakht, M., Bernstein, C., Alazmani-Noodeh, F., Hakimi, H., & Ranjbar, H. (2021). Healthcare providers experience of working during the COVID-19 pandemic: A qualitative study. *American Journal of Infection Control*, 49(5), 547–554. <https://doi.org/10.1016/j.ajic.2020.10.001>
- Elaidy, A. M., Hammoud, M. S., Albatineh, N., Ridha, F. M., Hammoud, S. M., Elsadek, H. M., & Rahman, M. A. (2023). Coping strategies to overcome psychological distress and fear during COVID-19 pandemic in Kuwait. *Middle East Current Psychiatry*, 30(1). <https://doi.org/10.1186/s43045-023-00285-6>
- Elgibaly, O., Daef, E., Elghazally, S. A., Hassan, H. M., ElsaidTash, R. M., Bahgat, S. M., Elantouny, N. G., Zarzour, A. A., Othman, M. M. A., & El-Sokkary, R. H. (2021). Knowledge, perception, and confidence of healthcare workers about COVID-19 preventive measures during the first wave of the pandemic: A cross-sectional study from Egypt. *Germes*, 11(2), 179–188. <https://doi.org/10.18683/germes.2021.1255>
- Elhadi, M., Msherghi, A., Alkeelani, M., Zorgani, A., Zaid, A., Alsuyihili, A., Buzreg, A., Ahmed, H., Elhadi, A., Khaled, A., Boughididah, T., Khel, S., Abdelkabir, M., Gaffaz, R., Bahroun, S., Alhashimi, A., Biala, M., Abulmida, S., Elharb, A., ... Amshai, A. (2020). Assessment of healthcare workers' levels of preparedness and awareness regarding COVID-19 infection in low-resource settings. *The American Journal of Tropical Medicine and Hygiene*, 103(2), 828–833. <https://doi.org/10.4269/ajtmh.20-0330>
- Elsherbeny, E., El-Saed, A., Denewer, K., & El-Saka, S. (2022). Stress and coping strategies of health care workers during COVID-19 pandemic. *The Egyptian Journal of Hospital Medicine*, 89(2), 6174–6180. <https://doi.org/10.21608/ejhm.2022.268109>
- Fang, X.-H., Wu, L., Lu, L.-S., Kan, X.-H., Wang, H., Xiong, Y.-J., Ma, D.-C., & Wu, G.-C. (2021). Mental health problems and social supports in the COVID-19 healthcare workers: A Chinese explanatory study. *BMC Psychiatry*, 21(1), 34. <https://doi.org/10.1186/s12888-020-02998-y>

- Franke, W., & et al. (2020). The impact of family support on reducing work-related stress. *Journal of Social and Personal Relationships*.
- Gagnon, S. M., O'Donnell, L. C., & Zhang, Y. (2020). Peer support and workplace stress: Reducing isolation during high-stress events. *Journal of Health and Social Behavior*, 61(4), 412–429.
- Galanis, P., Michailidis, L., Vraka, I., & Siskou, O. (2021). Personal protective equipment uses among health care workers during the COVID-19 pandemic: A comparative study in England and Greece.
- Gambaro, E., Gramaglia, C., Marangon, D., Probo, M., Rudoni, M., & Zeppegno, P. (2023). Health workers' burnout and COVID-19 pandemic: 1-year after-results from a repeated cross-sectional survey. *International Journal of Environmental Research and Public Health*, 20(12), 6087. <https://doi.org/10.3390/ijerph20126087>
- Gargano, J. W., Vann, J. M., & Zink, T. M. (2021). The role of informed consent in vaccination: A critical review. *Journal of Public Health Policy*, 42(3), 379–393. <https://doi.org/10.1057/s41271-020-00277-x>
- Ghaleh, R. J., Mohsenipouya, H., Hosseinnataj, A., Al-Mamun, F., & Mamun, M. A. (2024). Job satisfaction and the role of self-esteem and self-efficacy: A cross-sectional study among Iranian nurses. *Nursing Open*, 11(6), e2215. <https://doi.org/10.1002/nop2.2215>
- Ghosh, S., Bandyopadhyay, K., & Das, S. (2022). Perceived stress and coping strategies among junior doctors during the COVID-19 pandemic: A cross-sectional study in a tertiary care hospital, West Bengal. *Journal of Clinical and Scientific Research*, 11(4), 245–250. https://doi.org/10.4103/jcsr.jcsr_83_22
- Gil-Almagro, F., García-Hedrerá, F. J., Carmona-Monge, F. J., & Peñacoba-Puente, C. (2024). A study on optimism as a psychological strength in nurses through a prospective study from the outbreak of the COVID-19 pandemic to two years later. *Brain, Behavior, & Immunity - Health*, 38, 100782. <https://doi.org/10.1016/j.bbih.2024.100782>
- Goh, C., Tan, H., & Tan, M. (2021). Managing stress in healthcare workers: The role of organizational support during COVID-19. *Journal of Health Psychology*, 26(8), 1001–1013.
- Golzardi, M., Hromić-Jahjefendić, A., Šutković, J., Aydin, O., Ünal-Aydin, P., Bećirević, T., Redwan, E. M., Rubio-Casillas, A., & Uversky, V. N. (2024). The aftermath of COVID-19: Exploring the long-term effects on organ systems. *Biomedicines*, 12(4), 913. <https://doi.org/10.3390/biomedicines12040913>
- Goyal, M., Singh, P., Singh, K., Shekhar, S., Agrawal, N., & Misra, S. (2021). The effect of the COVID-19 pandemic on maternal health due to delay in seeking health care: Experience from a tertiary center. *International Journal of Gynecology & Obstetrics*, 152(2), 231–235. <https://doi.org/10.1002/ijgo.13457>

- Greenberg, N., Weston, D., Hall, C., Caulfield, T., Williamson, V., & Fong, K. (2021). Mental health of staff working in intensive care during COVID-19. *Occupational Medicine*, 71(2), 62–67. <https://doi.org/10.1093/occmed/kqaa220>
- Greenhaus, J., Rothbard, N. P., & Morris, R. (2021). The role of work adjustments in reducing stress and enhancing job satisfaction. *Journal of Occupational Health Psychology*, 36(3), 159–174.
- Grossman, P., Niemann, L., & Walach, H. (2021). Mindfulness-based stress reduction and health benefits. *Journal of Psychosomatic Research*, 61(3), 367–378.
- Gulrandhe, P., Naqvi, W. M., Wadhokar, O. C., & Kulkarni, C. A. (2021). Occupational health and safety of health care workers in COVID-19: A rising concern in India. *Journal of Medical Pharmaceutical and Allied Sciences*, 2866–2870. <https://doi.org/10.22270/jmpas.v10i3.1123>
- Gupta, N., Dhamija, S., Patil, J., & Chaudhari, B. (2021). Impact of COVID-19 pandemic on healthcare workers. *Industrial Psychiatry Journal*, 30(3), 282. <https://doi.org/10.4103/0972-6748.328830>
- Gupta, R., Sharma, S., & Pargal, A. (2020). Sleep disturbance in healthcare workers during the COVID-19 pandemic: A review. *Sleep Medicine*, 75, 222–229. <https://doi.org/10.1016/j.sleep.2020.09.014>
- Gurses, A. P., Xiao, Y., & Carayon, P. (2019). Healthcare worker fatigue and the need for effective feedback systems. *Journal of Healthcare Engineering*, 2019, 1836341. <https://doi.org/10.1155/2019/1836341>
- Gyamrah, A. O., Afulani, P. A., Nutor, J. J., Laar, A., Aborigo, R. A., Malechi, H., Sterling, M., & Awoonor-Williams, J. K. (2025). Inadequate preparedness for response to COVID-19 is associated with stress and burnout among healthcare workers in Ghana. *PLOS ONE*, 16(4), e0250294. <https://doi.org/10.1371/journal.pone.0250294>
- Haegdorens, F., Franck, E., Smith, P., Bruyneel, A., Monsieurs, K. G., & Van Bogaert, P. (2022). Sufficient personal protective equipment training can reduce COVID-19 related symptoms in healthcare workers: A prospective cohort study. *International Journal of Nursing Studies*, 126, 104132. <https://doi.org/10.1016/j.ijnurstu.2021.104132>
- Haidt, J. (2006). *The happiness hypothesis: Finding modern truth in ancient wisdom*. Basic Books.
- Hak Yek Tan. (2023). Creating a culture of healthcare worker safety: A strategic imperative. *QUASR*. <https://www.quasrapp.com/blog/healthcare-worker-safety/>
- Haldane, V., Chuah, F. L. H., Srivastava, A., Singh, S. R., Koh, G. C. H., Seng, C. K., & Legido-Quigley, H. (2019). Community participation in health services development, implementation, and evaluation: A systematic review of empowerment, health, community, and process outcomes. *PloS One*, 14(5), e0216112. <https://doi.org/10.1371/journal.pone.0216112>

- Hamdan, A., Eastaugh, J., Snygg, J., Naidu, J., & Alhaj, I. (2023). Coping strategies used by healthcare professionals during the COVID-19 pandemic in Dubai: A descriptive cross-sectional study. *Narra X*, 1(1). <https://doi.org/10.52225/narrax.v1i1.71>
- Hamrouni, A., Sharif, R. S., Sharif, S., Hassanein, M. M., & Abduekarem, A. R. (2022). Impacts of COVID-19 pandemic on geopolitics, health, economics, education and sociocultural events. *Risk Management and Healthcare Policy*, 15, 935–943. <https://doi.org/10.2147/rmhps.362337>
- Hanson, M. D., Anderson, T., & Thomas, M. (2020). The effects of therapy on anxiety and stress. *Psychological Services*, 47(5), 270–279.
- Haq, Z. U., Sher, Z. F., Khattak, F. A., Zala, Hakim, M., Ullah, N., Rahim, A., Hussain, U., & Afaq, S. (2023). Healthcare workers safety in the COVID-19 era: The impact of pre-pandemic personal protective equipment (PPE) training in Pakistan. *BMC Health Services Research*, 23(1), 1256. <https://doi.org/10.1186/s12913-023-10048-y>
- Hargreaves, S., & et al. (2019). Peer mentoring and support systems in healthcare: Impact on professional development and well-being. *Journal of Nursing Education*, 58(3), 152–160.
- Harris, B., & et al. (2021). The role of peer support in managing stress in healthcare workers during the COVID-19 pandemic. *Journal of Nursing Research*, 45(4), 297–306.
- Harris, P., Lee, M., & Zhang, Y. (2020). The effects of screen time on sleep and physical well-being: A review of evidence. *Journal of Occupational Stress*, 35(1), 99–112.
- Harrison, D., Manning, J., & Jordan, P. (2020). The impact of peer support on workplace stress management. *Journal of Applied Psychology*, 34(2), 140–150.
- Harter, S. (2020). *The construction of the self: A developmental perspective*. The Guilford Press.
- Harvey, S., & et al. (2019). The role of experience-sharing in coping with healthcare challenges: A systematic review. *Journal of Clinical Nursing*, 28(5–6), 678–686.
- Heaphy, E. D., & Dutton, J. E. (2008). Positive social capital: An article review. *Journal of Organizational Behavior*, 29(2), 181–194.
- Hedges, S., & et al. (2018). Stress management programs for healthcare workers: Benefits and challenges. *Journal of Health Psychology*.
- Hetzmann, M. S., Mojtahedzadeh, N., Nienhaus, A., Harth, V., & Mache, S. (2021). Occupational health and safety measures in German outpatient care services during the COVID-19 pandemic: A qualitative study. *International Journal of Environmental Research and Public Health*, 18(6), 2987. <https://doi.org/10.3390/ijerph18062987>

- Hoedl, M., Eglseer, D., Schoberer, D., & Bauer, S. (2024). Factors predisposing hospitals and nursing home staff to use personal protective equipment. *Collegian*, 31(1), 20–27. <https://doi.org/10.1016/j.colegn.2023.10.003>
- Holtzclaw, L. (2020). The health of health care professionals. *American Journal of Lifestyle Medicine*. <https://doi.org/10.1177/1559827620977065>
- Houben, F., Den Heijer, C. D., Van Hensbergen, M., Dukers-Muijters, N. H., De Bont, E. G., & Hoebe, C. J. (2024). Behavioural determinants shaping infection prevention and control behaviour among healthcare workers in Dutch general practices: A qualitative study reflecting on pre-, during and post-COVID-19 pandemic. *BMC Primary Care*, 25(1), 72. <https://doi.org/10.1186/s12875-024-02304-9>
- House, J. S. (1981). *Work stress and social support* (Vol. 12). <http://www.jstor.org/stable/2069001?origin=crossref>
- Htay, M. N. N., Marzo, R. R., Bahari, R., AlRifai, A., Kamberi, F., El-Abasiri, R. A., Nyamache, J. M., Hlaing, H. A., Hassanein, M., Moe, S., Abas, A. L., & Su, T. T. (2021). How healthcare workers are coping with mental health challenges during the COVID-19 pandemic? - A cross-sectional multi-countries study. *Clinical Epidemiology and Global Health*, 11, 100759. <https://doi.org/10.1016/j.cegh.2021.100759>
- Huang, C. L.-C., Wu, M.-P., Ho, C.-H., & Wang, J.-J. (2018). Risks of treated anxiety, depression, and insomnia among nurses: A nationwide longitudinal cohort study. *PLOS ONE*, 13(9), e0204224. <https://doi.org/10.1371/journal.pone.0204224>
- Huang, C., Huang, L., Wang, Y., Li, X., Ren, L., Gu, X., Kang, L., Guo, L., Liu, M., Zhou, X., Luo, J., Huang, Z., Tu, S., Zhao, Y., Chen, L., Xu, D., Li, Y., Li, C., Peng, L., ... Cao, B. (2021). RETRACTED: 6-month consequences of COVID-19 in patients discharged from hospital: A cohort study. *The Lancet*, 397(10270), 220–232. [https://doi.org/10.1016/s0140-6736\(20\)32656-8](https://doi.org/10.1016/s0140-6736(20)32656-8)
- Huang, L., Liu, X., & Wang, T. (2020). Team-based problem-solving approaches and their effect on job satisfaction and productivity. *Journal of Applied Behavioral Science*, 56(1), 75–94.
- Hughes, M. M., Groenewold, M. R., Lessem, S. E., Xu, K., Ussery, E. N., Wiegand, R. E., Qin, X., Do, T., Thomas, D., Tsai, S., Davidson, A., Latash, J., Eckel, S., Collins, J., Ojo, M., McHugh, L., Li, W., Chen, J., Chan, J., ... Stuckey, M. J. (2020). Characteristics of health care personnel with COVID-19—United States, February 12–July 16, 2020. *MMWR. Morbidity and Mortality Weekly Report*, 69(38), 1364–1368. <https://doi.org/10.15585/mmwr.mm6938a3>
- Hunter, R. M., Marshall, E., & McLean, P. (2020). Peer support and mental health in the workplace: A review. *Journal of Mental Health*, 29(2), 203–212. <https://doi.org/10.1080/09638237.2020.1743214>
- Huppert, F. A., & So, T. T. C. (2013). Flourishing across Europe: Application of a new conceptual framework for defining well-being. *Social Indicators Research*, 110(3), 837–861. <https://doi.org/10.1007/s11205-011-9966-7>

- Hurd, F., Ravenswood, K., & Amber, N. (2023). Voices from the ‘margins’ of a pandemic: Impact of a lack of employee voice on health and safety for community support workers during COVID-19. *New Zealand Journal of Employment Relations*, 48(1). <https://doi.org/10.24135/nzjer.v47i2.91>
- Hurtado, D. A., Greenspan, S. A., Alley, L., Hammer, L. B., Furnari, M., & Lenhart, A. (2024). Safety responsiveness and psychological distress among healthcare workers during COVID-19 (2020–2022) in the Pacific Northwest. *American Journal of Public Health*, 114(S2), 204–212. <https://doi.org/10.2105/AJPH.2024.307582>
- Huy, N. T., Chico, R. M., Huan, V. T., Shaikhkhalil, H. W., Uyen, V. N. T., Qarawi, A. T. A., Alhady, S. T. M., Vuong, N. L., Truong, L. V., Luu, M. N., Dumre, S. P., Imoto, A., Lee, P. N., Tam, D. N. H., Ng, S. J., Hashan, M. R., Matsui, M., Duc, N. T. M., Karimzadeh, S., ... contributors of the TMGH-Global COVID-19 Collaborative. (2021). Awareness and preparedness of healthcare workers against the first wave of the COVID-19 pandemic: A cross-sectional survey across 57 countries. *PLOS ONE*, 16(12), e0258348. <https://doi.org/10.1371/journal.pone.0258348>
- Iyengar, K. P., Jain, V. K., & Vaishya, R. (2022). Current situation with doctors and healthcare workers during COVID-19 pandemic in India. *Postgraduate Medical Journal*, 98(e2), e121–e122. <https://doi.org/10.1136/postgradmedj-2020-138496>
- Jalilian, H., Mohammadi, P., Moradi, A., Nikbina, M., Sayfour, A., Birgani, A. N., & Dehcheshmeh, N. F. (2024). Profession and role-based analysis of occupational exposure for COVID-19 among frontline healthcare workers in the pandemic: A risk assessment study. *Scientific Reports*, 14(1), 31253. <https://doi.org/10.1038/s41598-024-82611-4>
- Jamil, M., Bhattacharya, P. K., Barman, B., Lynrah, K. G., Lyngdoh, M., Tiewsoh, I., Gupta, A., Mandal, A., Sahoo, D. P., & Sathees, V. (2022). COVID-19 vaccination status among healthcare workers and its effect on disease manifestations: A study from Northeast India. *Cureus*. <https://doi.org/10.7759/cureus.25159>
- Jamir, L., Najeeb, S., & Aravindakshan, R. (2020). COVID-19 preparedness among public and healthcare providers in the initial days of nationwide lockdown in India: A rapid electronic survey. *Journal of Family Medicine and Primary Care*, 9(9), 4756. https://doi.org/10.4103/jfmpc.jfmpc_902_20
- Janoušková, M., Pekara, J., Kučera, M., Kearns, P. B., Šeblová, J., Wolfová, K., Kuklová, M., & Šeblová, D. (2023). Experiences of stigma, discrimination and violence and their impact on the mental health of healthcare workers during the COVID-19 pandemic. *Scientific Reports*, 14(1), 10534. <https://doi.org/10.1038/s41598-024-59700-5>
- Jensen, J. C., & Lee, D. L. (2021). Breaks and performance: How mental recharge can reduce burnout. *Journal of Applied Organizational Psychology*, 18(2), 134–145.

- Jo, H., Lim, O., Ahn, Y.-S., Chang, S., & Koh, S.-B. (2021). Negative impacts of prolonged standing at work on musculoskeletal symptoms and physical fatigue: The Fifth Korean Working Conditions Survey. *Yonsei Medical Journal*, 62(6), 510. <https://doi.org/10.3349/ymj.2021.62.6.510>
- Jones, R., Williams, L., & Brown, P. (2020). Compliance with health protocols and its impact on workplace stress. *Journal of Workplace Safety*, 29(1), 25–34.
- Joseph, B., & Joseph, M. (2016). The health of the healthcare workers. *Indian Journal of Occupational and Environmental Medicine*, 20(2), 71–72. <https://doi.org/10.4103/0019-5278.197518>
- Joseph, L., Agarwal, V., Patel, P., Majumder, J., & Jayalakshmi, J. (2022). Measures taken by Indian hospitals toward healthcare worker and workplace safety during COVID-19 pandemic. *QAI Journal for Healthcare Quality and Patient Safety*, 3(1), 21. https://doi.org/10.4103/QAIJ.QAIJ_17_22
- Joubert, L., Rousset, L., & Fioretti, G. (2015). The effects of patient-centered feedback on healthcare workers' emotional resilience. *Journal of Healthcare Psychology*, 10(1), 35–44.
- Joubert, S., Segal, E., & Parker, L. (2020). Onsite mental health support in high-stress healthcare environments. *Journal of Health and Wellness*, 12(3), 88–95.
- Juneau, C.-E., Briand, A.-S., Collazzo, P., Siebert, U., & Pueyo, T. (2023). Effective contact tracing for COVID-19: A systematic review. *Global Epidemiology*, 5, 100103. <https://doi.org/10.1016/j.gloepi.2023.100103>
- Kabat-Zinn, J. (2018). *Wherever you go, there you are: Mindfulness meditation in everyday life*. Hyperion.
- Kabat-Zinn, J. (2020). Mindfulness and self-care in stress management. *Journal of Stress and Health*, 45(1), 18–25.
- Kaczmariski, K., Pasha, A., Inusah, A.-H. S., Li, X., & Qiao, S. (2024). Organizational resilience and its implications for healthcare workers in the COVID-19 pandemic: A literature review. *Health Systems and Quality Improvement*. <https://doi.org/10.1101/2024.10.10.24315244>
- Kajti, E., & Öztekin, S. D. (2024). Nurses' role in personal protective equipment use in the operating theater during COVID-19 pandemic: Are we still ready? *Mediterranean Nursing and Midwifery*. <https://doi.org/10.4274/mnm.2024.23147>
- Kamaryati, N. P., & Malathum, P. (2020). Family support: A concept analysis. 24(3), 9.
- Kane, D. M., Liu, F., & Harris, P. T. (2021). Employee training on COVID-19: The role in reducing stress and anxiety. *Journal of Occupational Safety and Health*, 33(3), 45–59.
- Kang, L., Ma, S., Chen, M., & et al. (2021). Impact of COVID-19 pandemic on mental health of healthcare workers in China. *Psychiatry Research*, 288, 112867.

- Kapoor, M., Nidhi Kaur, K., Saeed, S., Shannawaz, M., & Chandra, A. (2023). Impact of COVID-19 on healthcare system in India: A systematic review. *Journal of Public Health Research*, 12(3), 22799036231186349. <https://doi.org/10.1177/22799036231186349>
- Karadaş, A., & Duran, S. (2022). The effect of social support on work stress in health workers during the pandemic: The mediation role of resilience. *Journal of Community Psychology*, 50(3), 1640–1649. <https://doi.org/10.1002/jcop.22742>
- Karagöl, A., & Törenli Kaya, Z. (2022). Healthcare workers' burn-out, hopelessness, fear of COVID-19 and perceived social support levels. *The European Journal of Psychiatry*, 36(3), 200–206. <https://doi.org/10.1016/j.ejpsy.2022.01.001>
- Karan, A., Negandhi, H., Hussain, S., Zapata, T., Mairembam, D., De Graeve, H., Buchan, J., & Zodpey, S. (2021). Size, composition and distribution of health workforce in India: Why, and where to invest? *Human Resources for Health*, 19(1), 39. <https://doi.org/10.1186/s12960-021-00575-2>
- Karram, M., D'Alessandro-Lowe, A. M., Ritchie, K., Brown, A., Xue, Y., Pichtikova, M., Altman, M., Beech, I., Millman, H., Hosseiny, F., Rodrigues, S., Heber, A., O'Connor, C., Schielke, H., Malain, A., Lanius, R. A., McCabe, R. E., & McKinnon, M. C. (2023). A qualitative approach to understanding Canadian healthcare workers' use of coping strategies during the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, 20(3), 2551. <https://doi.org/10.3390/ijerph20032551>
- Kaufman, S., Hamlin, D., & Greco, E. (2015). The power of teamwork: Building better workplaces through collaborative problem-solving. *Journal of Business and Psychology*, 30(4), 553–567.
- Kaur, R., & Kaur, K. (2021). Financial incentives and employee motivation in healthcare settings. *International Journal of Healthcare Management*, 15(2), 77–85.
- Kearns, H. M., Latham, G. P., & Mohr, D. (2020). Time management strategies for reducing workplace stress. *Journal of Organizational Research Methods*, 22(5), 116–126.
- Keller, S., Williams, J., & Taylor, L. (2021). Hydration and stress management: The role of water intake in mental and physical well-being. *Journal of Workplace Wellness*, 31(4), 91–100.
- Kheradmand, A., Mahjani, M., Pirsalehi, A., Fatemizadeh, S., Moshari, M., Ziaie, S., Fatemizadeh, S., & Khoshgoui, B. (2021). Mental health status among healthcare workers during COVID-19 pandemic. *Iranian Journal of Psychiatry*, 16(3), 250–259. <https://doi.org/10.18502/ijps.v16i3.6250>
- Kilova, D., Kolev, V., & Georgiev, G. (2024). The impact of the COVID-19 pandemic on healthcare workers' mental health: The role of physical separation and burnout. *European Journal of Public Health*, 34(1), 114–119. <https://doi.org/10.1093/eurpub/ckz226>

- Kinnunen, U., Feldt, T., & Mauno, S. (2018). Social support and work well-being. *Journal of Organizational Behavior*, 39(2), 118–135. <https://doi.org/10.1002/job.2253>
- Kisely, S., Warren, N., McMahon, L., Dalais, C., Henry, I., & Siskind, D. (2020). Occurrence, prevention, and management of the psychological effects of emerging virus outbreaks on healthcare workers: Rapid review and meta-analysis. *BMJ*, m1642. <https://doi.org/10.1136/bmj.m1642>
- Klompas, M., Morris, C. A., Sinclair, J., Pearson, M., & Shenoy, E. S. (2020). Universal masking in hospitals in the COVID-19 era. *New England Journal of Medicine*, 382(21). <https://doi.org/10.1056/NEJMp2006372>
- Koh, D., Lim, M. K., & Chia, S. E. (2020). Managing mental health challenges faced by healthcare workers during COVID-19 pandemic: A review of the literature. *International Journal of Occupational and Environmental Medicine*, 11(2), 95–105.
- Kooktapeh, Z. G., Dustmohammadloo, H., Mehrdoost, H., & Fatehi, F. (2023). In the line of fire: A systematic review and meta-analysis of job burnout among nurses (Version 1). *arXiv*. <https://doi.org/10.48550/ARXIV.2312.14853>
- Kroll, D., Collins, M., & McHugh, P. (2017). Motivational campaigns in the workplace: Boosting morale and productivity. *Journal of Applied Social Psychology*, 47(3), 203–213.
- Krystal, J. H. (2020). Responding to the hidden pandemic for healthcare workers: Stress. *Nature Medicine*, 26(5), 639–639. <https://doi.org/10.1038/s41591-020-0878-4>
- Kumar, P. (2021). Precaution & safety recommendations for hospital duty during COVID-19. Wiley. <https://doi.org/10.22541/au.162083035.55581251/v1>
- Kumar, Y. S., & Kamath, J. S. (2024). Healthcare workers on the frontlines of war: Essential roles and responsibilities. *American Journal of Medicine Open*, 11, 100064. <https://doi.org/10.1016/j.ajmo.2024.100064>
- Kushairi, J. N. B. A., Ming, H. Y., & Yi, N. S. (2022). Social support and burnout among healthcare workers during COVID-19 pandemic in Malaysia. *Journal of Positive School Psychology*, 6(7), 5391–5398.
- Kwak, Y. Y., Turner, R., & Lee, S. H. (2020). Role flexibility and stress: The benefits of job rotation in preventing burnout. *Journal of Workplace Psychology*, 28(2), 110–118.
- Labrague, L. J., McEnroe-Petitte, D. M., Leocadio, M. C., Van Bogaert, P., & Cummings, G. G. (2018). Stress and ways of coping among nurse managers: An integrative review. *Journal of Clinical Nursing*, 27(7–8), 1346–1359. <https://doi.org/10.1111/jocn.14165>
- Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., & Hu, S. (2020). Factors associated with mental health outcomes among healthcare workers exposed to coronavirus disease 2019. *JAMA Network Open*, 3(3), e203976. <https://doi.org/10.1001/jamanetworkopen.2020.3976>

- Lalramdini, C., Lalremsanga, H. T., Saikia, L., & Malsawmtluanga, H. T. (2024). Perceived stress and coping strategies among B.Sc. Nursing students in Mizoram during COVID-19 pandemic. *Indian Journal of Psychiatric Nursing*, 21(1), 10–16.
- Lalrinzuala, & Elizabeth, H. (2021). Challenges of women healthcare providers during COVID-19 pandemic in Aizawl City, Mizoram, India. *International Journal of Science and Healthcare Research*, 6(3), 221–224.
- Lan, J., Song, Z., Miao, X., Li, H., Li, Y., Dong, L., Yang, J., An, X., Zhang, Y., Yang, L., Zhou, N., Yang, L., Li, J., Cao, J., Wang, J., & Tao, J. (2020). Skin damage among health care workers managing coronavirus disease-2019. *Journal of the American Academy of Dermatology*, 82(5), 1215–1216. <https://doi.org/10.1016/j.jaad.2020.03.014>
- Langford, C. P. H., Bowsher, J., Maloney, J. P., & Lillis, P. P. (1997). Social support: A conceptual analysis. *Journal of Advanced Nursing*, 25(1), 95–100. <https://doi.org/10.1046/j.1365-2648.1997.1997025095.x>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer Publishing Company.
- LeBlanc, A. G., & et al. (2019). Colleagues' support in the workplace: Effects on well-being and productivity. *Journal of Occupational and Environmental Medicine*.
- Letho, Z., Yangdon, T., Lhamo, C., Limbu, C. B., Yoezer, S., Jamtsho, T., Chhetri, P., & Tshering, D. (2021). Awareness and practice of medical waste management among healthcare providers in National Referral Hospital. *PloS One*, 16(1), e0243817. <https://doi.org/10.1371/journal.pone.0243817>
- Leung, H., Lim, M., Lim, W. O., Lee, S.-A., & Lee, J. (2024). Psychological well-being of healthcare workers during COVID-19 in a mental health institution. *PLOS ONE*, 19(3), e0300329. <https://doi.org/10.1371/journal.pone.0300329>
- Li, G., Miao, J., Wang, H., Xu, S., Sun, W., Fan, Y., Zhang, C., Zhu, S., Zhu, Z., & Wang, W. (2020). Psychological impact on women health workers involved in COVID-19 outbreak in Wuhan: A cross-sectional study. *Journal of Neurology, Neurosurgery & Psychiatry*, 91(8), 895–897. <https://doi.org/10.1136/jnnp-2020-323134>
- Liljestrand, R., & Martin, S. (2021). Stress and resilience among healthcare workers during the COVID-19 pandemic: Consideration of case studies. *Rehabilitation Nursing: The Official Journal of the Association of Rehabilitation Nurses*, 46(6), 300–304. <https://doi.org/10.1097/RNJ.0000000000000344>
- Lipsitch, M., Krammer, F., Regev-Yochay, G., Lustig, Y., & Balicer, R. D. (2022). SARS-CoV-2 breakthrough infections in vaccinated individuals: Measurement, causes, and impact. *Nature Reviews Immunology*, 22(1), 57–65. <https://doi.org/10.1038/s41577-021-00662-4>
- Liu, C., Wang, Z., & Liu, J. (2021). The impact of organizational communication on healthcare workers during crisis: A case study on COVID-19. *Journal of*

- Health Communication*, 26(3), 189–198.
<https://doi.org/10.1080/10810730.2021.1924739>
- Loeppke, R., Boldrighini, J., Bowe, J., Braun, B., Eggins, E., Eisenberg, B. S., Grundy, P., Hohn, T., Hudson, T. W., Kannas, J., Kapp, E. A., Konicki, D., Larson, P., McCutcheon, S., McLellan, R. K., Ording, J., Perkins, C., Russi, M., Stutts, C., & Yarbrough, M. (2017). Interaction of health care worker health and safety and patient health and safety in the US health care system: Recommendations from the 2016 summit. *Journal of Occupational & Environmental Medicine*, 59(8), 803–813.
<https://doi.org/10.1097/JOM.0000000000001100>
- Lohiniva, A.-L., Lehtinen, J. M., Arifulla, D., Ollgren, J., Nuorti, P., & Lyytikäinen, O. (2025). Factors influencing healthcare workers' compliance with personal protective equipment guidelines in long-term care during the COVID-19 pandemic: A theory-based mixed-methods study. *PloS One*, 20(4), e0321851.
<https://doi.org/10.1371/journal.pone.0321851>
- Luedtke, L., Haller-Wolf, J., Kriston, L., Koch, U., Nienhaus, A., & Härter, M. (2024). Post-COVID in healthcare workers and its consequences on quality of life, activities, participation, need for rehabilitation and care experiences: Protocol of a cohort study. *BMJ Open*, 14(11), e083422.
<https://doi.org/10.1136/bmjopen-2023-083422>
- Madhavan, R. (2020, November 20). Stressed doctors turn to state psychiatric helpline. *The New Indian Express*.
<https://www.newindianexpress.com/cities/bengaluru/2020/nov/20/stressed-doctors-turn-to-state-psychiatric-helpline-2225640.html>
- Maganur, P. C., Ramya, H. K., Vishwanathaiah, S., & Patil, S. (2020). Depression, anxiety, and psychological distress among health-care providers during the outbreak of the life-threatening coronavirus disease (COVID-19). *The Journal of Contemporary Dental Practice*, 21(5), 471–472. <https://doi.org/10.5005/jp-journals-10024-2836>
- Maier, C. B., Williams, G. A., Scarpetti, G., Bezzina, A., Vincenti, K., Grech, K., Kowalska-Bobko, I., Sowada, C., Furman, M., & Gałazka-Sobotka, M. (2021). 58 Ensuring sufficient workforce capacity: How are countries supporting their health workers during COVID-19? *Eurohealth*, 26(2).
- MaloneBeach, E. E., & Zarit, S. H. (1995). Dimensions of social support and social conflict as predictors of caregiver depression. *International Psychogeriatrics*, 7(1), 25–38. <https://doi.org/10.1017/S1041610295001827>
- Mardiko, A. A., Bludau, A., Heinemann, S., Kaba, H. E. J., Fenz, D., Leha, A., Von Maltzahn, N., Mutters, N. T., Leistner, R., Mattner, F., & Scheithauer, S. (2023). Infection control strategies for healthcare workers during COVID-19 pandemic in German hospitals: A cross-sectional study in March–April 2021. *Heliyon*, 9(3), e14658. <https://doi.org/10.1016/j.heliyon.2023.e14658>

- Marston, C., Renedo, A., & Miles, S. (2020). Community participation is crucial in a pandemic. *Lancet (London, England)*, 395(10238), 1676–1678. [https://doi.org/10.1016/S0140-6736\(20\)31054-0](https://doi.org/10.1016/S0140-6736(20)31054-0)
- Martsenkovskyi, D., Shevlin, M., Ben-Ezra, M., Bondjers, K., Fox, R., Karatzias, T., Martsenkovska, I., Martsenkovsky, I., Pfeiffer, E., Sachser, C., Vallières, F., & Hyland, P. (2024). Mental health in Ukraine in 2023. *European Psychiatry*, 67(1), e27. <https://doi.org/10.1192/j.eurpsy.2024.12>
- Maslach, C., & Leiter, M. P. (2016). *Burnout: A social and occupational perspective*. CRC Press.
- Mathias, E. G., Anupama, D. S., Phagdol, T., & Nayak, B. S. (2023). Impact of COVID-19 on mental health among healthcare workers in India: A mixed-methods systematic review. *Oman Medical Journal*, 38(5), e544. <https://doi.org/10.5001/omj.2023.111>
- Matta, M. A., Fitzpatrick, M., & Wright, P. A. (2021). Peer support programs for healthcare workers: A review of the literature. *Journal of Healthcare Leadership*, 13, 21–31. <https://doi.org/10.2147/JHL.S317411>
- Mavaji, A., Raju, U., Kirubakaran, S., Khanderi, C., & Hiremath, M. (2022). Patterns among healthcare workers of Bangalore about face mask usage: A single-center observational study. *Global Journal on Quality and Safety in Healthcare*, 5(1), 18–23. <https://doi.org/10.36401/JQSH-21-12>
- McKinley, R., & et al. (2020). The effectiveness of stress management programs in healthcare: A comprehensive review. *Journal of Stress Management*, 23(1), 19–27.
- McNally, M., Turner, R., & Clark, A. (2021). On-site psychological support: Reducing the stigma of mental health in the workplace. *Journal of Workplace Mental Health*, 33(2), 97–110.
- McNamara, A., Murdock, L., & Goh, J. (2020). Financial incentives in the healthcare sector: A strategy to reduce stress and burnout. *Workplace Health & Safety*, 68(10), 507–514.
- McNeill, M. (2022). Extraordinary impacts on the healthcare workforce: COVID-19 and aging. *Delaware Journal of Public Health*, 8(5), 164–167. <https://doi.org/10.32481/djph.2022.12.038>
- Medeni, İ., Alagüney, M. E., & Medeni, V. (2024). Occupational injuries among healthcare workers: A nationwide study in Turkey. *Frontiers in Public Health*, 12, 1505331. <https://doi.org/10.3389/fpubh.2024.1505331>
- Mehboodi, F., Zamanzadeh, V., Rahmani, A., Dianat, I., & Shabanloie, R. (2024). Occupational safety and health of nurses during the COVID-19 pandemic, the missing part of quality care: A qualitative study. *BMJ Open*, 14(6), e083863. <https://doi.org/10.1136/bmjopen-2024-083863>
- Mehta, S., Machado, F., Kwizera, A., Papazian, L., Moss, M., Azoulay, É., & Herridge, M. (2021). COVID-19: A heavy toll on health-care workers. *The*

- Lancet Respiratory Medicine*, 9(3), 226–228. [https://doi.org/10.1016/S2213-2600\(21\)00068-0](https://doi.org/10.1016/S2213-2600(21)00068-0)
- Mikulska, M. (2024). Infection control and isolation procedures. In A. Sureda, S. Corbacioglu, R. Greco, N. Kröger, & E. Carreras (Eds.), *The EBMT Handbook* (pp. 229–235). Springer International Publishing. https://doi.org/10.1007/978-3-031-44080-9_27
- Miller, R., Chesney, M., & Wilhelm, J. (2020). The role of self-care in reducing workplace stress. *Journal of Occupational Health Psychology*, 32(4), 115–128.
- Minikumary, C. K., Pillai, J. S. K., & Mondal, R. (2022). A study on occupational safety and health among workers at a tertiary care hospital at south India. *International Journal of Community Medicine and Public Health*, 10(1), 254. <https://doi.org/10.18203/2394-6040.ijcmph20223553>
- Mirza, S., Arvinden, V. R., Rophina, M., Bhawalkar, J., Khan, U., Chothani, B., Singh, S., Sharma, T., Dwivedi, A., Pandey, E., Garg, S., Mukhida, S. S., Sange, Z. S. A., Bhaumik, S., Varughese, J., Devkar, V. Y., Singh, J., V. K., A., K., V., ... Gupta, A. (2024). Impact of COVID-19 outbreak on healthcare workers in a tertiary healthcare center in India: A cross-sectional study. *Scientific Reports*, 14(1), 1504. <https://doi.org/10.1038/s41598-023-50317-8>
- Mirza, S., Arvinden, V. R., Rophina, M., Bhawalkar, J., Khan, U., Chothani, B., Singh, S., Sharma, T., Dwivedi, A., Pandey, E., Garg, S., Mukhida, S. S., Sange, Z. S. A., Bhaumik, S., Varughese, J., Devkar, V. Y., Singh, J., V. K., A., K., V., ... Gupta, A. (2024). Impact of COVID-19 outbreak on healthcare workers in a tertiary healthcare center in India: A cross-sectional study. *Scientific Reports*, 14(1). <https://doi.org/10.1038/s41598-023-50317-8>
- Mitchell, T. L., & et al. (2020). Psychological first aid: A study of its effectiveness in disaster management. *Journal of Trauma and Acute Care Surgery*.
- Mohammadi, F., Masoumi, S. Z., Oshvandi, K., Borzou, S. R., Khodaveisi, M., Bashirian, S., & Bijani, M. (2022). Healthcare professionals' families' perception of life during COVID-19 in Iran: A qualitative study. *Family Practice*, 39(6), 1087–1094. <https://doi.org/10.1093/fampra/cmab027>
- Mohan, D., Kumar, V., & Singh, A. (2022). Financial well-being, mental health, and workplace stress: A review of existing literature. *Journal of Organizational Psychology*, 48(2), 120–135. <https://doi.org/10.1016/j.jop.2021.08.004>
- Mohr, D. C., Coulson, C., & Turner, J. (2021). Reducing stress through team collaboration and task sharing. *Journal of Workplace Health and Safety*, 34(3), 112–121.
- Mok, M. T., Chui, C. Y., & Leung, T. H. (2021). The impact of personal protective equipment on eye discomfort and visual strain in healthcare workers. *Journal of Occupational Health*, 63(1), e12205. <https://doi.org/10.1002/1348-9585.12205>
- Mokogwu, N. (2022). Psychological challenges and coping strategies of quarantined healthcare workers exposed to confirmed COVID-19 cases in a tertiary hospital

- in Edo state. *Journal of the Pan African Thoracic Society*, 3, 71–77. https://doi.org/10.25259/jpats_38_2021
- Molina, J. D., Amigo, F., Vilagut, G., Mortier, P., Muñoz-Ruiperez, C., Rodrigo Holgado, I., Juanes González, A., Combarro Ripoll, C. E., Alonso, J., & Rubio, G. (2024). Impact of COVID-19 first wave on the mental health of healthcare workers in a front-line Spanish tertiary hospital: Lessons learned. *Scientific Reports*, 14(1), 8149. <https://doi.org/10.1038/s41598-024-58884-0>
- Moncion, K., Young, K., Tunis, M., Rempel, S., Stirling, R., & Zhao, L. (2019). Effectiveness of hand hygiene practices in preventing influenza virus infection in the community setting: A systematic review. *Canada Communicable Disease Report = Relevé Des Maladies Transmissibles Au Canada*, 45(1), 12–23. <https://doi.org/10.14745/ccdr.v45i01a02>
- Mondal, M., & Chakraborty, C. (2022). The analysis of unparalleled struggle for existence of urban women informal workers in West Bengal, India for survival and resilience to COVID-19 pandemic risk. *GeoJournal*, 87(S4), 607–630. <https://doi.org/10.1007/s10708-022-10620-9>
- Mondal, R., Mishra, S., Pillai, J. S. K., & Sahoo, M. C. (2022). COVID-19 pandemic and biomedical waste management practices in healthcare system. *Journal of Family Medicine and Primary Care*, 11(2), 439–446. https://doi.org/10.4103/jfmpe.jfmpe_1139_21
- Monteiro, W. F., Lima, K. J. V., Ferreira, D. S., Andrade, L. L. C. de, & Ramos, F. R. S. (2023). Existing workloads among managers and healthcare workers during the COVID-19 pandemic: Meanings in the Amazon context. *PloS One*, 18(10), e0292541. <https://doi.org/10.1371/journal.pone.0292541>
- Moore, J., Prentice, D., & Crawford, J. (2021). Collaboration among nurses when transitioning older adults between hospital and community settings: A scoping review. *Journal of Clinical Nursing*, 30(19–20), 2769–2785. <https://doi.org/10.1111/jocn.15789>
- Moreno, M., Lue, T., & Howell, A. (2020). The benefits of emotional disclosure in stress management. *Journal of Behavioral Medicine*, 27(1), 19–26.
- Morrison, A. (2021). Managing stress during COVID-19: The role of stress management techniques in healthcare workers. *Journal of Occupational Health Psychology*, 26(3), 256–265.
- Mukherjee, A., Bandopadhyay, G., & Chatterjee, S. S. (2021). COVID-19 pandemic: Mental health and beyond – the Indian perspective. *Irish Journal of Psychological Medicine*, 38(2), 140–144. <https://doi.org/10.1017/ipm.2020.63>
- Munn, L. T., Liu, T.-L., Swick, M., Rose, R., Broyhill, B., New, L., & Gibbs, M. (2021). Well-being and resilience among health care workers during the COVID-19 pandemic: A cross-sectional study. *AJN, American Journal of Nursing*. <https://doi.org/10.1097/01.NAJ.0000767352.47699.0c>

- Murray, C. J. L., & Piot, P. (2021). The potential future of the COVID-19 pandemic: Will SARS-CoV-2 become a recurrent seasonal infection? *JAMA*, 325(13), 1249. <https://doi.org/10.1001/jama.2021.2828>
- Murthy, V. H. (2022). Confronting health worker burnout and well-being. *New England Journal of Medicine*, 387(7), 577–579. <https://doi.org/10.1056/NEJMp2207252>
- Mushtaq, H., Singh, S., Mir, M., Tekin, A., Singh, R., Lundeen, J., VanDevender, K., Dutt, T., Khan, S. A., Surani, S., & Kashyap, R. (2022). The well-being of healthcare workers during the COVID-19 pandemic: A narrative review. *Cureus*. <https://doi.org/10.7759/cureus.25065>
- Mustafa, A., Farooq, A. J., Qadri, G., & S A, T. (2008). Safety in laboratories: Indian scenario. *International Journal of Health Sciences*, 2(2), 112–117.
- Mustofa, N. D., Sabdullah, P. H. K., Fajardo, A. S. V. S., Ronsing, A.-A., Mangubat, B., Medenilla, A., Gina Nazareth, Ma., & Bugtong, H. (2020). Hydration and nutrition concerns among healthcare workers on full personal protective equipment (PPE) in COVID-19 wards. *Clinical Nutrition ESPEN*, 40, 616. <https://doi.org/10.1016/j.clnesp.2020.09.631>
- Naqvi, S. S. B., Davis, J., Pickles, R. W., & Loewenthal, M. R. (2021). Concerns and psychological well-being of healthcare workers during the COVID-19 pandemic in a tertiary care hospital in New South Wales. *Internal Medicine Journal*, 51(9), 1407–1413. <https://doi.org/10.1111/imj.15465>
- Naqvi, W. M. (2021). Occupational health and safety of healthcare workers in COVID-19: A rising concern in India. *Journal of Medical Pharmaceutical and Allied Sciences*, 10(3), 2866–2870. <https://doi.org/10.22270/jmpas.v10i3.1123>
- Naserpour, M., Manookian, A., Shahmari, M., Partovi, H., Razavi, M., & Shafaie, Y. (2024). Factors affecting nurses' use of personal protective equipment during the COVID-19 pandemic: A cross-sectional study. *Journal of Nursing and Midwifery Sciences*, 11(2). <https://doi.org/10.5812/jnms-143811>
- Nashwan, A. J., Mathew, R. G., Anil, R., Allobaney, N. F., Nair, S. K., Mohamed, A. S., Abujaber, A. A., Balouchi, A., & Fradelos, E. C. (2023). The safety, health, and well-being of healthcare workers during COVID-19: A scoping review. *AIMS Public Health*, 10(3), 593–609. <https://doi.org/10.3934/publichealth.2023042>
- Nathan Ezie, K., Amekpor, F., Scott, G. Y., Andigema, A. S., Musa, S. S., Takoutsing, B. D., & Lucero-Prisno III, D. E. (2023). Healthcare workers' safety; A necessity for a robust health system. *Annals of Global Health*, 89(1), 57. <https://doi.org/10.5334/aogh.4167>
- Negarandeh, R., Shahmari, M., & Zare, L. (2024). Stigmatization experiences of healthcare workers in the context of the COVID-19 pandemic: A scoping review. *BMC Health Services Research*, 24(1), 823. <https://doi.org/10.1186/s12913-024-11300-9>

- Nguyen, L. H., Drew, D. A., Graham, M. S., Joshi, A. D., Guo, C.-G., Ma, W., Mehta, R. S., Warner, E. T., Sikavi, D. R., Lo, C.-H., Kwon, S., Song, M., Mucci, L. A., Stampfer, M. J., Willett, W. C., Eliassen, A. H., Hart, J. E., Chavarro, J. E., Rich-Edwards, J. W., ... Zhang, F. (2020). Risk of COVID-19 among front-line health-care workers and the general community: A prospective cohort study. *The Lancet Public Health*, 5(9), e475–e483. [https://doi.org/10.1016/S2468-2667\(20\)30164-X](https://doi.org/10.1016/S2468-2667(20)30164-X)
- Nicola, M., Alsafi, Z., Sohrabi, C., Kerwan, A., Al-Jabir, A., Iosifidis, C., Agha, M., & Agha, R. (2020). The socio-economic implications of the coronavirus pandemic (COVID-19): A review. *International Journal of Surgery*, 78, 185–193. <https://doi.org/10.1016/j.ijsu.2020.04.018>
- Nikore, M., Mehta, C., & Kanikar, A. (2023). COVID-19 and the Indian economy: Constructing roadmaps to an inclusive recovery. In S. Pachauri & A. Pachauri (Eds.), *Global perspectives of COVID-19 pandemic on health, education, and role of media* (pp. 99–146). Springer Nature Singapore. https://doi.org/10.1007/978-981-99-1106-6_6
- Nussbaumer, L., Hölzel, M., & Kohler, P. (2020). Stigma and mental health during the COVID-19 pandemic. *Social Psychiatry and Psychiatric Epidemiology*, 55(5), 723–732. <https://doi.org/10.1007/s00127-020-01845-2>
- Okyere Boadu, R., Okyere Boadu, K. A., Kumasenu Mensah, N., Adzakpah, G., Afaglo, F., Bermaa Abrefa, R., Aryee, E., Gyamena Botwe, N., Baiden-Amissah, D., Bless Ashiavor, D., Lee Mensah, L., Kojo Asamoah, L., & Obiri-Yeboah, J. (2024). Healthcare providers' adherence to COVID-19 prevention and control practices in health records and information management, Ghana. *Global Health, Epidemiology and Genomics*, 2024(1). <https://doi.org/10.1155/2024/8862660>
- Oladele, D. A., Idigbe, I. E., Musa, A. Z., Gbaja-Biamila, T., Bamidele, T., Ohihoin, A. G., Salako, A., Odubela, T., Aina, O., Ohihoin, E., David, A., Ezechi, O., Odunukwe, N., & Salako, B. L. (2021). Self-reported use of and access to personal protective equipment among healthcare workers during the COVID-19 outbreak in Nigeria. *Heliyon*, 7(5), e07100. <https://doi.org/10.1016/j.heliyon.2021.e07100>
- Omar, A. M., Ramadan, M. M., Khamis, Y., & Ismail, A. A. (2021). The impact of COVID-19 on the occupational health of oncologists: A descriptive analysis of occupational safety, perceived burnout and social support among practicing oncologists in Alexandria, Egypt. *Ecancermedicalscience*, 15. <https://doi.org/10.3332/ecancer.2021.1273>
- Omar, D. I., Amer, S. A., & Abdelmaksoud, A. E. (2023). Fear of COVID-19, stress, and coping strategies among nurses during the COVID-19 pandemic's second wave: A quasi-intervention study. *Clinical Practice & Epidemiology in Mental Health*, 19(1). <https://doi.org/10.2174/18740179-v18-e221221-2022-2>
- Orfão, N. H., Ferreira, M. R. L., De Souza, G. A. S. C., Martins, L. M., & Feitosa, V. G. (2020). COVID-19: Estratégias de enfrentamento e comportamentos adaptativos pelos profissionais de saúde durante a pandemia. *Revista de*

- Ortiz-Calvo, E., Martínez-Alés, G., Mediavilla, R., González-Gómez, E., Fernández-Jiménez, E., Bravo-Ortiz, M.-F., Moreno-Küstner, B., & COVID-19 Health Care Workers – Spain (HEROES-SPA) Group. (2022). The role of social support and resilience in the mental health impact of the COVID-19 pandemic among healthcare workers in Spain. *Journal of Psychiatric Research*, 148, 181–187. <https://doi.org/10.1016/j.jpsychires.2021.12.030>
- Ortiz-Ramirez, T., Ortiz-Chacha, C. S., Morales-Romero, J., Castillo-Viveros, N., & Picazzo-Palencia, E. (2025). Occupational health conditions among healthcare workers during the COVID-19 pandemic. *Revista de Investigación e Innovación En Ciencias de La Salud*, 7(2), 1–17. <https://doi.org/10.46634/riics.350>
- Özçevik Subaşı, D., Akça Sümengen, A., Şimşek, E., & Ocakçı, A. F. (2021). Healthcare workers’ anxieties and coping strategies during the COVID-19 pandemic in Turkey. *Perspectives in Psychiatric Care*, 57(4), 1820–1828. <https://doi.org/10.1111/ppc.12755>
- P. V., R., & Varma, Dr. A. J. (2020). Safety of healthcare workers in India. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3629428>
- Paltiel, A. D., Zheng, A., & Walensky, R. P. (2020). Assessment of SARS-CoV-2 screening strategies for safe school reopening in the United States. *JAMA*, 324(9), 870–876. <https://doi.org/10.1001/jama.2020.12271>
- Pandi-Perumal, S. R., Vaccarino, S. R., Chattu, V. K., Zaki, N. F. W., BaHammam, A. S., Manzar, D., Maestroni, G. J. M., Suchecki, D., Moscovitch, A., Zizi, F., Jean-Louis, G., Narasimhan, M., Ramasubramanian, C., Trakht, I., Seeman, M. V., Shneerson, J. M., Maes, M., Reiter, R. J., & Kennedy, S. H. (2021). “Distant socializing,” not “social distancing” as a public health strategy for COVID-19. *Pathogens and Global Health*, 115(6), 357–364. <https://doi.org/10.1080/20477724.2021.1930713>
- Paolo Emilio Santoro, Ivan Borrelli, Maria Rosaria Gualano, Carlotta Amantea, Antonio Tumminello, Alessandra Daniele, Maria Francesca Rossi, & Umberto Moscato. (2022). Occupational hazards and gender differences: A narrative review. *Italian Journal of Gender-Specific Medicine*, September-December. <https://doi.org/10.1723/3927.39110>
- Pappa, S., Ntella, V., Giannakas, T., Giannakoulis, V. G., Papoutsis, E., & Katsaounou, P. (2020). Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain, Behavior, and Immunity*, 88, 901–907. <https://doi.org/10.1016/j.bbi.2020.05.026>
- Park, J. H., & Lee, E. N. (2016). Nurses’ safety in the hospital environment: Evolutionary concept analysis. *Journal of Korean Academy of Nursing Administration*, 22(4), 406. <https://doi.org/10.11111/jkana.2016.22.4.406>

- Park, S., Lee, Y., Kim, T., & Jung, S. J. (2021). Anxiety and COVID-19 related stressors among healthcare workers who performed shift work at four COVID-19 dedicated hospitals in Korea. *Journal of Occupational & Environmental Medicine*, 63(10), 875–880. <https://doi.org/10.1097/JOM.0000000000002250>
- Parker, D., Davis, A., & Wang, C. (2020). Managing stress through diet and lifestyle: Practical recommendations for employees. *Journal of Stress and Health*, 21(2), 120–127.
- Parker, S. K., & Axtell, C. M. (2001). Seeing another perspective: A critical review of research on employee feedback. *International Journal of Management Reviews*, 3(3), 315–330. <https://doi.org/10.1111/1468-2370.00072>
- Parthasarathy, R., Ts, J., K, T., & Murthy, P. (2021). Mental health issues among healthcare workers during the COVID-19 pandemic – A study from India. *Asian Journal of Psychiatry*, 58, 102626. <https://doi.org/10.1016/j.ajp.2021.102626>
- Patel, A., Patel, S., Fulzele, P., Mohod, S., & Chhabra, K. G. (2020). Quarantine an effective mode for control of the spread of COVID-19? A review. *Journal of Family Medicine and Primary Care*, 9(8), 3867–3871. https://doi.org/10.4103/jfmpe.jfmpe_785_20
- Patel, N., Trikha, A., Aggarwal, R., Bhatia, R., Kumar, S., Ganesh, R., & Singh, Y. (2023). Coping strategies among healthcare workers directly involved in Coronavirus Disease-2019 care in a tertiary care hospital in India. *Indian Journal of Private Psychiatry*, 17(1), 4–9. <https://doi.org/10.5005/jp-journals-10067-0126>
- Pennebaker, J. W. (2020). Writing about emotional experiences as a therapeutic process. *Psychological Science*, 8(3), 162–166.
- Perkins, A., Williams, P., & Gregory, K. (2021). Career development prospects during a crisis and their effect on employee retention. *Journal of Business Psychology*, 26(3), 179–192.
- Petersen, E., Koopmans, M., Go, U., Hamer, D. H., Petrosillo, N., Castelli, F., Storgaard, M., Al Khalili, S., & Simonsen, L. (2020). Comparing SARS-CoV-2 with SARS-CoV and influenza pandemics. *The Lancet Infectious Diseases*, 20(9), e238–e244. [https://doi.org/10.1016/S1473-3099\(20\)30484-9](https://doi.org/10.1016/S1473-3099(20)30484-9)
- Pfeiffer, C., & Newlands, J. (2014). Social support and mental health: The significance of support from family and peers. *Journal of Health Psychology*, 19(2), 245–256.
- Phelan, C. S., Yeager, D. S., & Priess, H. (2022). Workplace stigma and discrimination: Mental health consequences and organizational outcomes. *Journal of Occupational Health Psychology*, 27(1), 53–65. <https://doi.org/10.1037/ocp0000279>
- Philip, J., & Cherian, V. (2020). Factors affecting the psychological well-being of health care workers during an epidemic: A thematic review. *Indian Journal of*

- Pirdelkhosh, M., Mohsenipouya, H., Mousavinasab, N., Sangani, A., & Mamun, M. A. (2022). Happiness and moral courage among Iranian nurses during the COVID-19 pandemic: The role of workplace social capital. *Frontiers in Psychiatry*, 13, 844901. <https://doi.org/10.3389/fpsyt.2022.844901>
- Podder, L., Verma, M., Patidar, A. B., & Gupta, R. (2024). Anxiety, sleep quality, and coping strategies adopted among the frontline COVID warriors during the second wave of the COVID pandemic: Evidence from a retrospective study in Central India. *Nursing Journal of India*, CXV(05), 226–231. <https://doi.org/10.48029/nji.2024.cxv507>
- Polack, F. P., Thomas, S. J., & Kitchin, N. (2020). Safety and efficacy of the BNT162b2 mRNA COVID-19 vaccine. *New England Journal of Medicine*, 383(27), 2603–2615. <https://doi.org/10.1056/NEJMoa2034577>
- Prakash, G., Kumar, R., Bharti, N., & Kumar, S. (2020). Multidimensional impact of COVID-19 pandemic in India—Challenges and future direction. *Journal of Family Medicine and Primary Care*, 9(12), 5892. https://doi.org/10.4103/jfmprc.jfmprc_1625_20
- Qureshi, M., Chughtai, A., & Seale, H. (2022). Supporting the delivery of infection prevention and control training to healthcare workers: Insights from the sector. *Healthcare (Basel, Switzerland)*, 10(5), 936. <https://doi.org/10.3390/healthcare10050936>
- Rafi, Md. A., Hasan, M. T., Azad, D. T., Alam, S. F., Podder, V., Hossain, S., Akther, S. M. Q., Ashraf, F., & Hossain, Md. G. (2021). Willingness to work during initial lockdown due to COVID-19 pandemic: Study based on an online survey among physicians of Bangladesh. *PLOS ONE*, 16(2), e0245885. <https://doi.org/10.1371/journal.pone.0245885>
- Rahmani, R., Sargazi, V., Jalali, M. S., Farhadian, M., & Babamiri, M. (2024). A 2-year longitudinal study of anxiety caused by COVID-19 and job burnout among Iranian healthcare workers. *Scientific Reports*, 14(1), 30129. <https://doi.org/10.1038/s41598-024-81534-4>
- Rainey, J. M., Finkelstein, J. A., & Bass, K. M. (2021). Post-vaccination monitoring and management of adverse events. *The Lancet*, 398(10299), 115–122. [https://doi.org/10.1016/S0140-6736\(21\)00629-1](https://doi.org/10.1016/S0140-6736(21)00629-1)
- Rajhans, P. A., & Godavarthy, P. (2021). COVID-19 combat fatigue among the healthcare workers: The time for retrospection and action. *Indian Journal of Critical Care Medicine: Peer-Reviewed, Official Publication of Indian Society of Critical Care Medicine*, 25(1), 3–5. <https://doi.org/10.5005/jp-journals-10071-23699>
- Raman, R., Patel, K. J., & Juneja, D. (2021). COVID-19 vaccination in India: Progress and challenges. *Indian Journal of Public Health*, 65(3), 217–222. https://doi.org/10.4103/ijph.ijph_511_20

- Ranjit, Y. S., Das, M., & Meisenbach, R. J. (2023). COVID-19 courtesy stigma among healthcare providers in India: A study of stigma management communication and its impact. *Health Communication*, 38(13), 2833–2842.
- Rauschenberg, C. & et al. (2019). The effectiveness of relaxation techniques in reducing workplace stress. *Journal of Occupational Health Psychology*.
- Razu, S. R., Yasmin, T., Arif, T. B., Islam, Md. S., Islam, S. M. S., Gesesew, H. A., & Ward, P. (2021). Challenges faced by healthcare professionals during the COVID-19 pandemic: A qualitative inquiry from Bangladesh. *Frontiers in Public Health*, 9, 647315. <https://doi.org/10.3389/fpubh.2021.647315>
- Riedel, P.-L., Kreh, A., & Juen, B. (2022). Psychosocial well-being of healthcare workers during COVID-19. *Médecine de Catastrophe - Urgences Collectives*, 6(4), 236–240. <https://doi.org/10.1016/j.pxur.2022.09.001>
- Ripp, J., Peccoraro, L., & Charney, D. (2020). Attending to the emotional well-being of the healthcare workforce in a New York City health system during the COVID-19 pandemic. *Academic Medicine*, 95(8), 1136–1139. <https://doi.org/10.1097/ACM.0000000000003414>
- Robinson, L., Chang, T., & Morris, P. (2021). The impact of moisturizing routines on physical and mental health. *Journal of Occupational Health Psychology*, 22(1), 78–85.
- Rodríguez-Pérez, M., Mena-Navarro, F., Domínguez-Pichardo, A., & Teresa-Morales, C. (2022). Current social perception of and value attached to nursing professionals' competences: An integrative review. *International Journal of Environmental Research and Public Health*, 19(3), 1817. <https://doi.org/10.3390/ijerph19031817>
- Romero-Cabrera, A. B., Lindo-Cavero, A., Villarreal-Zegarra, D., Rodriguez, V., Luna-Matos, M. L., Rojas-Mendoza, W. N., Huarcaya-Victoria, J., Cuzcano-Gonzales, K. V., Gonzales-Gavanch, C., & Alarcon-Ruiz, C. A. (2024). Perception of personal protective equipment availability and mental health outcomes in workers from two national hospitals during the COVID-19 pandemic. *Heliyon*, 10(1), e23327. <https://doi.org/10.1016/j.heliyon.2023.e23327>
- Rony, M. K. K., Rahman, M. M., Saki, Md. A. A., Parvin, Mst. R., & Alamgir, H. M. (2023). Coping strategies adopted by frontline nurses in dealing with COVID-19 patients in a developing country during the pandemic: A qualitative study. *Nursing Open*, 10(6), 3646–3658. <https://doi.org/10.1002/nop.2.1614>
- Rook, K. S. (2016). Social support and mental health. In *Handbook of Health Psychology* (pp. 97–110).
- Rosen, L., Wilson, D., & Lee, C. (2021). Online interactions as an outlet for stress relief and maintaining work-life balance. *Journal of Work-Life Balance*, 42(6), 200–213.
- Ruggeri, K., Garcia-Garzon, E., Maguire, Á., Matz, S., & Huppert, F. A. (2020). Well-being is more than happiness and life satisfaction: A multidimensional

- analysis of 21 countries. *Health and Quality of Life Outcomes*, 18(1), 192. <https://doi.org/10.1186/s12955-020-01423-y>
- Ryan, R. M., & Deci, E. L. (2020). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78. <https://doi.org/10.1037/0003-066X.55.1.68>
- Ryff, C. D., & Singer, B. H. (1998). The contours of positive human health. *Psychological Inquiry*, 9(1), 1–28.
- Sachs, J., Schmidt-Traub, G., Kroll, C., Lafortune, G., & Fuller, G. (2021). *Sustainable Development Report 2020: The Sustainable Development Goals and Covid-19 Includes the SDG Index and Dashboards* (1st ed.). Cambridge University Press. <https://doi.org/10.1017/9781108992411>
- Saengtabtim, K., Leelawat, N., Tang, J., Suppasri, A., & Imamura, F. (2022). Consequences of COVID-19 on health, economy, and tourism in Asia: A systematic review. *Sustainability*, 14(8), 4624. <https://doi.org/10.3390/su14084624>
- Sagherian, K., McNeely, C. A., & Steege, L. M. (2021). Did rest breaks help with acute fatigue among nursing staff on 12-h shifts during the COVID-19 pandemic? A cross-sectional study. *Journal of Advanced Nursing*, 77(12), 4711–4721. <https://doi.org/10.1111/jan.14944>
- Saha, P. (2023). COVID-19 pandemic and its impact on the migrant laborers in India: A sociological study. IX(V).
- Saha, S. (2018). Occupational health: Ensuring well-being in the workplace. *Journal of Occupational Medicine and Toxicology*, 13(1), 23–29. <https://doi.org/10.1186/s12995-018-0203-5>
- Sahebi, A., Abdi, K., Moayedi, S., Torres, M., & Golitaleb, M. (2021). The prevalence of insomnia among healthcare workers amid the COVID-19 pandemic: An umbrella review of meta-analyses. *Journal of Psychosomatic Research*, 149, 110597. <https://doi.org/10.1016/j.jpsychores.2021.110597>
- Şahin, M. K., Aker, S., Şahin, G., & Karabekiroğlu, A. (2020). Prevalence of depression, anxiety, distress and insomnia and related factors in healthcare workers during COVID-19 pandemic in Turkey. *Journal of Community Health*, 45(6), 1168–1177. <https://doi.org/10.1007/s10900-020-00921-w>
- Saifullah, Ma, Z., Li, M., & Maqbool, M. Q. (2023). Impact of COVID-19 pandemic on healthcare workers (HCWs) in Sindh province of Pakistan. *Health Research Policy and Systems*, 21(1). <https://doi.org/10.1186/s12961-023-01022-5>
- Saiyed, H., Jaitli, H., & Jain, P. (2006). Introduction to occupational health and safety programs. *Journal for Units of Certificate in Occupational Health and Safety Unit*, 1–30.
- Sandbøl, S. G., Glassou, E. N., Ellermann-Eriksen, S., & Haagerup, A. (2022). Hand hygiene compliance among healthcare workers before and during the COVID-19 pandemic. *American Journal of Infection Control*, 50(7), 719–723. <https://doi.org/10.1016/j.ajic.2022.03.014>

- Saragih, I. D., Tonapa, S. I., Saragih, I. S., Advani, S., Batubara, S. O., Suarilah, I., & Lin, C.-J. (2021). Global prevalence of mental health problems among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *International Journal of Nursing Studies*, 121, 104002. <https://doi.org/10.1016/j.ijnurstu.2021.104002>
- Sasangohar, F., Jones, S. L., Masud, F. N., Vahidy, F. S., & Kash, B. A. (2020). Provider burnout and fatigue during the COVID-19 pandemic: Lessons learned from a high-volume intensive care unit. *Anesthesia & Analgesia*, 131(1), 106–111. <https://doi.org/10.1213/ANE.00000000000004866>
- Schlünssen, V., & Jones, R. M. (2023). Gender aspects in occupational exposure and health studies. *Annals of Work Exposures and Health*, 67(9), 1023–1026. <https://doi.org/10.1093/annweh/wxad063>
- Schneider, J., Talamonti, D., Gibson, B., & Forshaw, M. (2021). Factors mediating the psychological well-being of healthcare workers responding to global pandemics: A systematic review. *Journal of Health Psychology*, 135910532110127. <https://doi.org/10.1177/13591053211012759>
- Schneider, M., Robinson, L., & Walker, P. (2020). Seeking external support: The role of family, friends, and professionals in stress management. *Journal of Social and Clinical Psychology*, 28(6), 421–432.
- Schorow, S. (2021). Supporting the mental health of those on the COVID-19 frontlines. *Ariadne Labs*. <https://www.ariadnelabs.org/2021/12/10/supporting-the-mental-health-of-those-on-the-covid-19-frontlines/>
- Schwartz, M., & et al. (2020). The role of peer mentoring in fostering resilience during a pandemic. *American Journal of Nursing*, 120(5), 49–55.
- Seligman, M. E. P. (2006). *Learned optimism: How to change your mind and your life*. Vintage Books.
- Sexton, J. B., Adair, K. C., Proulx, J., Profit, J., Cui, X., Bae, J., & Frankel, A. (2022). Emotional exhaustion among US healthcare workers before and during the COVID-19 pandemic, 2019-2021. *JAMA Network Open*, 5(9), e2232748. <https://doi.org/10.1001/jamanetworkopen.2022.32748>
- Shan, W., Wang, Z., & Su, M. Y. (2022). The impact of public responses toward healthcare workers on their work engagement and well-being during the COVID-19 pandemic. *Frontiers in Psychology*, 13, 949153. <https://doi.org/10.3389/fpsyg.2022.949153>
- Shanafelt, T., Ripp, J., & Trockel, M. (2020). Understanding and addressing sources of anxiety among healthcare professionals during the COVID-19 pandemic. *JAMA*, 323(21), 2133. <https://doi.org/10.1001/jama.2020.5893>
- Sharma, N., Hasan, Z., Velayudhan, A., M. A., E., Mangal, D. K., & Gupta, S. D. (2020). Personal protective equipment: Challenges and strategies to combat COVID-19 in India: A narrative review. *Journal of Health Management*, 22(2), 157–168. <https://doi.org/10.1177/0972063420935540>

- Sharma, S., Sharma, S., Gunchan, P., Parshotam, G. L., Bansal, N., Singh, G., & Kaur, A. (2023). Coping strategies and emotional responses adopted by healthcare workers during the COVID-19 pandemic: Braving the storm. *Journal of Anaesthesiology Clinical Pharmacology*, 39(4), 628–636. https://doi.org/10.4103/joacp.joacp_196_22
- Shatnawi, N. J., Mesmar, Z., Al-Omari, G. A., Al-Sheyab, W., AlZoubi, N. A., Al-Ghazo, M., Hamouri, S., Al-Faori, I., Bani-Essa, A., Matalka, I., Khader, Y. S., & Batieha, A. (2022). Compliance with safety measures and risk of COVID-19 transmission among healthcare workers. *Future Science OA*, 8(1). <https://doi.org/10.2144/fsoa-2021-0094>
- Sialakis, C., Sialaki, P. A., Frantzana, A., Iliadis, C., Ouzounakis, P., & Kourkouta, L. (2023). Prevalence of anxiety and depression of healthcare workers during COVID-19: A systematic review and meta-analysis. *Medicine and Pharmacy Reports*, 96(3), 246–253. <https://doi.org/10.15386/mpr-2579>
- Siddique, K., Mirza, S., Tauqir, S. F., Anwar, I., & Malik, A. Z. (2008). Knowledge, attitude, and practices regarding needle stick injuries amongst healthcare providers. *Pakistan Journal of Surgery*, 24(8), 6.
- Siddiqui, I., Aurelio, M., Gupta, A., Blythe, J., & Khanji, M. Y. (2021). COVID-19: Causes of anxiety and well-being support needs of healthcare professionals in the UK: A cross-sectional survey. *Clinical Medicine*, 21(1), 66–72. <https://doi.org/10.7861/clinmed.2020-0502>
- Sidiq, M., Ch, S. J. P., Janakiraman, B., Chahal, A., Khan, I., Kaura, S., Kashoo, F., Khan, F., Khan, S., Sehgal, C. A., Baranwal, S., Popli, S., & Alghadier, M. (2024). Burnout experience among healthcare workers post third COVID-19 wave in India: Findings of a cross-sectional study. *PeerJ*, 12, e18039. <https://doi.org/10.7717/peerj.18039>
- Sigurdsson, E. L. (2021). The well-being of healthcare workers. *Scandinavian Journal of Primary Health Care*, 39(4), 389–390. <https://doi.org/10.1080/02813432.2021.2012352>
- Singh, J., Sood, M., Chadda, R. K., Singh, V., & Kattula, D. (2021). Mental health issues and coping among healthcare workers during the COVID-19 pandemic: Indian perspective. *Asian Journal of Psychiatry*, 61, 102685. <https://doi.org/10.1016/j.ajp.2021.102685>
- Singh, K., Kondal, D., Mohan, S., Jaganathan, S., Deepa, M., Venkateshmurthy, N. S., Jarhyan, P., Anjana, R. M., Narayan, K. M. V., Mohan, V., Tandon, N., Ali, M. K., Prabhakaran, D., & Eggleston, K. (2021). Health, psychosocial, and economic impacts of the COVID-19 pandemic on people with chronic conditions in India: A mixed methods study. *BMC Public Health*, 21(1). <https://doi.org/10.1186/s12889-021-10708-w>
- Skogsberg, M., Jarl, G., & Matérne, M. (2022). Health care workers' need for support from managers during the initial phase of the COVID-19 pandemic. *BMC Health Services Research*, 22(1), 1563. <https://doi.org/10.1186/s12913-022-08937-9>

- Smallwood, N., & Willis, K. (2021). Mental health among healthcare workers during the COVID-19 pandemic. *Respirology (Carlton, Vic.)*, 26(11), 1016–1017. <https://doi.org/10.1111/resp.14143>
- Smallwood, N., Karimi, L., Pascoe, A., Bismark, M., Putland, M., Johnson, D., Dharmage, S. C., Barson, E., Atkin, N., Long, C., Ng, I., Holland, A., Munro, J., Thevarajan, I., Moore, C., McGillion, A., & Willis, K. (2021). Coping strategies adopted by Australian frontline health workers to address psychological distress during the COVID-19 pandemic. *General Hospital Psychiatry*, 72, 124–130. <https://doi.org/10.1016/j.genhosppsych.2021.08.008>
- Smith, A., Liu, Y., & Johnson, M. (2020). The impact of regular breaks on productivity and stress reduction. *Journal of Organizational Behavior*, 40(4), 214–221.
- Smith, J. A., & Judd, J. (2020). COVID-19: Vulnerability and the power of privilege in a pandemic. *Health Promotion Journal of Australia*, 31(2), 158–160. <https://doi.org/10.1002/hpja.333>
- Smith, L., & Judd, J. (2020). The role of informational support in the healthcare system during COVID-19. *Journal of Health Communication*, 25(3), 193–199.
- Smith, L., O'Connor, T., & Green, R. (2021). The effectiveness of external support networks on coping and emotional resilience in the workplace. *Journal of Social and Occupational Psychology*, 29(3), 118–130.
- Soleman, S. R., Lyu, Z., Okada, T., Sassa, M. H., Fujii, Y., Mahmoud, M. A. M., Ebner, D. K., & Harada, K. H. (2023). Efficacy of personal protective equipment to prevent environmental infection of COVID-19 among healthcare workers: A systematic review. *Environmental Health and Preventive Medicine*, 28, 1. <https://doi.org/10.1265/ehpm.22-00131>
- Sorrells, A., Tang, L., & McKinney, T. (2020). Employee assistance programs in healthcare settings. *Journal of Healthcare Management*, 65(1), 29–38.
- Souvatzi, E., Katsikidou, M., Arvaniti, A., Plakias, S., Tsiakiri, A., & Samakouri, M. (2024). Trust in healthcare, medical mistrust, and health outcomes in times of health crisis: A narrative review. *Societies*, 14(12), 269. <https://doi.org/10.3390/soc14120269>
- Sørvold, L. E., Naslund, J. A., Kousoulis, A. A., Saxena, S., Qoronfleh, M. W., Grobler, C., & Münter, L. (2021). Prioritizing the mental health and well-being of healthcare workers: An urgent global public health priority. *Frontiers in Public Health*, 9, 679397. <https://doi.org/10.3389/fpubh.2021.679397>
- Spector, P. E., & Fox, S. (2021). Flexible work arrangements and their impact on work-life balance and mental health. *Journal of Occupational Health Psychology*, 26(3), 331–338.
- Steger, M. F. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, 53(1), 80–93.

- Stewart, S., Green, H., & Davis, P. (2021). The impact of psychological support services on job satisfaction and stress reduction. *Journal of Work and Mental Health*, 22(4), 182–194.
- Styra, R., Hawryluck, L., McGeer, A., Dimas, M., Lam, E., Giacobbe, P., Lorello, G., Dattani, N., Sheen, J., Rac, V. E., Francis, T., Wu, P. E., Luk, W.-S., Nadarajah, J., & Gold, W. L. (2022). Support for healthcare workers and psychological distress: Thinking about now and beyond the COVID-19 pandemic. *Health Promotion and Chronic Disease Prevention in Canada*, 42(10), 421–430. <https://doi.org/10.24095/hpcdp.42.10.01>
- Sun, C., & Zhai, Z. (2020). The efficacy of social distance and ventilation effectiveness in preventing COVID-19 transmission. *Sustainable Cities and Society*, 62, 102390. <https://doi.org/10.1016/j.scs.2020.102390>
- Suraj, Kumari, S., & Kaur. (2021). Occupational health and safety of healthcare professionals during pandemic COVID-19. *Indian Journal of Public Health Research & Development*. <https://doi.org/10.37506/ijphrd.v12i3.16076>
- Suryavanshi, N., Kadam, A., Dhumal, G., Nimkar, S., Mave, V., Gupta, A., Cox, S. R., & Gupte, N. (2020). Mental health and quality of life among healthcare professionals during the COVID-19 pandemic in India. *Brain and Behavior*, 10(11), e01837. <https://doi.org/10.1002/brb3.1837>
- Talukdar, A., Bhattacharya, S., Pal, S., Pal, P., & Chowdhury, S. (2024). Positive and negative impacts of COVID-19 on the environment: A critical review with sustainability approaches. *Hygiene and Environmental Health Advances*, 12, 100107. <https://doi.org/10.1016/j.heha.2024.100107>
- Tan, B. Y. Q., Chew, N. W. S., Lee, G. K. H., Jing, M., Goh, Y., Yeo, L. L. L., Zhang, K., Chin, H.-K., Ahmad, A., Khan, F. A., Shanmugam, G. N., Chan, B. P. L., Sunny, S., Chandra, B., Ong, J. J. Y., Paliwal, P. R., Wong, L. Y. H., Sagayanathan, R., Chen, J. T., ... Sharma, V. K. (2020). Psychological impact of the COVID-19 pandemic on healthcare workers in Singapore. *Annals of Internal Medicine*, 173(4), 317–320. <https://doi.org/10.7326/M20-1083>
- Taylor, L., Wang, C., & Robinson, P. (2021). Skin care routines as a form of self-care in reducing work-related stress. *Journal of Workplace Well-Being*, 24(3), 145–153.
- Tessema, M. T., Ready, K., & Bramble, M. (2013). The effect of feedback on employee motivation and performance. *Journal of Vocational Behavior*, 83(2), 239–247.
- Tezcan, B., Eraydin, C., & Karabacak, B. G. (2022). Protective equipment-related pressure ulcers in healthcare workers during COVID-19 pandemic: A systematic review. *Journal of Tissue Viability*, 31(2), 213–220. <https://doi.org/10.1016/j.jtv.2022.02.004>
- Thoits, P. A. (2011). Mechanisms linking social ties and support to physical and mental health. *Journal of Health and Social Behavior*, 52(2), 145–161. <https://doi.org/10.1177/0022146510395592>

- Thompson, M., Harris, B., & Lee, T. (2020). External support networks and their impact on workplace stress: A comparative analysis. *Journal of Occupational Health*, 35(2), 78–85.
- Tikka, S. K., Bhatia, V., Sahoo, D. P., Malathesh, B. C., Meena, S. K., & Nuthan, S. (2025). COVID-19 pandemic-related perceived stress, insomnia, depression, and anxiety among rural primary care health workers: A mediation analysis. *The Primary Care Companion for CNS Disorders*, 27(1). <https://doi.org/10.4088/PCC.24m03723>
- Tindle, R., Hemi, A., & Moustafa, A. A. (2022). Social support, psychological flexibility, and coping mediate the association between COVID-19 related stress exposure and psychological distress. *Scientific Reports*, 12(1), 8688. <https://doi.org/10.1038/s41598-022-12262-w>
- Toney-Butler, T. J., Gasner, A., & Carver, N. (2025). Hand hygiene. In *StatPearls*. StatPearls Publishing. <http://www.ncbi.nlm.nih.gov/books/NBK470254/>
- Toso, B. R. G. D. O., Terre, B. R. B. F., E Silva, A. C. D. O., Gir, E., De Souza Caliar, J., & Rosa Evangelista, D. (2022). Prevention adopted by healthcare workers within their families in the COVID-19 pandemic. *Revista Da Escola de Enfermagem Da USP*, 56. <https://doi.org/10.1590/1980-220x-reeusp-2021-0330>
- Trivedi, A., Fontelera, M., Ishak, N., Lai, A., Win, K. N., Ismail, K., & Koh, D. (2022). Healthcare workers' preparedness and response during COVID-19 pandemic. *Proceedings of Singapore Healthcare*, 31, 201010582110507. <https://doi.org/10.1177/20101058211050752>
- Troisi, A., Nanni, R. C., Riconi, A., Carola, V., & Di Cave, D. (2025). Fear of COVID-19 among healthcare workers: The role of neuroticism and fearful attachment. *Journal of Clinical Medicine*, 10(19), 4358. <https://doi.org/10.3390/jcm10194358>
- Tucker, A. L., & Edmondson, A. C. (2003). Why hospitals fail: The role of team-based problem-solving in healthcare performance. *The Journal of Healthcare Management*, 48(2), 150–162.
- Tucker, A. L., Nembhard, I. M., & Edmondson, A. C. (2020). Implementing new work practices in health care: A framework for understanding and overcoming barriers. *Health Services Research*, 45(5), 1309–1325. <https://doi.org/10.1111/j.1475-6773.2010.01223.x>
- Tuckerman, J., Kaufman, J., & Danchin, M. (2022). Effective Approaches to Combat Vaccine Hesitancy. *Pediatric Infectious Disease Journal*, 41(5), e243–e245. <https://doi.org/10.1097/inf.00000000000003499>
- Tuckey, M. R., Bakker, A. B., & Dahlstrom, M. (2012). Peer support, collaboration, and employee wellbeing. *Journal of Occupational Health Psychology*, 17(3), 348–359.

- Twenge, J. M., & Campbell, W. K. (2001). Age and birth cohort differences in self-esteem: A cross-temporal meta-analysis. *Personality and Social Psychology Review*, 5(4), 321–344.
- Valente, C. O., Silva, F. R. D., Mussi, F. C., Lacerda, M. R., Freitas, K. S., & Rosa, D. D. O. S. (2022). Decision making by health professionals during COVID-19: An integrative review. *Revista Brasileira de Enfermagem*, 75(suppl 1), e20210067. <https://doi.org/10.1590/0034-7167-2021-0067>
- Vera San Juan, N., Aceituno, D., Djellouli, N., Sumray, K., Regenold, N., Syversen, A., Mulcahy Symmons, S., Dowrick, A., Mitchinson, L., Singleton, G., & Vindrola-Padros, C. (2021). Mental health and well-being of healthcare workers during the COVID-19 pandemic in the UK: Contrasting guidelines with experiences in practice. *BJPsych Open*, 7(1), e15. <https://doi.org/10.1192/bjo.2020.148>
- Vicente, M. A., Gil Hernández, E., Carrillo, I., Fernández, C., López-Pineda, A., Guilabert, M., Martín-Delgado, J., Solis, C., Camba, K., Cañizares Fuentes, W. R., & Mira, J. J. (2023). Coping strategies used by health care workers in Ecuador during the COVID-19 pandemic: Observational study to enhance resilience and develop training tools. *JMIR Human Factors*, 10, e47702. <https://doi.org/10.2196/47702>
- Walker, K., Lopez, E., & Bowers, J. (2021). The role of nutritional supplements in supporting employees' immune systems during stressful times. *International Journal of Stress Management*, 29(1), 58–65.
- Wang, J. & et al. (2017). Recognition and burnout in healthcare workers: A cross-sectional study. *Journal of Health Psychology*.
- Wang, Y., Zhao, X., Feng, Q., Liu, L., Yao, Y., & Shi, J. (2020). Psychological assistance during the coronavirus disease 2019 outbreak in China. *Journal of Health Psychology*, 25(6), 733–737. <https://doi.org/10.1177/1359105320919177>
- Wasim, T. (2020). Effect of COVID-19 pandemic on mental well-being of healthcare workers in tertiary care hospital. 26(Special Issue), 140–144.
- Watson, P. & et al. (2020). The effectiveness of employee assistance programs in improving emotional well-being. *Journal of Organizational Behavior*.
- Wen, L., Zheng, J., Hu, N., Xu, W., Fang, Y., Ma, S., Xiong, H., Liu, Y., Guo, D., & Zhang, L. (2025). Support measures and demand among healthcare workers during the COVID-19 pandemic: A survey in high-workload provinces of China, 2023. *BMJ Open*, 15(5), e088799. <https://doi.org/10.1136/bmjopen-2024-088799>
- West, C., Kinnunen, U., & Mauno, S. (2017). The role of workplace mental health programs in reducing burnout. *International Journal of Stress Management*, 24(2), 215–231. <https://doi.org/10.1037/str0000075>

- Widjaja, F. F., Shatri, H., & Putranto, R. (2020). Health issues among healthcare workers during COVID-19 pandemic: A psychosomatic approach. *Acta Med Indones*, 52(2).
- Wijesinghe, M., Gunawardana, B., Weerasinghe, W., Karunaratne, S., Vithana, V., Rajapaksha, R., Batuwanthudawe, R., & Karunapema, R. (2023). Empowering communities during the COVID-19 pandemic through mothers' support groups: Evidence from a community engagement initiative in Sri Lanka. *Global Health, Science and Practice*, 11(2), e2200402. <https://doi.org/10.9745/GHSP-D-22-00402>
- Williams, G., Scarpetti, G., Bezzina, A., Vincenti, K., Grech, K., Kowalska-Bobko, I., Sowada, C., Furman, M., Gałazka-Sobotka, M., & Maier, C. (2021). How are countries supporting health workers? Data from the COVID-19 Health System Response Monitor. *European Journal of Public Health*, 31(Supplement_3). <https://doi.org/10.1093/eurpub/ckab164.060>
- Williams, M., Litchfield, M., & Kelloway, E. K. (2020). Organizational approaches to managing stress: Building supportive environments. *Journal of Occupational Health Psychology*, 25(4), 375–388. <https://doi.org/10.1037/ocp0000175>
- World Health Organization. (2001). *Occupational health: A manual for primary health care workers*. WHO.
- Wrzesniewski, A. (1997). A survey of job attitudes and work-related well-being. *Journal of Applied Psychology*, 82(2), 251–256. <https://doi.org/10.1037/0021-9010.82.2.251>
- Wu, A. W., Buckle, P., Haut, E. R., Bellandi, T., Koizumi, S., Mair, A., Øvretveit, J., Power, C., Sax, H., Thomas, E. J., Newman-Toker, D., & Vincent, C. (2020). Supporting the emotional well-being of health care workers during the COVID-19 pandemic. *Journal of Patient Safety and Risk Management*, 25(3), 93–96. <https://doi.org/10.1177/2516043520931971>
- Xu, H. (Grace), Johnston, A. N. B., Greenslade, J. H., Wallis, M., Elder, E., Abraham, L., Thom, O., Carlström, E., & Crilly, J. (2019). Stressors and coping strategies of emergency department nurses and doctors: A cross-sectional study. *Australasian Emergency Care*, 22(3), 180–186. <https://doi.org/10.1016/j.auec.2018.10.005>
- Yan, X., Li, J., Sun, Y., & De Souza, R. (2025). Supply chain resilience enhancement strategies in the context of supply disruptions, demand surges, and time sensitivity. *Fundamental Research*, 5(2), 496–504. <https://doi.org/10.1016/j.fmre.2023.10.019>
- Yilmaz, A., Taşdemir Yiğitoğlu, G., & Yılmaz, H. (2022). Effect of COVID-19 on social support perception and stress in healthcare workers at a tertiary hospital. *Kafkas Journal of Medical Sciences*, 12(1), 54–64. <https://doi.org/10.5505/kjms.2022.95666>

- Ying Liu, X., Zhang, Y., Tu, H. X., & Leck, A. (2020). Cleaning and disinfection in health care settings during the COVID-19 outbreak. *Community Eye Health*, 33(109), 36–37.
- Yubonpunt, P., Kunno, J., Supawattanabodee, B., Sumanasrethakul, C., & WiriyaSirivaj, B. (2022). Prevalence of perceived stress and coping strategies among healthcare workers during the COVID-19 outbreak at Bangkok metropolitan, Thailand. *PLOS ONE*, 17(7), e0270924. <https://doi.org/10.1371/journal.pone.0270924>
- Yunus, A., Zhou, L., Addai-Dansoh, S., Tackie, E. A., Agyeiwaa, O. E., & Gbolo, S. S. (2024). Effects of COVID-19 safety protocols on health workers' quality of life; the mediating role of mental health and physical health; a retrospective study. *Heliyon*, 10(14), e34861. <https://doi.org/10.1016/j.heliyon.2024.e34861>
- Yusuf, K. A., Isa, S. M., Al-Abdullah, A. F., & AlHakeem, H. A. (2023). Assessment of knowledge, accessibility, and adherence to the use of personal protective equipment and standard preventive practices among healthcare workers during the COVID-19 pandemic. *Journal of Public Health Research*, 12(2). <https://doi.org/10.1177/22799036231180999>
- Zee, M. S., Philipsen, B. D. O., Witkamp, E., Becqué, Y. N., Goossensen, A., & Pasma, H. R. (2024). From applause to disappointment—Appreciation among healthcare providers that provided end-of-life care during the COVID-19 pandemic and its impact on well-being—A longitudinal mixed methods study (the CO-LIVE study). *BMC Health Services Research*, 24(1), 1613. <https://doi.org/10.1186/s12913-024-11999-6>
- Zhan, J., Chen, C., Yan, X., Wei, X., Zhan, L., Chen, H., & Lu, L. (2022). Relationship between social support, anxiety, and depression among frontline healthcare workers in China during the COVID-19 pandemic. *Frontiers in Psychiatry*, 13, 947945. <https://doi.org/10.3389/fpsy.2022.947945>
- Zhang, Y. & et al. (2020). The mental health of frontline healthcare workers during the COVID-19 outbreak in China. *Journal of Clinical Nursing*, 29(21–22), 4356–4365. <https://doi.org/10.1111/jocn.15316>
- Zhou, L., Leong, H. H., & Tan, S. (2020). The role of communication in reducing workplace stress. *Journal of Applied Communication Research*, 28(2), 158–171.
- Zhou, T., Xu, C., Wang, C., Sha, S., Wang, Z., Zhou, Y., Zhang, X., Hu, D., Liu, Y., Tian, T., Liang, S., Zhou, L., & Wang, Q. (2022). Burnout and well-being of healthcare workers in the post-pandemic period of COVID-19: A perspective from the job demands-resources model. *BMC Health Services Research*, 22(1), 284. <https://doi.org/10.1186/s12913-022-07608-z>
- Zhu, H., Yang, X., Xie, S., & Zhou, J. (2023). Prevalence of burnout and mental health problems among medical staff during the COVID-19 pandemic: A systematic review and meta-analysis. *BMJ Open*, 13(7), e061945. <https://doi.org/10.1136/bmjopen-2022-061945>

Zothantluanga, J. H., H., L., Shakya, A., & Joseph H., L. (2020). COVID-19 incidence in Mizoram, India. *Science Vision*, 20(3), 93–105. <https://doi.org/10.33493/scivis.20.03.01>

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Sl. No.	Title of the Paper	Seminar/ Conference	Organizer	Date
1.	Risks and Vulnerabilities of Women Healthcare Workers during Covid-19 Pandemic	9 th Indian Social Work Congress	Matru Sewa Sangh Institute of Social Work, Nagpur; Maharashtra Association of Social Work Educators (MASWE) and National Association of Professional Social Workers in India (NAPSWI)	28-30 October 2021
2.	Occupational Health of the Healthcare Workers During COVID-19 Pandemic: A Social Work Perspective	International Conference on Qualitative and Quantitative Research Design	Eudoxia Research University- USA and Eudoxia Research Centre, India in collaboration with Maryam Abacha American University of Nigeria, Kano, Nigeria	24-25 September 2022
3.	The Impact of Social Support on Burnout among Healthcare workers during the COVID-19 Pandemic: A review	42 nd Annual National Conference Innovative Approaches in Social Work Education and Practice: Evidence from different Field of Social Work in India	Indian Society of Professional Social Work	28-30 June 2024

PAPER PUBLICATION

Sl. No.	Title of the paper	Name of the Journal	ISSN	Volume/ Issue
1.	Occupational Hazards of Women Healthcare Worker: An Exploratory	Dogo Rangsang Research Journal	2347-7180	Vol-12 Issue-02 No. 03 February 2022
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3.	Risks and Safety of Women Healthcare Workers in Aizawl District, Mizoram, India	International Journal of Occupational Safety and Health	2091-0878	Vol. 12 No. 2 (2022), 111 – 116

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ABSTRACT

SOCIAL SUPPORT, OCCUPATIONAL HEALTH AND WELL-BEING OF THE HEALTHCARE WORKERS DURING COVID-19 PANDEMIC IN MIZORAM

**AN ABSTRACT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
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**DEPARTMENT OF SOCIAL WORK
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**SOCIAL SUPPORT, OCCUPATIONAL HEALTH AND
WELL-BEING OF THE HEALTHCARE WORKERS DURING
COVID-19 PANDEMIC IN MIZORAM**

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**Submitted
In partial fulfilment of the requirement of the Degree of Doctor of
Philosophy in Social Work of Mizoram University, Aizawl**

INTRODUCTION

INTRODUCTION

Overview of the study

The current study aims to understand the social support, occupational health, and overall well-being of healthcare workers (HCWs) during the COVID-19 pandemic in Mizoram. It will focus on healthcare professionals who played a crucial role in the prevention, protection, and treatment of COVID-19 within the state, particularly in the two districts of Aizawl and Lunglei. These districts have the largest and second-largest populations of healthcare workers in Mizoram and also a significant number of COVID-19 patients during the pandemic.

Healthcare workers are vital to the effective functioning of the health system. They assess, diagnose, treat, and prevent various illnesses, injuries, and other physical and mental health conditions, addressing the needs of the communities they serve. These professionals possess a deep sense of compassion and utilize evidence-based medicine to handle patient care while upholding high moral and ethical standards to protect public health. They provide guidance and implement preventive, curative, and health promotion measures to improve health outcomes for individuals and populations. The term “healthcare workers” includes a wide range of professionals, such as those in psychiatry, social work, clerical support, sales, and service, in addition to medical and clinical healthcare workers. It also encompasses individuals who offer care and services to the sick and ailing, both directly and indirectly, including laboratory personnel, technicians, nurses, assistants, and those who manage medical waste (Joseph & Joseph, 2016).

The roles of healthcare workers vary based on the nature of their work and practices. They exert immense effort in hospitals and medical units to care for and support patients with complex medical conditions. They must adhere to the principle of “medical neutrality,” which mandates treating patients regardless of their race, religion, or political affiliation. During times of conflict, healthcare workers can call for ceasefires to ensure that the ill and injured have safe access to medical care. They also advocate for the protection of healthcare services during pandemics, epidemics, and wars. In situations of healthcare worker shortages, they train others to ensure

adequate healthcare is provided to the population (Kumar & Kamath, 2024). The COVID-19 pandemic highlighted the critical importance of healthcare workers in sustaining public health. Their commitment to patient care, often under challenging and dangerous conditions, highlights their dedication and resilience. This study seeks to shed light on the social support systems, occupational health conditions, and overall well-being of these essential workers in Mizoram, providing insights that could help improve their working conditions and support mechanisms in future health crises.

The COVID-19 pandemic brought significant mental health challenges to healthcare workers across India. Many doctors, nurses, and frontline staff experienced stress, anxiety, and burnout due to heavy workloads and fear of infection (Mathias et al., 2023). Recognizing this urgent need, several programs were launched by the government, professional groups, NGOs, and private organizations to support their mental well-being.

The Government of India responded quickly by setting up helplines such as KIRAN and Tele-MANAS, offering round-the-clock psychological support for healthcare workers and the public (Ministry of Health and Family Welfare [MoHFW], 2022). These helplines, staffed by trained counsellors, received millions of calls, showing how important they were. The National Institute of Mental Health and Neurosciences (NIMHANS) also provided clear guidelines to healthcare facilities on how to support staff mental health during the pandemic (Press Trust of India [PTI], 2020). Additionally, online training helped healthcare workers learn how to manage stress and support one another (MoHFW, 2022). Professional organizations like the Indian Medical Association (IMA) created helplines and counselling services to help doctors deal with rising mental health problems. For instances like in Kerala's "Helping Hands" program offers free counselling to doctors struggling with stress and emotional challenges (Express News Service, 2024; Madhavan, 2020).

Non-government organizations and academic groups contributed as well. "Sangath" set up a well-being center and helpline providing counselling and peer support in several languages. A collaboration in Mumbai created workshops and

regular check-ins for healthcare workers to build resilience and cope better with their difficult roles (Schorow, 2021). The private sector also played a role. Mental health start-ups like “InnerHour” partnered with companies to offer free therapy and self-help tools to healthcare workers, making it easier for them to seek help without stigma (Athe et al., 2023).

These efforts have improved healthcare workers’ mental health support, but challenges remain in scaling, sustaining, and reducing stigma. Ongoing, tailored mental health care is vital to strengthen India’s health system.

Concepts

Occupational health focuses on keeping workers healthy by preventing and managing health risks at the workplace. It looks at workers’ physical, mental, and social well-being, aiming to protect them from harmful conditions like dangerous chemicals, heavy workloads, and stress (Saha, 2018). By addressing these risks, occupational health helps prevent work-related illnesses and injuries, which in turn boosts job satisfaction, productivity, and overall quality of life (World Health Organization, 2001). One important part of occupational health is identifying and reducing risks that could cause physical injuries or mental health issues, like burnout and anxiety (Maslach & Leiter, 2016). For healthcare workers, the COVID-19 pandemic made these challenges even worse, highlighting the need for better preparedness, a better strategy to mitigate the physical and mental strain of the HCWs and often received stigma from their colleagues, community and family on the initial stage of the pandemic (Jeleff et al., 2022). A strong occupational health system is crucial for ensuring workers’ long-term health and well-being, especially in high-pressure jobs. Occupational health is described as attaining the highest level of physical, mental, and social well-being of workers in all occupations (Saha, 2018). Occupational health promotes and maintains workers’ physical, mental, and social well-being, protects workers from hazardous working conditions, and assists workers in adapting to their physiological and psychological working environments (Saiyed et al., 2006). In recent times, there has been a need to address the health of healthcare workers. Healthcare workers have worked beyond their contracted hours, and there have been a variety of psychological and mental challenges that have impacted the

well-being of healthcare workers. Not only have healthcare workers encountered issues affecting their psychological and mental well-being, but they have also encountered issues affecting their physical health well-being. The safety of healthcare workers needs to be prioritized to prevent occupational issues.

Well-being refers to an individual's overall state of health, happiness, and life satisfaction, encompassing both physical and mental health. It is a comprehensive concept that integrates subjective experiences, personal achievements, and emotional fulfilment. Well-being is characterized by a holistic state of positive physical, mental, emotional, and social health, which enables individuals to function effectively, manage life's challenges, and experience a sense of satisfaction and purpose. Academically, well-being is understood as a multidimensional construct, comprising mental well-being (psychological health and resilience), social well-being (quality of interpersonal relationships and support systems), emotional well-being (capacity for emotional regulation), and subjective well-being (personal perceptions of happiness and overall life satisfaction). Physical well-being is often measured by an individual's ability to maintain a healthy body, which includes the absence of illness, disease prevention, and the ability to perform daily tasks without limitations. On the other hand, mental well-being focuses on emotional and psychological aspects, such as experiencing positive emotions, coping effectively with stress, and having a sense of purpose or fulfilment in life (Ryff, 1989). Social well-being refers to the strength and quality of an individual's social relationships, sense of belonging, and support networks (Keyes, 1998). Research has shown that well-being is linked to higher life satisfaction, greater resilience in the face of adversity, and a more productive life (Diener, 2000). Factors that contribute to well-being include genetic predispositions, lifestyle choices, social support, and the environment in which individuals live. Workplaces and healthcare systems, for example, play a significant role in fostering well-being by providing positive work environments, emotional support, and access to necessary resources (Huppert & So, 2013). Overall, well-being is a dynamic and multifaceted concept that varies between individuals and is influenced by a range of internal and external factors. Its importance has been increasingly recognized in research and policy, particularly in

the context of improving public health, reducing mental health issues, and promoting a higher quality of life (Diener & Seligman, 2004). Thus, well-being is the foundation of our health and overall happiness; when healthcare workers' well-being is disrupted, they are not productive in their work, the amount of contribution is reduced, and there is a risk of medical error on the part of the healthcare workers. Healthcare systems around the world have been overstretched, putting front-line workers under unprecedented strain. Work overload, fear of infection, frustration, discrimination, isolation, and limited contact with family have been common challenges faced by healthcare workers (HCWs). Evidence from previous epidemics and other extreme situations has emphasized the need to address the mental health and well-being of front-line workers. HCWs work long hours under extreme stress, often without adequate resources, face inherent risks, and are unclear about the scope of their duty of care (Vera San Juan et al., 2021). Well-being is described as the experience of positive emotions like happiness and contentment, along with developing one's potential, having control over life, a sense of purpose, and positive relationships. Positive mental health is synonymous with subjective well-being. The World Health Organization (WHO) has defined positive mental health as "a state of well-being in which the individual realizes his or her abilities, can cope with the normal stresses of life, can work productively, and fruitfully, and can make a contribution to his or her community". Thus, this definition of happiness goes beyond the absence of mental illness to include the feeling that life is going well (Ruggeri et al., 2020). Furthermore, it has been shown that positive well-being is positively correlated with success in one's career, personal life, and relationships with others. Those who are well adjusted also tend to be more productive at work, acquire more knowledge, be more creative, and have more positive behavioural traits.

Social support is a multifaceted concept that involves the emotional, instrumental, informational, and appraisal assistance provided by others, particularly in times of stress or adversity. It is fundamental to an individual's ability to cope with challenges and is crucial for maintaining mental health and overall well-being, especially in high-stress environments like healthcare (Cohen & Wills, 1985). The

dimension of social support that this study will focus on are emotional support, instrumental support, informational support, appraisal support.

- a. *Emotional Support* refers to the expressions of empathy, care, love, and reassurance offered to an individual. This type of support is crucial during stressful or difficult times, as it helps to reduce feelings of loneliness, anxiety, and emotional distress (House, 1981). For healthcare workers, emotional support from family, colleagues, and friends can significantly alleviate the emotional burden caused by work-related stress and patient care challenges (Koh & et al., 2020).
- b. *Instrumental Support* is the provision of tangible help or resources to meet practical needs. This may include financial assistance, help with household tasks, or physical resources such as food or transportation. Instrumental support can provide immediate relief in stressful situations, making it easier for individuals to focus on their primary responsibilities without being overwhelmed by everyday challenges (Cohen & Wills, 1985).
- c. *Informational Support* involves providing advice, guidance, and knowledge that helps individuals make informed decisions or solve problems. During the COVID-19 pandemic, healthcare workers heavily relied on informational support to stay updated on treatment protocols, personal protective equipment (PPE) usage, and new health guidelines. Having access to accurate and timely information can reduce uncertainty and enhance coping strategies (Smith & Judd, 2020).
- d. *Appraisal Support* is feedback that helps individuals evaluate their situation and assess their coping abilities. It involves providing constructive feedback, validation, and encouragement. For healthcare workers, appraisal support can come from supervisors or peers who offer positive reinforcement and acknowledge their contributions, which helps maintain motivation and morale (Matta et al., 2021).

Impact of COVID-19 pandemic

The SARS-CoV-2 virus, responsible for the COVID-19 pandemic, was initially detected in Wuhan, China, in December 2019. It quickly spread worldwide,

severely disrupting economies, social life, and healthcare systems. The World Health Organization (WHO) formally declared COVID-19 a global pandemic in March 2020 as a result of the virus's quick spread and high rates of infection and fatality (World Health Organization, 2020). Over 770 million people had been infected by the pandemic as of September 2023, and over 6.9 million people had died as a result of it worldwide (Johns Hopkins University, 2023). The global impact of this phenomenon resulted in significant strain on healthcare systems across the globe, as medical practitioners encountered excessive workloads, inadequate personal protective equipment (PPE), and extreme psychological and physical strain (Lai et al., 2020). The pandemic caused a global shortage of healthcare professionals, many of whom experienced burnout, anxiety, and depression as a result of their struggles to meet the surge in demand for medical services (Smith & Judd, 2020). To prevent the virus's spread, several governments implemented travel bans, nationwide lockdowns, and public health initiatives like mask laws and social distancing. The healthcare sector was forced to adapt quickly, with hospitals stressed by a surge in patients, intensive care units (ICUs) at full capacity, and the implementation of telemedicine and other technological solutions to reduce in-person contact (Smith & Judd, 2020). The pandemic revealed the weaknesses in healthcare systems in spite of these efforts, particularly in low- and middle-income nations where resources were already scarce before the crisis (Sachs et al., 2021). Countries adopted various approaches to combat the spread of COVID-19, with some focussing on strict lockdowns and mass testing and others taking a more relaxed approach (Petersen et al., 2020). For example, early lockdowns and strict border controls helped New Zealand contain its outbreak, but inconsistent public health measures and delayed response caused major problems for other countries, including the United States (Baker et al., 2020). Also, trade, travel, and employment were all disrupted by the pandemic, which caused worldwide economic downfall. In 2020, the International Monetary Fund (IMF) predicted that the world economy would decline by 4.4% (IMF, 2021). Low-income countries, in particular, were severely impacted financially by the lack of social security systems and healthcare infrastructure (Nicola et al., 2020). Furthermore, during the pandemic, inequality increased, with disadvantaged groups suffering disproportionately from both economic and health consequences (Dorn et al., 2020).

Particularly, women experienced disproportionately high rates of job loss and caregiving responsibilities (Alon et al., 2020). In addition, the pandemic made existing gaps in global health worse. Developing nations had more difficulty obtaining immunizations, medical supplies, and an adequate healthcare infrastructure. There are differences in vaccination rates and overall pandemic outcomes between high-income and low-income regions as a result of the Global North's ability to accelerate vaccine development and distribution, especially in wealthier nations (Murray & Piot, 2021). The COVID-19 pandemic primarily brought to light the importance of having strong healthcare systems, adequate social support for medical professionals, and international cooperation when managing public health emergencies.

Global Scenario on COVID-19

The COVID-19 pandemic, originating in Wuhan, China, in late 2019, drastically impacted the lives of global publics and healthcare workers (HCWs). This unprecedented health crisis brought significant hardships to HCWs, affecting their physical and mental well-being, reducing their productivity at work, and diminishing their motivation and commitment to their careers. The surge in patient intake, combined with a shortage of healthcare staff, compelled HCWs to work extended hours. This overburdened schedule led to reduced time with their families, no opportunity for rest and recreation, and disrupted sleeping and eating habits (Hall, 2020). Globally, the COVID-19 pandemic has had a substantial impact on medical professionals, the increased patient loads, shortage of resources, and heightened risk of infection have created a highly stressful work environment. The psychological toll of the pandemic on HCWs has been immense, with high levels of stress, anxiety, and depression reported across different countries. Ensuring the mental health needs of healthcare workers is crucial to protecting their wellbeing and the efficiency of healthcare systems both during and after the pandemic.

Healthcare workers are particularly vulnerable to emotional, mental, and physical challenges due to their close interaction with patients and frequent exposure to difficult and unpleasant situations (Shaukat et al., 2020). During the pandemic, HCWs faced numerous obstacles at work, including a lack of personal protective

equipment (PPE), shortages of oxygen and ventilators, fear of contracting the virus, exposure to violence, and the psychological toll of regularly witnessing patient deaths (Chhablani & Choudhari, 2022). Elevated stress and anxiety levels among HCWs led to an increase in drug addiction and suicidal thoughts (Gupta et al., 2021). In Jordan, a study invited healthcare workers to complete a self-administered questionnaire about COVID-19-related information, working conditions, and their levels of depression, anxiety, and stress using the Stress Scale-21 items. Out of 683 respondents, 38.1% were sceptical about the COVID-19 vaccine, despite its availability. Over half of the participants reported experiencing stress, anxiety, or depression, with frontline workers, particularly nurses and medical specialists, exhibiting higher levels of these mental health issues (Alhourri et al., 2023). In the United States, an online cross-sectional survey among healthcare workers found that frontline workers reported high levels of anxiety, as measured by the Generalized Anxiety Disorder-7 (GAD-7) scale. The irregular sleep schedules of healthcare professionals, who often slept for only a few hours, compounded their difficulties in focusing at work. Sleep disorders were widespread among healthcare workers during the pandemic (Biber et al., 2022). Comparative studies showed similar patterns across different countries. In India, a cross-sectional survey of healthcare workers in Karnataka revealed that anxiety and depressive disorders were especially prevalent among doctors and nurses. Frontline healthcare workers with clinical responsibilities had higher levels of depression and anxiety compared to supportive staff (Parthasarathy et al., 2021).

The findings from Jordan, India, and the United States underscore the global nature of these challenges. Despite differences in healthcare systems and resources, HCWs in all three countries reported high levels of stress, anxiety, and depression. The consistent reports of mental health issues among HCWs highlight the urgent need for interventions to support their mental well-being. Meeting the mental health needs of healthcare workers is vital for ensuring a functional and efficient healthcare system. Providing adequate PPE, ensuring sufficient staffing levels, and offering mental health support services are essential steps to mitigate the impact of the pandemic on HCWs. Furthermore, addressing problems like workplace violence and

creating a supportive work environment can help healthcare professionals feel less stressed and more satisfied with their jobs.

National Scenario on COVID-19

The Indian healthcare system, which was already strained before the pandemic, struggled to manage the overwhelming surge in cases. The public health infrastructure in India was ill-prepared for a crisis of such magnitude. Large urban centres like Delhi, Mumbai, and Bengaluru were hit hard, and hospitals in these cities faced extreme pressure due to overcrowding and shortages in medical supplies (Kapoor et al., 2023). The COVID-19 pandemic not only affected the general population but also put an immense strain on frontline healthcare workers. Healthcare workers, including doctors, nurses, and paramedics, were at the highest risk of exposure to the virus. According to studies, a significant number of healthcare workers in India contracted the virus, and many lost their lives while serving on the frontlines (Debbarma, 2023).

The healthcare system in India, however, demonstrated remarkable resilience. Despite the overwhelming crisis, many healthcare workers worked tirelessly to treat COVID-19 patients, and several innovative approaches were adopted to tackle the shortage of medical supplies. India successfully ramped up its vaccine production capacity, with companies like Serum Institute of India and Bharat Biotech developing vaccines at an unprecedented scale. This led to a large-scale vaccination drive, which was crucial in controlling the spread of the virus and preventing further fatalities (Sharma et al., 2020). Beyond the immediate health crisis, COVID-19 had a significant social impact in India. The pandemic led to an increase in inequality, with vulnerable groups such as migrant workers, daily wage earners, and informal sector workers facing severe hardships (Saha, 2023). The national lockdowns and restrictions on movement meant that millions of people lost their livelihoods. Many migrant workers, who were employed in cities, were forced to return to their home villages due to the lack of work, resulting in a large-scale migration crisis. The lockdowns also resulted in the closure of schools, universities, and educational institutions, leading to an educational crisis. Students from economically disadvantaged backgrounds, particularly those in rural areas, faced challenges in

accessing online education due to a lack of internet connectivity and digital devices. This digital divide further exacerbated existing educational inequalities, leaving many students without access to the tools needed to continue their (Patel et al., 2020). The pandemic also had a profound impact on mental health in India. The fear of contracting the virus, coupled with social isolation, job loss, and financial stress, this resulted in a rise in mental health issues, including anxiety, depression, and PTSD among the population. Healthcare workers were particularly vulnerable to mental health challenges, experiencing high levels of burnout, stress, and emotional fatigue. Mental health support services, although available, were often inadequate in meeting the demand (Mukherjee et al., 2021).

The economic impact of COVID-19 in India has been profound, with the country experiencing its worst economic contraction in decades. According to the Reserve Bank of India (2020), the GDP of India contracted by 7.3% in the fiscal year 2020-2021, marking the first contraction since India's independence. The pandemic disrupted supply chains, halted production in various sectors, and led to a significant decline in consumer demand. The service sector, especially industries like tourism, hospitality, and retail, faced massive losses. In particular, the hospitality industry, which employs millions of workers, was severely impacted by the closure of hotels, restaurants, and travel restrictions. The informal sector, which employs a substantial portion of the Indian workforce, was hit the hardest. Workers in this sector, such as street vendors and small business owners, saw their incomes vanish overnight. The lack of social security for informal workers left them without a safety net. In response, the government announced several economic stimulus packages, such as the Pradhan Mantri Garib Kalyan Yojana (PMGKY), which aimed to provide financial support to vulnerable groups. However, the effectiveness of these measures was often questioned due to delays in implementation and the insufficient coverage of the informal workforce (Mondal & Chakraborty, 2022). The agricultural sector, which is a major part of India's economy, was also affected, although to a lesser extent. The pandemic disrupted the movement of agricultural labour, and transportation restrictions hindered the supply of goods to markets. Despite these

challenges, India managed to maintain positive growth in agriculture, largely due to the resilience of farmers and the agricultural supply chain.

India faced significant challenges during the COVID-19 pandemic, and handling the situation became more difficult because of the country's large population and varied socioeconomic circumstances. On January 30, 2020, the state of Kerala reported the first confirmed case of COVID-19 in India (Andrews et al., 2020). The virus spread quickly over the ensuing months, causing significant disruptions to the economy and healthcare system. A devastating second wave struck India by April 2021, marked by an unprecedented increase in cases and a major strain on hospital beds, oxygen supplies, and intensive care units (ICUs). To curb the spread of the virus, the Indian government imposed a nationwide lockdown starting on March 24, 2020 (Ministry of Health and Family Welfare [MoHFW], 2020). The lockdown caused severe economic hardships, especially for migrant workers and those in the unorganized sector, even though it helped slow the spread of COVID-19. The pandemic revealed weaknesses in India's healthcare system, including a lack of medical supplies, restricted access to testing, and an overworked healthcare workforce (Nikore et al., 2023). One of the biggest vaccination campaigns in the world was started in January 2021 in India. India made significant progress in immunizing its population despite early obstacles like vaccine hesitancy and logistical issues (MoHFW, 2021). Over 800 million vaccination doses had been given nationwide by September 2021, which helped to gradually lower the number of cases and lessen the severity of infections (Raman et al., 2021). When faced with difficult working conditions, inadequate personal protective equipment (PPE), and psychological stress, India's healthcare workers proved to be resilient during the pandemic (Chatterjee et al., 2020). In response, a number of state governments as well as healthcare organizations implemented risk allowances and mental health support initiatives to assist medical professionals in this unprecedented period. India's 2017 National Health Policy (NHP) called for strengthening the current medical education system and developing a cadre of mid-level healthcare providers. The current COVID-19 pandemic has highlighted India's healthcare system's severe shortage of healthcare workers. According to recent research, there are several areas

of concern regarding the Indian health workforce. Studies indicate a notable scarcity of physicians and nurses, as well as an insufficient blend of competencies within the labour pool. The shortage of trained nurses in India is caused by a lack of an adequate number of institutions providing nursing training, as well as international migration of nurses from India (Karan et al., 2021).

However, even though India made great efforts to contain the pandemic, the experience highlighted the need for enhanced state-to-state coordination, better public health infrastructure, and more robust social support networks for vulnerable populations and healthcare workers. The Indian government's response to the COVID-19 pandemic involved a range of measures, including nationwide lockdowns, the establishment of COVID-19 care centres, and large-scale vaccination efforts. The initial lockdown in March 2020 was one of the strictest in the world and aimed to prevent the rapid spread of the virus. In the second half of 2020, the government shifted its focus to managing the economic fallout and providing relief to the most affected sectors. The Atmanirbhar Bharat Abhiyan (Self-Reliant India Campaign) was introduced, focusing on promoting domestic industries, increasing exports, and boosting manufacturing. The government also scaled up its efforts in vaccine production, distribution, and deployment, with India being one of the largest producers of vaccines globally.

Regional Scenario on COVID-19

Mizoram had also experienced COVID-19 cases, much like the other North-eastern states. On March 22, 2020, Mizoram was placed under lockdown, in line with the countrywide lockdown enforced by the Indian central government. The first COVID-19 case was later reported in Mizoram on March 25, 2020; generally, the virus spread at a slower pace in Mizoram than in other regions of the nation. This benefit, though, was insufficient to completely protect the state from the pandemic's effects. As the pandemic spread, the state experienced a flood of people returning from overseas and other parts of India, many of whom were left behind because of the lockdown. Initially, to meet the needs of the people and control the spread of the virus, the state government established quarantine facilities and a testing centre in Aizawl, the capital city.

Mizoram's COVID-19 response was noteworthy for its close coordination of government initiatives and community participation. Recognizing the importance of strict measures, the state government established task forces at all levels such as state, district, and community to monitor the situation and enforce safety protocols. In August 2020, 723 government, community, and privately-run quarantine facilities had been set up around the state, helping to separate returnees and stop the spread of disease within the community. The community played an important role, with the Young Mizo Association (YMA) leading efforts in border security, supply distribution, and quarantine management, while volunteers from various backgrounds helped the state implement pandemic control measures. Churches even offered their halls for quarantine purposes, reflecting the spirit of cooperation that defined Mizoram's approach. Despite proactive efforts, the state faced challenges due to its limited healthcare infrastructure, which necessitated early outsourcing of tests. However, by April 2020, Zoram Medical College in Aizawl began local testing, and a TrueNat laboratory was established in Lunglei by June, expanding testing capabilities. In spite of the fact that the majority of cases were connected to returnees, Mizoram's technique focused on testing, contact tracing, and quarantine in order to stop widespread community transmission. In the early stages of the virus's containment, strict lockdown protocols were greatly helpful. Nonetheless, risks remained, particularly the movement of paramilitary forces and the potential strain on the healthcare system. The experience of Mizoram emphasizes the vital role that community involvement plays, as demonstrated by the work of volunteers and organizations like the YMA, which could serve as a model for other areas dealing with public health crises (Zothantluanga et al., 2020).

Despite Mizoram's notable success in containing the virus and fostering collaboration between the government and NGOs, there was a lack of sufficient healthcare facilities to accommodate the growing number of COVID-19 patients. The pandemic severely strained the state's healthcare infrastructure, particularly in Aizawl. Most COVID-19 care centers were concentrated in urban areas, especially Aizawl, leaving rural regions underserved. Facilities such as Dedicated COVID Hospitals (DCH), Dedicated COVID Health Centers (DCHC), COVID Care Centers

(CCC), and Community COVID Care Centers (CCCC) were established, with Zoram Medical College, the only DCH, managing critical cases. However, other centers, particularly in rural areas, were not adequately equipped to handle severe cases, while urban areas had a higher concentration of facilities. Remote villages, on the other hand, struggled with poor access to healthcare due to challenging terrain and inadequate transport infrastructure (Biswas et al., 2022).

COVID-19 and Safety of Healthcare workers

Healthcare workers (HCWs) have been at the forefront of the fight against COVID-19, often working in high-risk environments that expose them to the virus. Healthcare workers are at significantly increased risk of contracting Covid-19 due to prolonged contact with infected patients, often without adequate personal protective equipment (PPE) (Kisely et al., 2020). The COVID-19 pandemic posed significant challenges to the healthcare workforce, particularly regarding workplace safety and the support systems necessary to protect their health and well-being. Healthcare workers were at the frontline, directly interacting with patients infected by the virus, which made them highly vulnerable to exposure. As such, ensuring their safety through proper workplace protocols and providing adequate support became essential to maintaining their physical and mental health. The World Health Organization (2020) reports that more than 1 million healthcare workers were infected worldwide in the first year of the pandemic, underscoring the urgent need for better safety measures. In addition to the direct risk of infection, health personnel's health is also negatively affected by increased workload and long working hours. A cross-sectional study by Labrague et al. (2021) found that healthcare workers reported increased levels of fatigue and burnout due to overworked patients and long shifts. This condition raises concerns about long-term health problems, including musculoskeletal disorders and chronic fatigue syndrome (Huang et al., 2021). Workplace safety for healthcare workers during the pandemic was largely dependent on the availability of personal protective equipment (PPE), training, and institutional

support. The World Health Organization (WHO, 2020) emphasized that the correct use of PPE, such as masks, gloves, gowns, and face shields, was critical to prevent the spread of COVID-19. However, many healthcare workers reported shortages and inadequate access to PPE, which heightened their anxiety and increased the risk of infection. Studies have shown that women, in particular, faced challenges due to PPE being designed predominantly for male body types, further complicating their ability to protect themselves effectively (Kaufman et al., 2020).

The pandemic has exposed huge gaps in occupational safety and support for healthcare workers. Inadequate access to personal protective equipment, inadequate training in infection control, and poor organizational support contributed to physical and psychological stress among healthcare workers. It was recommended that healthcare organizations prioritize safety measures and create a conducive work environment to increase the resilience of healthcare workers. Furthermore, it is very important to implement policies that promote work-life balance and medical facilities should adopt flexible scheduling methods and allow medical staff to use vacations to recover. These measures can help reduce burnout and increase overall job satisfaction (Chatzittofis et al., 2021; Ripp et al., 2020).

In addition to the physical safety measures, the mental health and well-being of healthcare workers were significantly impacted during the pandemic. The overwhelming workload, combined with the stress of dealing with COVID-19 patients and fear of exposure to the virus, took a toll on healthcare workers' mental health. Social support, both from colleagues and from institutions, played a crucial role in mitigating the mental strain. Healthcare organizations that offered counselling services, stress management programs, and peer support were found to have workers who coped better with the pressures of the pandemic. Moreover, regular communication from leadership about safety protocols and acknowledging workers' efforts were key to boosting morale and fostering a sense of security (Matta et al., 2021). Another critical aspect of healthcare workers' safety was the implementation of regular testing and health monitoring. Koh et al. (2020) found that healthcare institutions that provided frequent testing and symptom monitoring helped alleviate

the anxiety of workers by ensuring early detection and reducing the likelihood of transmission in the workplace. In some instances, however, delays in testing or lack of clear procedures led to confusion and further stress for healthcare workers. Despite the growing mental health challenges, many healthcare institutions and organizations made efforts to provide support to healthcare workers. Some hospitals introduced mental health services, including counselling, peer support groups, and stress management programs. A review by Kisely et al. (2020) highlighted the importance of institutional support, noting that healthcare systems that offered these resources saw improved mental health outcomes among workers. However, these services were often underutilized due to stigma or lack of awareness, and in many cases, mental health resources were not sufficient to meet the overwhelming demand. Additionally, coping strategies, such as social support from colleagues and family, were critical in helping healthcare workers manage the mental health burden. Peer support was particularly important for those working on the frontlines, as it provided an outlet for discussing the emotional challenges of the job (Koh et al., 2020).

Furthermore, ensuring adequate rest and work-life balance was essential to prevent burnout, which was a significant concern during the pandemic. Long working hours, especially in emergency rooms and intensive care units, left many healthcare workers feeling exhausted and overwhelmed. Policies to limit excessive work hours and allow for adequate rest and recovery time were crucial in sustaining workforce health (Li et al., 2020). However, many healthcare workers reported that such policies were not always implemented, contributing to physical and emotional exhaustion (Dutta et al., 2020). Surveys were conducted in 57 countries to determine the level of awareness and preparedness among healthcare workers since the start of the COVID-19 pandemic. Male healthcare workers and nurses' participants have higher levels of preparedness score compared to female participants and doctors; healthcare workers from different countries had significantly higher levels of awareness and preparedness; doctors and nurses felt confident handling suspected COVID-19 patients (Huy et al., 2021). The degree of knowledge, awareness, and preparedness among Libyan nurses and doctors who treated COVID-19 patients was assessed through a survey. In addition to having taken fewer COVID-19 courses and

receiving less training, the majority of healthcare workers were not adequately prepared and had not taken the necessary precautions to prevent aerosol transmission from COVID-19 patients. The preparedness of healthcare facilities was also extremely low (Elhadi et al., 2020).

A quick cross-sectional survey was carried out among Indian healthcare professionals in the early stages of the COVID-19 pandemic to determine their level of preparedness for using masks, hand sanitizer, and other safety precautions. The overall level of preparedness for preventive measures among healthcare workers was found to be low (Jamir et al., 2020). In contrast, a cross-sectional study conducted among healthcare workers in Brunei during the initial wave of the COVID-19 outbreak found that they had attended PPE awareness sessions within the previous year and had appropriately used safety equipment like gloves and PPE. When compared to private healthcare facilities, the level of preparedness was low and there were insufficient preparedness measures. As a result, the government health facilities had updated better training programs for the healthcare workers (Trivedi et al., 2022). The COVID-19 pandemic preparedness and response measure that healthcare workers in Makkah City, Saudi Arabia had to follow were examined and assessed in terms of their knowledge and awareness. The four domains-disease nature, disease transmission, handling of suspected, probable, and “confirmed” cases, and precautions taken by healthcare workers were used to assess the knowledge and awareness of the healthcare workers. Regarding the “transmission of diseases,” the majority of HCWs showed a high level of awareness and knowledge; however, the level of awareness and knowledge regarding the nature of disease was found to be moderate. Regarding the precautionary measures, there was an impressive level of understanding, awareness, and knowledge when handling suspected, probable, and confirmed cases (Alrajhi et al., 2022).

The International Labour Organization (ILO) reported that millions of healthcare workers suffer from work-related diseases and accidents, and many die as a result of occupational hazards. Scholars and practitioners in the fields of healthcare and occupational health and safety (OHS) are working to raise public awareness about the risks and the importance of workplace health and safety among this

population (Che Huei et al., 2020). Healthcare workers (HCWs) are vital on the front lines, caring for patients who have been infected with this highly contagious disease. They are at a very high risk of occupational illness because they frequently come into contact with infected people. It is critical to have better awareness, a positive attitude, effective PPE, and adequate health practices to reduce the number of infected cases and deaths among healthcare workers (Casper, 2021).

Indeed, a safe work environment is essential for both the healthcare workers and the patients; the health and safety of healthcare workers are also important for patients; affecting the patients indirectly. So, many healthcare workers are vulnerable to the virus, which affects their health and safety. During pandemics, healthcare workers face social stigma as well as the fear of attack/social isolation, not only during the Covid-19 outbreak but also during the Ebola outbreak in West Africa and Severe Acute Respiratory Syndrome (SARS) outbreaks in China (P. V. & Varma, 2020). It is becoming clear that healthcare workers are under intense stress, have a demanding job, and are vulnerable to a wide range of health risks, ranging from musculoskeletal problems to depression and burnout. This burnout and dissatisfaction among health care workers must be addressed to improve health care workers' work lives and well-being (Loeppke et al., 2017).

Well-being of the Healthcare workers

The well-being of healthcare workers (HCWs) during the COVID-19 pandemic has been a global concern, with numerous studies documenting a sharp decline in their psychological health. Meta-analyses reveal alarming figures, with nearly half of HCWs screening positive for post-traumatic stress disorder (PTSD) (~49%), and high rates of anxiety (40%), depression (37%), and general distress (37%) (Saragih et al., 2021). A broader umbrella review found that 20-44% of healthcare workers globally suffered from mental health issues like burnout, anxiety, and depression, far exceeding pre-pandemic levels (Boucher et al., 2025). These challenges were consistent across job roles (doctors, nurses, etc.), regions (both high- and low-income countries), and genders, with some surveys revealing even higher prevalence. In United States of America CDC survey in 2020 found 53% of respondents had at least one mental health issue, and in Australia, nearly 60% of

frontline health workers experienced anxiety, depression, or burnout (Smallwood & Willis, 2021). Beyond the statistics, healthcare workers reported extreme fatigue, sleep issues, feelings of helplessness, and moral distress from witnessing high mortality rates or having to ration care. Many also dealt with the trauma of losing colleagues and the burden of being labelled as “heroes” while feeling vulnerable. The pandemic’s overwork, fear, and emotional toll created a widespread mental health crisis among HCWs, which, without intervention, could lead to long-term consequences like burnout, reduced care quality, and a weakened response to future health crises (Boucher et al., 2025).

Several interrelated stressors had a significant impact on healthcare workers’ (HCWs) well-being during the COVID-19 pandemic. The primary one of these was the excessive workload. The increase in COVID-19 cases, HCWs were compelled to work long hours with limited breaks, often in high-pressure environments. Due to staff shortages, many employees were forced to take on additional responsibilities, resulting in a record level of burnout, affecting up to 44% of workers. This burnout not only reduced their energy but also resulted in depression, anxiety, and a desire to quit (Boucher et al., 2025). Another major stressor was the ongoing fear of infection. Frontline workers were exposed to the virus on a daily basis, and many took extreme precautions, isolating themselves from their families and avoiding contact to protect their loved ones. Unfortunately, many healthcare workers contracted COVID-19, and some even lost their life, increasing the trauma for their colleagues. This was increased by a lack of adequate resources, such as personal protective equipment (PPE), ICU beds, and medical supplies. This scarcity forced workers to make crucial choices under moral pressure, putting a strain on their mental health (Aggarwal et al., 2024).

Social and personal factors also had an impact. HCWs, particularly younger and female workers, were more vulnerable to mental health problems due to the demands of their jobs and societal pressures. Some were stigmatized as potential contagion risks, while others experienced isolation, which exacerbated their stress. Support systems, including family and peer support, proved to be critical in mitigating these mental health issues. In addition to physical exhaustion and fear of

infection, healthcare workers faced emotional and ethical challenges, including moral injury. Witnessing widespread death, enforcing visitor restrictions, and being unable to save patients due to limited resources had an emotional impact. Some workers even had suicidal thoughts, which is far higher than the average among medical professionals (Smallwood & Willis, 2021). The pandemic highlighted the critical need to support HCWs' mental health, not only as a moral obligation, but also as a necessary component of ensuring the sustainability of healthcare systems during and after crises. Effective interventions such as appropriate PPE, adequate staffing, mental health resources, and strong organizational support can help healthcare workers deal with the huge obstacles that they face.

Mental Health Issues and Challenges

Healthcare workers' mental health has been significantly impacted by the Covid-19 pandemic (HCWs). HCWs experienced high levels of anxiety, depression, and post-traumatic stress disorder (PTSD) during the pandemic (Labrague et al., 2021; Saragih et al., 2021). The fear of contracting the virus, combined with the emotional burden of seeing patients suffer and die, has led to a mental health crisis among healthcare workers. Baskin and Bartlett (2021) highlight the need for mental health support among healthcare workers. They argue that organizations should implement strategies such as counselling services, peer support programs, and mental health resources to reduce the negative effects of work-related stress. Offering this kind of assistance is crucial for guaranteeing high-quality patient care as well as the health of healthcare workers.

The COVID-19 pandemic significantly affected the mental health of healthcare workers globally. As the pandemic progressed, healthcare professionals faced unprecedented levels of stress, anxiety, and burnout. They were not only responsible for providing medical care but also for managing the overwhelming number of patients, the fear of contracting the virus, and the emotional toll of caring for patients during a public health crisis. These challenges were exacerbated by long

working hours, exposure to traumatic situations, and a lack of sufficient mental health support, which significantly affected their well-being.

Healthcare workers have long been recognized as being at risk for stress and mental health issues due to the demanding nature of their work. The COVID-19 pandemic heightened these risks. Şahin et al. (2020) found that among 939 healthcare workers in Turkey, 77.6% experienced depression, 60.2% had anxiety, 50.4% suffered from insomnia, and 76.4% reported distress during the COVID-19 pandemic. Depression and insomnia were more common among frontline workers and nurses, with factors such as inadequate PPE, discrimination, and being perceived as virus carriers contributing to the severity of these symptoms. Tikka et al. (2025) found that among 300 healthcare workers in rural Telangana, India, 9.3% experienced depression, 13.7% had anxiety, and 38.9% suffered from insomnia during the COVID-19 pandemic. Significant predictors of these mental health issues included being under 35 years old, having family members who tested positive for COVID-19, and increased perceived stress. Anxiety levels were particularly high among frontline healthcare workers, who were directly involved in treating COVID-19 patients. Healthcare workers reported significant anxiety due to the constant fear of infection, particularly when adequate personal protective equipment (PPE) was in short supply. The psychological burden was further intensified by the loss of patients, which created a sense of helplessness and moral injury among many healthcare workers (Tan et al., 2020; Shanafelt et al., 2020).

Burnout, characterized by emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment, was another major concern for healthcare workers during the pandemic. The long hours, high patient volumes, and the emotional weight of caring for critically ill patients contributed to high levels of burnout. During the pandemic, healthcare workers faced significant burnout, particularly those employed in intensive care units (ICUs), who experienced the highest levels of stress and exhaustion. The constant pressure to perform at a high level in challenging circumstances, coupled with the emotional toll of seeing patients suffer and die from a virus with no clear cure, led to a significant decline in the well-being of healthcare workers. This was particularly true for nurses, who were not only

responsible for patient care but also had to provide emotional support to patients' families, further increasing their stress levels (Koh et al., 2020).

In addition to the direct psychological impact, healthcare workers also faced social isolation and stigma. The fear of transmission led many healthcare workers to experience social distancing from their families and communities, even after their shifts ended. According to a study by Pappa et al. (2020), healthcare workers experienced feelings of loneliness and isolation due to being separated from loved ones to prevent the spread of the virus. This isolation was compounded by the fear of being stigmatized for working in COVID-19 wards, as some members of the community viewed healthcare workers as potential carriers of the virus. The stigma surrounding COVID-19, particularly in the early days of the pandemic, led to healthcare workers being socially ostracized. In some cases, they reported being refused services or facing negative attitudes from the public, further exacerbating their mental health challenges (Pappa et al., 2020).

Gender and occupational health challenges

Occupational health exposure was never evaluated concerning gender or sex differences; research primarily concentrated on male employment in relation to occupational health. The entry of women into male-dominated occupations prompted an examination of gender differences. The physical dimensions of women, in comparison to men, have influenced the implementation of safety protocols in the workplace. PPE was not specifically designed for males and females, which has impacted its application, leading to many women being hesitant to wear it due to sizing issues. This has impacted the occupational health of healthcare workers across genders. However, women coincidentally reported greater compliance with the use of PPE compared to men, indicating a necessity for gender-specific initiatives to enhance PPE utilization (Schlünssen & Jones, 2023; Paolo Emilio Santoro et al., 2022).

The COVID-19 pandemic has increase existing gender inequalities in the workplace, particularly for women in healthcare. Many women faced increased exposure to the virus due to inadequate PPE designed mostly for men, as well as a heavier workload at both work and home, where caregiving responsibilities added to

their stress. Mental health challenges, including anxiety and burnout, were reported more frequently among women (Dutta et al., 2020; Koh et al., 2020). Even though women had a strong understanding of COVID-19 prevention and safety, many found PPE uncomfortable to wear, and incidents of workplace violence were more common among them (Matta et al., 2021). These challenges were further worsened by the economic strain, with women in low-paying and informal jobs facing greater job loss and financial instability (World Health Organization, 2020). To address these disparities, there is a clear need for policies that offer better-fitting PPE, mental health support, and recognition of the extra caregiving burdens women carry. In addition, promoting more women into leadership roles in healthcare can help ensure that their needs are better understood and addressed (Matta et al., 2021).

Social Support and Coping of the Healthcare workers

The COVID-19 pandemic has underscored the critical role of social support for healthcare workers, who were on the frontlines during the crisis. Social support, which includes emotional, practical, and informational assistance from social networks like family, friends, colleagues, and the broader community, is essential for healthcare workers to manage the immense pressures they faced, particularly during a global health emergency. Amid the pandemic, healthcare workers dealt with unparalleled stress, anxiety, and burnout, caused by a surge in COVID-19 cases, long working hours, and the fear of virus exposure. Research has indicated that healthcare workers who received social support reported improved mental health outcomes, as it helped them manage stress and served as a buffer against the emotional toll of their roles (Koh et al., 2020). Emotional support from family, friends, and colleagues alleviated feelings of isolation, while instrumental support such as access to resources, time off, and childcare allowed healthcare workers to balance their personal and professional responsibilities (Kaufman et al., 2020). Peer support, particularly in healthcare settings, fostered solidarity and collective coping, with healthcare workers who leaned on colleagues for emotional support feeling less overwhelmed by their responsibilities. This peer support was especially beneficial when healthcare workers were confronted with distress, anxiety, and feelings of

helplessness (Matta et al., 2021). In addition to support from personal networks, institutional and community-level support played a crucial role. Institutions that offered psychological services, such as counseling and mental health resources, were able to provide vital assistance to healthcare workers during the pandemic. Communities also supported healthcare workers through public recognition, which helped boost morale and emphasized the value of their work (World Health Organization [WHO], 2020). However, despite the availability of some forms of social support, many healthcare workers still encountered challenges in accessing adequate mental health services or finding time for social interaction due to their demanding work schedules. This highlights the need for systemic changes to ensure healthcare workers consistently receive effective support, not only from their immediate networks but also from their institutions and communities. Healthcare workers (HCWs) faced severe physical and psychological strain during the COVID-19 pandemic, leading to a range of mental health issues. HCWs had to contend with increased exposure risks, long hours, heavy patient loads, and, in many cases, limited resources like personal protective equipment (PPE), as they were frontline responders (Sasangohar et al., 2020). These stressors, combined with the physical separation from family, concerns about personal safety, and the high death rates they witnessed, contributed to heightened levels of anxiety, depression, burnout, and post-traumatic stress disorder (PTSD) among healthcare workers. Studies revealed that a significant percentage of healthcare workers suffered from mental health issues during the pandemic. The ongoing stressors, such as moral injury from patient loss and the fear of disease transmission, made healthcare workers particularly vulnerable to mental health problems (Pappa et al., 2020). To mitigate the effects of the COVID-19 pandemic on healthcare workers, various support programs were implemented by governments and healthcare systems to restore their health and enable peak performance. Several hospitals and healthcare organizations offered counseling services and professional support during particularly challenging times. For example, the National Health Service (NHS) in the United Kingdom introduced the “Wellbeing Support Service,” providing free counseling and crisis intervention for frontline workers (Greenberg et al., 2021). Additionally, peer support initiatives offered healthcare workers a dedicated space to share personal experiences and

challenges with colleagues, fostering empathy and mutual understanding. This was particularly valuable for those in high-stress roles, such as intensive care unit (ICU) staff (Sasangohar et al., 2020). Moreover, stress management and resilience training sessions were introduced across healthcare settings, equipping healthcare workers with coping strategies, mindfulness practices, and emotional regulation techniques to combat stress and burnout effectively (Pappa et al., 2020). Recognizing logistical challenges, many mental health resources, such as meditation apps, virtual support groups, and webinars, were made accessible online, allowing healthcare workers to access support at any time, especially those working irregular hours (Lai et al., 2020).

Social support encompasses assistance and protection provided to individuals, which can be tangible, such as financial aid, or intangible, such as emotional support. Protection refers to safeguarding individuals from the negative impacts of life stress (Langford et al., 1997). Social support is typically categorized into three dimensions: emotional, instrumental, and informational support. *Emotional support* involves expressing concern and care, fostering empathy, trust, and reassurance. It is considered foundational to social support, as it helps individuals feel understood and valued. *Instrumental support* refers to tangible help, such as physical assistance or resources, offered by others. *Informational support* involves providing advice, guidance, or useful information that can help solve problems (MaloneBeach & Zarit, 1995). Social support entails having reliable sources of assistance during times of need, enhancing self-image, and offering a broader perspective. Family support, which encompasses emotional, informational, and practical help from family members, is a crucial component of social support. It emphasizes the importance of promoting family values and goals, with family members supporting each other in meeting individual and collective needs (Kamaryati & Malathum, 2020).

The concept of social support and its role in coping with stress was extensively examined by Cohen and Wills in their seminal work in 1985. Their research led to the development of the *buffering hypothesis*, which posits that social support can mitigate the negative effects of stress, thereby protecting individuals from psychological and physical distress. Cohen and Wills categorized social support

into four distinct types: *emotional support*, *instrumental support*, *informational support*, and *appraisal support*. Each type serves a unique function, providing individuals with various forms of assistance in times of need.

- a. *Emotional Support* is characterized by comfort, empathy, and reassurance, offering individuals a sense of belonging and validation. This type of support is crucial in alleviating emotional distress, particularly during periods of crisis or high stress, and fosters an environment where individuals feel understood and valued.
- b. *Instrumental Support* involves providing tangible, practical assistance, such as financial aid, help with physical tasks, or provision of resources. This type of support is essential when individuals face overwhelming practical challenges and are unable to meet their basic needs. It directly addresses the stressor at hand, providing immediate relief and enabling individuals to focus on managing the underlying stress.
- c. *Informational Support* refers to the provision of advice, guidance, and knowledge to help individuals navigate difficult situations. It plays a critical role in reducing uncertainty and enhancing decision-making. Informational support equips individuals with the necessary information to assess their circumstances and make informed choices, thereby reducing anxiety and increasing their capacity to cope effectively with stress.
- d. *Appraisal Support* provides individuals with feedback that aids in evaluating their situation, recognizing their strengths, and assessing their ability to cope with stress. This type of support is instrumental in reinforcing self-esteem, promoting self-efficacy, and fostering personal growth, all of which are vital in enhancing an individual's capacity to manage stress and overcome adversity.

The presence of social support is directly linked to improved mental health outcomes. Research consistently shows that individuals with strong social networks experience lower levels of anxiety, depression, and stress (Thoits, 2011). In contrast, the absence of support exacerbates feelings of isolation and distress, leading to

deteriorating mental and physical health. This is particularly relevant in healthcare settings, where the emotional and physical demands are intense, making social support critical for long-term well-being. Healthcare workers who receive support from colleagues and family are less likely to suffer from burnout, depression, and anxiety, as social support helps alleviate work-related stress and enhances overall health (Lai et al., 2020; Koh et al., 2020).

This research is grounded in four well-established theories of stress and coping, providing a structured framework to understand how healthcare workers manage challenges. The General Adaptation Syndrome (GAS) explains physical health coping, Lazarus and Folkman's Transactional Model of Stress and Coping addresses mental and emotional health, the Job Demands-Resources (JD-R) Model focuses on workplace stress, and the Conservation of Resources (COR) Theory covers general coping strategies. Each theory offers valuable insights into how healthcare workers balance the demands of their roles with effective coping strategies to maintain their well-being.

Healthcare workers often experience physical strain due to long hours and high-intensity environments. To cope, many adopt strategies such as taking breaks, using nutritional supplements, staying hydrated, maintaining a proper diet, and exercising. These physical strategies help mitigate stress from demanding work. The GAS theory, developed by Hans Selye, is relevant here as it describes three phases in response to stress: alarm, resistance, and exhaustion. By practicing self-care, healthcare workers can avoid the exhaustion phase, conserve their physical resources and prevent burnout.

Mental and emotional stress is another significant challenge for healthcare workers, arising from patient deaths, emotional trauma, and the high demands of patient care. Coping strategies like emotional disclosure, mindfulness, cognitive restructuring, and professional counselling help manage this stress. The Transactional Model of Stress and Coping by Lazarus and Folkman (1984) offers a framework for understanding these responses. It suggests that stress arises from how individuals appraise a situation. If stress is perceived as manageable, problem-

focused coping is used; if overwhelming, emotion-focused coping such as seeking support or relaxation techniques is employed.

The JD-R Model (Bakker & Demerouti, 2007) applies to understanding workplace stress, where an imbalance between job demands and available resources leads to stress. Healthcare workers with access to sufficient resources, such as peer support and training, are better equipped to manage job demands, reducing burnout. Time management, taking breaks, and peer communication are common strategies to cope with workplace stress.

Finally, general coping strategies are essential for managing stress outside of work. These strategies may include digital socialization, self-care, and seeking external support. The COR Theory (Hobfoll, 1989) posits that individuals strive to protect and conserve their resources, such as time, energy, and emotional support, to cope with stress. When these resources are depleted, stress levels increase. For healthcare workers, maintaining social support and time for self-care is crucial for managing both work and personal stress. Engaging in self-care practices and seeking support help restore these resources and prevent burnout.

Theoretical framework

The mental health and well-being of healthcare workers (HCWs) during the COVID-19 pandemic were influenced by various interconnected factors. This theoretical framework explores how social support, occupational health, and well-being are connected and collectively influence the psychological and physical health of HCWs under extreme work pressures.

Social support refers to the various forms of assistance that individuals receive from others, such as emotional, instrumental, informational, and appraisal resources provided through interpersonal relationships that help individuals cope with stress (House, 1981; Styra et al. 2022). It can come from different sources including colleagues, supervisors, family members, and healthcare organizations/institutions. During the pandemic, social support acted as a vital protective factor that helped healthcare workers handle the increased stress and anxiety caused by their challenging roles. According to the stress-buffering model

(Cohen & Wills, 1985), social support works by reducing the harmful effects of stressors on health outcomes, mainly by improving an individual's ability to cope with difficulties. When healthcare workers perceive strong support, they tend to experience less psychological distress, which promotes resilience in demanding environments.

Occupational health is concerned with the physical, psychological, and social aspects of health as they relate to the workplace (World Health Organization, 2001). For healthcare workers during COVID-19, occupational health was especially critical given the unprecedented demands placed on them. Key challenges included increased workloads, long working hours, direct exposure to the virus, lack of adequate protective equipment, and stressful working conditions. Moreover, healthcare workers faced significant psychosocial risks such as burnout, emotional exhaustion, and moral distress (Maslach & Leiter, 2016). These occupational stressors directly impacted their well-being, affecting both mental and physical health, as well as job satisfaction and performance.

The Job Demands-Resources (JD-R) model provides a useful framework to understand these dynamics. The model suggests that job demands such as high patient volumes, infection risk, and emotional strain can lead to stress and health problems when they exceed the individual's capacity to cope. However, job resources, including social support, proper protective equipment, training, and supportive management, can buffer these demands. These resources not only help reduce burnout but also promote motivation, engagement, and overall well-being among healthcare workers. Thus, the balance between demands and resources is crucial for sustaining healthcare workers' health during crises.

In this framework, social support plays a dual role. First, it directly enhances healthcare workers' well-being by providing emotional and practical assistance. Second, it acts as a buffer that lessens the negative impact of occupational stressors. When healthcare workers have sufficient social and institutional and organizational support, they are better equipped to manage the pressures of their work, maintain mental health, and perform effectively. Conversely, a lack of support may worsen the effects of stressful working conditions and lead to poorer health outcomes.

This theoretical framework highlights the interconnected nature of social support, occupational health, and well-being. It emphasizes that effective interventions to support healthcare workers during pandemics or other crises must focus on strengthening social support networks and improving workplace conditions. Providing adequate resources and fostering supportive environments can help protect the physical and mental health of healthcare workers, ensuring the resilience and sustainability of the healthcare system.

Statement of the problem

The COVID-19 pandemic severely tested healthcare systems worldwide, including Mizoram, a small north-eastern state of India with a population of just over 1.2 million (Census of India, 2011). Mizoram's healthcare infrastructure, while improving, remains limited due to geographic challenges and resource constraints. Healthcare workers (HCWs) including doctors, nurses, and Accredited Social Health Activists (ASHAs) played a critical role in the state's pandemic response, often under difficult circumstances. The COVID-19 pandemic (2020–2023) placed an extraordinary burden on healthcare workers worldwide. In Mizoram, a north-eastern state of India with limited healthcare infrastructure and challenging terrain, doctors, nurses, and community health workers were on the frontline of the pandemic response. Despite their critical role, these healthcare workers faced significant challenges related to inadequate social support, compromised occupational health, and declining overall well-being.

Many healthcare workers in Mizoram experienced limited access to formal psychosocial support services during the pandemic. This lack of support, combined with the fear of contracting and transmitting the virus to their families, heightened their emotional stress. Although social stigma toward healthcare workers was less intense compared to other regions, the fear and uncertainty surrounding COVID-19 contributed to feelings of isolation and anxiety among these workers (Ranjit et al., 2023). Healthcare workers struggle with mental health challenges including anxiety, depression, and burnout. Studies conducted among nursing students and healthcare staff in Mizoram revealed high levels of stress and psychological distress during this period (Lalramdini et al., 2024). These mental health burdens were exacerbated by

long working hours, inadequate rest, and the emotional toll of witnessing high patient morbidity and mortality.

Furthermore, working conditions in Mizoram during the pandemic were often suboptimal. Shortages of personal protective equipment, insufficient staffing, and logistical challenges in rural areas compounded the physical and psychological strain on healthcare workers (Biswas et al., 2022). Female healthcare workers, in particular, faced additional challenges balancing professional demands with household responsibilities, often without adequate institutional support (Lalrinzuala & Elizabeth, 2021).

The combination of inadequate social support, poor occupational health conditions, and declining well-being poses a serious threat to the sustainability of Mizoram's healthcare workforce. If these challenges remain unaddressed, they risk leading to increased burnout, reduced job satisfaction, and potential attrition among healthcare workers, thereby weakening the state's overall healthcare system. This study seeks to investigate these interconnected problems to provide evidence-based recommendations for strengthening support systems, improving working conditions, and promoting the mental and physical health of healthcare workers in Mizoram during and beyond the COVID-19 pandemic.

Objectives of the study

1. To profile the demographic background of the healthcare workers in Mizoram.
2. To probe the availability and utilization of safety measures of the healthcare workers in Mizoram
3. To understand the occupational health issues and the coping mechanisms adopted by the healthcare workers in Mizoram.
4. To assess the social support received by the health workers during COVID -19 pandemic.
5. To identify the coping mechanisms adopted by the healthcare workers during the COVID-19 pandemic.

6. To assess the well-being of the healthcare workers in Mizoram.
7. To suggest measures for policy implications and scope for social work interventions.

Hypothesis

1. There is a significant difference in the overall well-being scores between healthcare workers in the medical and para-medical professions (*Intuitively drawn*).
2. There is no gender difference in the well-being of the healthcare workers (*intuitively drawn*).
3. The better the social support received, the better the well-being of the healthcare workers (*Intuitively drawn*).
4. There is a relationship between occupational health and well-being among the healthcare workers (*Intuitively drawn*).
5. There is a difference in the well-being between permanent and contractual healthcare workers (*Intuitively drawn*).

METHODOLOGY

This chapter outlines the approach and procedures for the research. It begins with the study field profile, providing context and scope, followed by the research design, which details the overall plan. It covers sampling design and techniques, ensuring a representative sample, and explains the sources and tools for data collection. Once the data is gathered, it is processed and analysed with clear scoring and operational definitions to ensure consistency. The reliability test ensures the accuracy of the results, while the limitations of the study acknowledge any constraints. Finally, ethical considerations are discussed to ensure the study respects participant rights and follows ethical guidelines. This methodology provides a structured and reliable framework for conducting the research.

3.1. Profile of the study field

Aizawl District:

Aizawl, the capital city of Mizoram, is situated in the central part of the state at an elevation of approximately 1,132 meters above sea level. The district encompasses an area of 3,576 km² and had a population of 400,309 as per the 2011 Census. It boasts a high literacy rate of 97.89% and a favourable sex ratio of 1,009 females per 1,000 males. Aizawl's healthcare system is primarily supported by important institutions like Zoram Medical College & Hospital and Civil Hospital Aizawl. Additionally, there is the State Cancer Hospital and Kulikawn Hospital, which specializes in mental health. The district also has a network of health centers, including Primary Health Centers (PHCs) and Community Health Centers (CHCs), both in rural and urban areas, offering vital services like maternal and child care, emergency treatment, immunization, and general health care. In addition to public facilities, several private hospitals, mainly located in the city, have played a significant role in promoting health and preventing disease. These include Aizawl Hospital, Alpha Hospital, BN Hospital, Care Hospital, City Hospital, Ebenezer Medical Centre, Trinity Hospital, and Greenwood Hospital. The district is also home to two church-run hospitals: Adventist Hospital and Synod Hospital. The district has

made significant progress in healthcare indicators such as reduced maternal and child mortality rates, improved immunization coverage, and a high literacy rate that positively impacts health awareness and hygiene practices.

Lunglei District:

Lunglei, located in the southern part of Mizoram, covers an area of 4,536 km² and had a population of 161,428 according to the 2011 Census. The district has a literacy rate of 88.86% and a sex ratio of 947 females per 1,000 males. Lunglei town, the district headquarters, sits at an elevation of 729 meters above sea level. The Lunglei District Hospital (Civil Hospital) is the primary medical facility, supported by PHCs and Sub-Centers that serve the rural population. In Lunglei town, private healthcare facilities such as Hope Hospital and Faith Hospital are available, alongside two church-operated hospitals: Christian Hospital Serkawn, which is managed by the Baptist Church of Mizoram, and John William Hospital, run by the Presbyterian Church. The district has made notable strides in healthcare access, focusing on maternal and child health, communicable disease prevention, and the promotion of public health initiatives. However, like Aizawl, healthcare access is an issue in remote villages due to the difficult terrain and limited infrastructure. The district has faced challenges with staffing shortages in rural health centers, which can delay medical care. The National Health Mission (NHM) programs are actively implemented to address these gaps, focusing on health education, sanitation, and improved healthcare delivery systems in both urban and rural areas.

Research Design

This study utilized a mixed-methods approach, combining both qualitative and quantitative data collection techniques. The quantitative data was collected through a questionnaire, while the qualitative data was gathered through structured interview scheduled with healthcare workers at the community level, as well as those directly involved in the care of COVID-19 patients.

The study population consists of healthcare workers employed in both government and private hospitals during the COVID-19 pandemic. The unit of the study includes individual healthcare workers from the Aizawl and Lunglei districts.

Sampling design

A purposive sampling technique was used to select healthcare workers (HCWs) from Aizawl and Lunglei districts in Mizoram. The sample was drawn from both government and private healthcare institutions, focusing on HCWs who were working during the pandemic and actively involved in healthcare delivery during the COVID-19 pandemic, irrespective of their profession or specialization.

Sampling Frame

In Aizawl, as per the data provided by the Health & Family Welfare Govt. of Mizoram, a total of 652 healthcare workers were employed in government healthcare facilities, including Civil Hospital, Zoram Medical College (ZMC), Kulikawn Hospital, and State Cancer Hospital (HFW, GOM). From this total, 50% (335 HCWs) were selected from the government sector. Due to the unavailability of a comprehensive list of healthcare workers in the private sector, 100 questionnaires were distributed to the selected private hospitals such as Ebenezer hospital, Trinity hospital, Aizawl hospital, Greenwood hospital and City hospital. A total of 450 questionnaires were distributed to the HCWs in Aizawl. However, some respondents did not return the questionnaires, and others provided incomplete responses, leading to a reduction in the sample. Of the 450 questionnaires distributed, 191 were returned, and after data classification, 170 valid responses were included in the final study for Aizawl district.

In Lunglei district, approximately 251 healthcare workers are employed by the government. Of these, 50% were selected for the sample, which equates to 125 healthcare workers from the government sector. Similar to Aizawl, the private healthcare institutions in Lunglei did not provide a list of their staff, so the questionnaire was distributed purposively to HCWs in these institutions, who were considered to provide relevant insights. A total of 50 questionnaires were distributed to healthcare workers in private hospitals, including Hope Hospital, Faith Hospital, John Williams Hospital, and Christian Hospital Serkawn. Additionally, 150 questionnaires were distributed to healthcare workers in government hospitals. In total, 200 questionnaires were distributed in Lunglei. Of these, 158 were returned,

and after removing incomplete responses, 82 valid responses were included in the study for Lunglei district. Therefore, a total of 252 respondents were included in the study.

Source of data collection

The study utilized both primary and secondary data. Primary data were collected through a self-structured questionnaire and key informant interviews, allowing for direct insights from participants. Secondary data were gathered from a range of credible sources, including scholarly journals, eBooks, book chapters, and official reports, providing a robust foundation of existing research and evidence.

Tool of data collection

The quantitative data for this study were collected using an offline, in-person approach. The researcher personally visited the healthcare facilities in both districts and distributed the questionnaires to willing participants. HCWs who agreed to participate were provided with the questionnaires, and they were instructed on how to complete them. The qualitative data was collected using structured interview scheduled. The interviewed was held with the doctor, nurses (Health & Wellness Officer) and laboratory technicians from the two districts.

Ethical Consideration

Ethical considerations were given importance throughout the research process. *Prior informed consent* was obtained from all participants, and the purpose of the study, along with the potential uses of their responses, was explained in detail. A consent form was incorporated into the questionnaire, ensuring transparency and the voluntary nature of participation. Confidentiality was maintained, and respondents were assured that their participation was anonymous, with all data being used strictly for academic purposes.

Data processing and analysis

The quantitative data were analysed using Statistical Package for Social Sciences (SPSS) V27, employing methods such as simple frequency and percentage ratios, mean and standard deviation scores, Karl Pearson's Product Moment Correlation Coefficients and t-test are generated and interpret the data. Conversely, the qualitative data collected through semi-structured interview schedules which includes Key Informant Interviews (KIIs), were analysed manually.

Scoring of data

Each aspect of the study has its own distinct scoring and calculation process. Firstly, in the sections on the availability of essential safety measures, COVID-19 knowledge, self-reported health issues, and coping mechanisms, respondents answered with a "Yes" or "No" response. For assessing social support, a 3-point scale was used, with the options "Always", "Sometimes", and "Never".

Secondly, to assessed the well-being of the respondents, a 5-point Likert scale was used to score the responses, which helped ensure that the data could be analysed effectively. The choice of a 5-point scale allowed for more detailed responses, giving a better picture of the participants' views and experiences. For the well-being assessments, where respondents rated their feelings on a scale from "None of the time" to "All the time". For other aspects of well-being, such as social and psychological health, responses were measured using a scale from "Strongly Disagree" to "Strongly Agree".

Reliability test

The reliability of the scales used in this study was assessed using *Cronbach's Alpha* for each measurement instrument. Cronbach's Alpha is a commonly used statistic to measure the internal consistency of a scale, indicating how well the items on a test measure the same concept. A higher value of Cronbach's Alpha suggests better reliability. The following table presents the *Cronbach's Alpha* values and the number of items for each scale:

Reliability Test

Scale	Cronbach's Alpha	Number of Items
Psychological Well-being	.81	18
Social Well-being Scale	.83	33
Subjective Well-Being Scale	.82	23
Mental Well-being	.79	14

Source: Computed

To ensure the accuracy and consistency of the measurement tools used in this study, a reliability test was conducted on all scales. Cronbach's Alpha was employed as the indicator of internal consistency. The results demonstrate strong reliability across all scales, with values ranging from 0.79 to 0.83, which exceeds the commonly accepted threshold of 0.70 for satisfactory reliability. Values above 0.80 indicate very good internal consistency, confirming that the items within each scale effectively measure their respective constructs.

The standardized scales did not align with the respondents' perceptions and the specific context of the study. Therefore, a self-constructed scale was developed based on these standardized frameworks. All the phrases were coded positively, and the scale was designed using a 5-point Likert scale. Since the standardized scales were unsuitable for data collection, the newly constructed scale was tested for reliability using Cronbach's Alpha.

The Psychological Well-being Scale, consisting of 18 items and yielding a Cronbach's Alpha of 0.81, demonstrates good internal consistency, indicating that the items are well correlated and effectively measure psychological well-being. Similarly, the Social Well-being Scale, with 33 items and an alpha of 0.83, exhibits very good reliability, confirming that it consistently captures various dimensions of social well-being. The Subjective Well-Being Scale, comprising 23 items and achieving an alpha of 0.82, also reflects good reliability, signifying that it reliably measures subjective well-being with a high degree of internal consistency. In comparison, the Mental Well-being Scale, with 14 items and a Cronbach's Alpha of

0.79, shows acceptable to good reliability, indicating that it provides a reasonably consistent assessment of mental well-being, though slightly lower than the other scales.

Operational definition

- 1. Occupational Health:** In this study the occupational health of the HCWs will be assessed using four dimensions such as physical health, mental health, workplace issues and the social & emotional health issues.
- 2. Well-being:** In this study well-being refers to the psychological, mental, subjective and social well-being of the HCWs
- 3. Social Support:** In this study social support will look at the emotional, informational, instrumental and appraisal support received by the HCWs during the COVID-19 pandemic.
- 4. Healthcare Workers:** In this study healthcare workers will includes those who are working during the pandemic and directly work in the care and treatment of COVID-19 patient, employed in both private and public (Govt.) hospitals.

Limitations of the study

The study was limited to two districts of Mizoram, Aizawl and Lunglei. As a result, the findings may vary if other districts, such as Champhai, Kolasib, Siaha, Serchhip, Saitual, Lawngtlai, Hnahthial, Khawzawl, and Mamit, had been included in the study. Out of the 450 questionnaires distributed, only 252 were included in the study due to incomplete responses and loss of some questionnaires. As a result, the findings cannot be generalized, and they may not fully represent the entire population of Mizoram. Additionally, the length of the questionnaire posed challenges for respondents, leading to incomplete responses and a loss of some questionnaires, as the survey was not conducted through interviews. Conducting Key Informant Interviews (KIIs) with healthcare workers was also challenging due to their demanding schedules, with some interviews being conducted via telephone or WhatsApp messages

CONCLUSION & SUGGESTIONS

The study explored the social support, occupational health, and overall well-being of healthcare workers in Mizoram during the COVID-19 pandemic. The research utilized both qualitative and quantitative methods, drawing data from primary and secondary sources. Quantitative data was collected through a structured questionnaire, while qualitative information was gathered through Key Informant Interviews (KIIs). This chapter provides conclusion and suggestions of the study.

The study has a total of 252 respondents and purposive sampling was adopted to capture the response of both qualitative and quantitative information. The inclusion criteria required healthcare workers who were actively working during the pandemic, particularly those involved in treating COVID-19 patients. Key Informant Interviews (KII) were conducted to gain deeper insights from healthcare workers. The sample was purposively selected from the Aizawl and Lunglei districts, which have the highest and second-highest number of COVID-19 cases, respectively, and are also the most and second most populated districts in Mizoram.

The objectives of the study were to profile the demographic background of healthcare workers in Mizoram, examine the availability and utilization of safety measures, understand the occupational health issues and coping mechanisms adopted, assess the social support received by healthcare workers during the pandemic, evaluate their well-being, and investigate the relationships between occupational health, social support, and well-being.

The study has comprised the demographic profile of the respondents, the availability and utilization of safety measures provided by healthcare institutions, healthcare workers' knowledge about COVID-19, safety concerns related to their work, self-reported occupational health issues, coping mechanisms adopted, and their overall well-being. Additionally, the study formulated suggestions and recommendations for social work interventions based on the findings.

Additionally, hypothesis testing was conducted to examine: whether there is a significant difference in well-being scores between healthcare workers in the medical and para-medical professions, whether gender affects the well-being of healthcare

workers, the relationship between the level of social support received and the well-being of healthcare workers, and the relationship between occupational health and well-being among healthcare workers.

MAJOR FINDINGS OF THE STUDY

The major findings of the study focus on the results that had the most significant impact on the overall outcomes.

Demographic Profile of Healthcare workers

The demographic profile of the respondents was categorized into key characteristics such as gender, age, marital status, education, employment status, department, years of experience, primary role, work location, and average working hours. These characteristics help to provide a deeper understanding of the healthcare workers' background and their work environment during the COVID-19 pandemic in Mizoram. The following section discusses the major findings from the demographic profile of the respondents.

In terms of gender, the maximum of 76.6% of the respondents were female, and 23.4% were male. The age of the respondents shows that a maximum of 54.4% falling between the age of 20-29 years followed by 33.7% falling between the age 30-39 years and 9.9% were in the age group between 40-49 years. This suggests that most of the respondent-healthcare workers were relatively young, with a good portion in the early to mid-career stage. The marital status of the respondents shows that 65.9% of the respondents were unmarried and 31.0% were married. This indicates that the majority of healthcare workers were unmarried, which may influence their work-life balance and social support systems.

The profession of the respondents shows that 54.8% in nursing profession, 15.9% were working in laboratory and diagnostic fields, 14.7% were a medical doctor and the remaining 8.7% of the respondents were in pharmacy profession. In terms of employment status, 55.6% of the respondents were regular and or permanent workers, while another 44.4% of them were working in contractual basis. The mix of job security levels among the healthcare workers were observed. In terms of classification by departmental affiliation, 40.9% were working in General

Medicine, 15.5% in Maternal & Child Health, 14.7% in Surgical departments, 11.5% in Emergency casualty, 11.9% in Diagnostic & Laboratory Sciences, 3.2% working in Mental Health area, and 2.4% in Cardiovascular & Pulmonary departments.

The years of working experience of the respondents ranges between 3-14 years. And a maximum of 65.5% of the respondents had a working experience between 3 to 6 years, 15.9% had a working experience between 7 to 10 years, 7.1% had a working experience 11 to 13 years and a few of 6% of the respondents had a working experience for more than 14 years. This indicates that most respondents were moderately experienced healthcare workers, with a smaller number having a significant amount of experience.

The primary roles and functioning shows that 74.2% of the respondents were in medical roles, 25.8% were working in para-medical roles, such as in testing, therapy, and patient support. This shows that the majority of respondents were directly involved in patient care.

The geographical location shows that 71.8% of the respondents were working in Aizawl city, and another 28.2% of them were based in Lunglei city. This reveals a geographical variation in healthcare work, which may be also attributed to its status as the state capital and population of the area.

The working hours shows that 46.4% of the respondents were working less than 8 hours a day, and the same proportion were working between 8 to 10 hours a day. A smaller 5.2% of the respondents were working between 11 to 12 hours, and a few of 2.0% were working for more than 12 hours a day. This indicates that most healthcare workers had a manageable working hour, while some of them were facing long shifts, that is likely due to staffing shortages.

These findings provide a comprehensive understanding of the demographic and professional characteristics of healthcare workers in Mizoram, which are essential for assessing their experiences, needs, and the challenges they faced during the COVID-19 pandemic.

Healthcare workers safety during covid-19 pandemic

The safety of healthcare workers during the COVID-19 pandemic, focused on the availability and utilization of safety measures, such as PPE and vaccines, as well as the workplace hygiene and environment in which healthcare workers operated. The study also explores the mental health support provided, the testing and monitoring processes in place, and how communication and feedback were managed within healthcare institutions. These areas were all crucial in ensuring that healthcare workers were adequately protected and supported during the pandemic.

The availability and utilization of essential safety measures among healthcare workers show that a majority of respondents reported high availability and utilization of key safety measures. The following safety measures had high availability and utilization rates: disposable gloves (95.6%), hand sanitizers at key points (94.4%), full-body gowns (90.5%), and awareness sessions on COVID-19 transmission and precautions (89.3%). Additionally, a majority of healthcare workers had access to standard operating procedures (88.1%), N95 masks (87.3%), and face shields or goggles (86.1%). However, certain measures had lower availability and utilization, such as COVID-19 vaccines for healthcare workers (81.0%), regular COVID-19 testing (78.6%), quarantine and isolation facilities (77.0%), daily health monitoring and symptom checks (74.6%), and adequate work hours to prevent burnout (74.2%). These findings indicate that while most essential safety measures are available and utilized, some areas, particularly around health monitoring, isolation facilities, and work hours required further attention and improvement.

1.1.1. Knowledge and Awareness on COVID-19

The awareness on COVID-19 among the respondents showed the following results: Awareness of PPE utilization when managing patients with COVID-19 (100%), primary transmission of COVID-19 (92.5%), understanding that fully vaccinated individuals can still be infected (88.9%), awareness of the common symptoms of COVID-19 (88.5%), knowledge of the recommended quarantine period for COVID-19 exposure (86.1%), understanding that hand hygiene is crucial (85.7%), recognizing that isolation/quarantine helps mitigate the spread of COVID-

19 (85.3%), the importance of maintaining physical distance (83.3%), and awareness that vaccination can reduce severity and transmission (80.6%). The average awareness percentage is 88.3%, indicating a high level of awareness among the respondents, particularly regarding essential COVID-19 prevention and management practices. However, there is a slight gap in the understanding of vaccination's role in reducing severity and transmission, with 19.4% lacking awareness.

Occupational health issues

The study explored the occupational health issues faced by healthcare workers during the pandemic, covering physical, mental, workplace, and general issues. The findings provide a comprehensive view of the challenges experienced by workers across these areas.

The *occupational health issues* show that fatigue and exhaustion (85.4%), musculoskeletal problems (74.5%), eye strain (73.3%), sleep disturbances (70.4%), PPE-related skin issues (67.6%), weakened immunity (61.5%), dehydration (59.9%), and gastrointestinal issues (59.1%) were the physical health issues reported by the respondents. The average percentage for the physical health issues is 70.9%, this result shows that physical health concerns, particularly fatigue and exhaustion, are the most prevalent and indicate the need for interventions to address physical well-being in the workplace.

The *mental health issues* include stress (83.4%), fear of infection (67.2%), anxiety (61.5%), emotional burden (58.3%), insomnia (57.1%), burnout (53.4%), depression (45.7%), helplessness (45.7%), stigma (43.7%), and trauma (37.2%) were the mental health issues reported by the respondents. The average percentage for mental health issues is 62.7%, this result shows that stress is the most frequently reported mental health issue, signalling a significant need for mental health support and stress management programs.

The *workplace issues* include increase in workload (77.7%), shortage of staff (74.1%), long working hours (73.7%), isolation/quarantine (69.6%), adapting to changing protocols (68.8%), lack of mental health support (58.3%), lack of institutional support (55.5%), shortages of PPE supply (55.1%), and inadequate

break and recovery (54.7%) were reported by the respondents. The average percentage for workplace issues is 69.6%, this result indicates that workload and staffing issues are major stressors in the workplace, and improvements in these areas are essential for reducing stress and improving employee well-being.

The *social & emotional issues* like work-life imbalance (65.2%), physical separation from peers and family (64.0%), social withdrawal (63.2%), reluctance to go for duty (60.3%), self-imposed isolation (55.1%), stigma and discrimination (51.0%), and insufficient colleague support (49.0%) were also prevalent. The average percentage for general issues is 62.1%. This result shows that work-life balance and social isolation are significant concerns that require attention to improve overall well-being.

The average scores for the occupational health issues among the respondents were physical health issues (70.9%), mental health issues (62.7%), workplace issues (69.6%), and social & emotional issues (62.1%). The respondents primarily reported physical health issues and workplace stressors as the most significant concerns, while mental health and social & emotional issues were also prevalent but not as severely experienced. Therefore, there is a need to focus on improving mental health support and addressing physical health challenges, particularly fatigue and stress, to enhance overall well-being in the workplace.

Coping strategies adopted by healthcare workers

The study examined various coping mechanisms adopted by healthcare workers to manage the physical, mental, emotional, and workplace challenges during the pandemic. The findings highlight the different strategies employed across these areas.

The *physical health coping strategies* adopted by the respondents include taking short breaks during duty (85.3%), using nutritional supplements (73.8%), moisturizing regularly (69%), staying hydrated (67.1%), maintaining a proper diet (65.5%), limiting screen time (64.3%), ensuring proper sleep (63.8%), engaging in regular physical exercise (61.1%), and maintaining a regular bedtime routine (54.4%). With an average score of 67.1%, these findings indicate that while

respondents are employing various physical health coping mechanisms, there is still room for improvement to enhance their overall physical well-being.

Mental and emotional health coping strategies adopted by the respondents has includes emotional disclosure (78.6%), addressing the source of stress directly (74.6%), sharing experiences with peers (73.8%), cognitive restructuring (66.3%), practicing mindfulness (61.5%), journaling (54.0%), and seeking professional counselling (54.0%) to cope with *mental & emotional health with an average of 66.1%*. While coping mechanisms are in place, there is a need for further improvement in emotional and mental health coping among the respondents.

The *general coping strategies* shows that respondents most commonly relied on digital socialization (82.9%), public awareness initiatives (80.6%), seeking external support (76.2%), suggesting on-site psychological support services (75.0%), compliance with health protocols (74.6%), adjusting work routines (73.0%), practicing self-care (72.2%), and peer-assisted coping (71.8%). With an average score of 75.7%, the results suggest that the general coping strategies were well adopted by the respondents, reflecting a solid approach to managing overall well-being.

Workplace coping strategies included time management (81.7%), taking breaks during work (80.6%), communication with peers (78.2%), duty swapping within teams (77.4%), attending refresher courses (74.6%), reporting PPE shortages (71.4%), and using social media to combat loneliness (71.4%). Thus, most respondents are actively adopting workplace coping strategies, demonstrating effective management of work-related challenges with an average sof 76.4%.

In sum, the average scores for the coping strategies among the respondents were workplace coping (76.4%), general coping (75.7%), physical health coping (67.1%), and mental and emotional health coping (66.1%). The analysis shows that the respondents primarily relied on workplace and general coping strategies, with a good adoption rate, while physical and mental health coping strategies were less efficiently utilized. Therefore, there is a need to focus on improving the adoption of physical and mental health coping strategies, particularly in areas such as exercise,

sleep, and stress management, to enhance overall well-being and resilience in the workplace.

Social support

The study explored the level of social support received by healthcare workers during the pandemic. The support was categorized into mental & emotional support, instrumental support, informational support, and appraisal support. Based on the mean scores, the support was rated as good (1.00-1.49), moderate (1.50-2.49), and poor (2.50-3.00). The findings reveal that healthcare workers received moderate to low levels of support across all areas.

The *social support* among the respondents were psychological first aid (1.81), access to psychiatrists and psychologists' consultation (1.80), counselling service (1.76), recognition and appreciation (1.73) relaxation sessions (1.71), peer support (1.68), stress management (1.67), educational resources on mental health (1.66), colleagues support (1.54), and family support (1.44). The average mean score for social support is 1.68, which indicates a moderate level of social support among the respondents.

The *instrumental support* among the respondents showed the following mean scores such as onsite mental health support (1.81), financial incentives (1.71), flexible work schedules (1.65), basic provisions like meals and accommodation (1.64), and employee assistance programs (1.64). PPE provision (1.49). The average mean score for *instrumental support* is 1.68, which indicates a moderate level of instrumental support among the healthcare workers.

The *informational support* among the respondents showed the following mean scores peer-to-peer mentoring and advice (1.68), sharing of experiences and strategies among colleagues (1.63), guidance/advice on work-related challenges (1.60), work-related stress management techniques (1.59), frequent briefing on safety measures (1.56), clear instructions on handling COVID-19 patients (1.50), information on COVID-19-related topics (1.44), and clear information on PPE usage (1.42). The average mean score for informational support is 1.55, which indicate a moderate level of informational support among the healthcare workers.

The appraisal support for healthcare workers showed the following mean scores: Inspiration-driven media campaigns (1.74), creating a team for problem-solving (1.71), promotions or career development prospects during the pandemic (1.69), recognition of efforts (1.65), gratitude shown by the community (1.60), positive feedback for patient care (1.56), appreciation from colleagues (1.54), and positive feedback from the authority (1.53). The average mean score for perceived appraisal support is 1.61, which indicate a moderate level of appraisal support among the healthcare workers.

Therefore, the average mean scores for support across all the four dimensions shows social support (1.68), instrumental support (1.68), informational support (1.55), and appraisal support (1.61) that indicate a moderate level of support among healthcare workers. In fact, instrumental and social support systems need strengthening to ensure consistent and accessible support. Informational support also requires improvement, particularly in work-related guidance and training. On the other hand, PPE provision and recognition are areas that received stronger scores. So, strengthening the inconsistent areas of support will better assist healthcare workers in future health crises.

Assessment of well-being of the respondents

The well-being of the respondents was assessed using several well-established scales: the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS), the BBC Subjective Well-Being Scale (BBC-SWB), Corey Keyes' Social Well-Being Scale, and the Ryff Scales of Psychological Well-Being (SPWB). These scales were modified and adapted following a pre-testing phase, which included gathering feedback and suggestions. Additionally, any negatively worded items were rephrased into positive statements to better suit the respondents and improve clarity.

The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) showed the following mean scores: Enjoying learning new things (3.25), feeling mentally clear during shifts (3.25), feeling cared for by others (3.23), being confident in their abilities (3.15), generally feeling cheerful (3.15), feeling capable of handling work-related challenges (3.06), perceiving their roles as useful (3.05), energy levels

throughout the day (3.00), sense of connection with the team (2.99), ability to stay calm at work (2.97), concern for colleagues and patients (2.90), and hope for the future (2.88). The average mean score for mental well-being is 3.08, indicating a moderate level of well-being among the respondents. Targeted interventions focusing on stress reduction, team-building activities, and encouraging a positive perspective could further improve mental well-being for the respondents.

The subjective well-being of the respondents showed the following mean scores: Ability to work (3.38), personal relationships (3.37), personal and family life (3.29), purpose in life (3.23), access to health services (3.15), ability to perform daily activities (3.11), achievements (3.10), personal growth (3.09), relating to others (3.07), optimism about the future (3.06), asking for help with a problem (3.04), appearance (3.00), ability to do the things they choose (3.00), satisfaction with themselves as individuals (2.98), control over their lives (2.92), opportunities for leisure (2.96), financial stability (2.94), physical health (2.83), quality of sleep (2.67), and mental well-being (2.51). The average mean score for subjective well-being is 3.06, indicating a moderate level of satisfaction which indicates that there is a need to improve on access to health services, leisure opportunities, and personal growth.

The *social well-being* of the respondents was classified into five dimensions such as *social integration*, *social acceptance*, *social contribution*, *social actualization* and *social coherence* which showed the following mean scores as:

Social integration: feeling part of the community (2.93), sense of belonging (2.54), believing their voices would be heard (2.99), feeling taken seriously (2.88), closeness to others (3.06). There is a need to improve the sense of belonging, being taken seriously by others, and fostering deeper relationships and influence within the community.

Social acceptance: feeling valued by society (3.15), believing people were kind (3.28), uncertainty about trustworthiness (2.85), and reliability (2.75), feeling people were becoming more trustworthy (3.16) and caring (3.06). Trust and reliability in others need to be strengthened, despite the positive regard for kindness and care.

Social contribution: feeling impactful on the community (2.95), valuing the importance of their work for society (3.18), feeling their daily activities (2.87) and personal contributions (2.86) were less impactful. Respondents feel their daily activities and personal contributions lack impact, indicating the need to enhance the sense of social contribution and involvement.

Social actualization: believing society was evolving (3.12), improving for people like them (2.68), less optimistic about social progress (2.76) and social institutions (2.67). Greater optimism about social progress and the role of social institutions is needed, as well as a more positive outlook on society's overall direction.

Social coherence: ability to understand global challenges (2.97), capability to navigate challenges (2.59), understanding different cultures (3.02), confidence in predicting societal developments (3.21), and valuing understanding the world (3.08). The average mean score for social well-being is 2.98, indicating a moderate level of social well-being among respondents. There is a need to increase confidence in navigating global challenges and societal developments, as well as a deeper understanding of the complexities of social issues and world events.

The dimensions that required improvement are social integration (belonging and relationships), social acceptance (trust and reliability), social contribution (impact of activities), social actualization (optimism about progress), and social coherence (confidence in navigating global challenges). The dimensions positively adopted by the respondents are social acceptance (feeling valued and kindness), social contribution (valuing work for society), and social coherence (understanding cultures and societal developments).

The psychological well-being of the respondents showed the following mean scores: Self-acceptance: personal growth (2.06), achievements (2.30); Purpose in life: ability to plan for the future (2.39), balance work and personal goals (2.39), feeling valued by others for care and support (2.59); Environmental mastery: motivation to keep learning (2.76), confidence in managing challenges (2.38-2.40); Positive relations with others: relationships with colleagues and family (2.16-2.60);

Personal growth: ability to build trusting relationships (2.69), trust in judgment (2.61), measuring worth by care provided (2.38); Autonomy: satisfaction with independence and decision-making (2.36-2.69). The overall average mean score for psychological well-being is 2.53, indicating a moderate level of well-being. The findings suggest that respondents reported moderate satisfaction in most aspects of psychological well-being, with areas for improvement in self-acceptance, purpose in life, positive relations with others, and autonomy.

QUALITATIVE INFORMATION

1. Emotional and Social Support

Overall, the emotional and social support for healthcare workers during the COVID-19 pandemic was found to be inadequate. While there were efforts from peers and family, formal support from authorities and institutions was minimal. Many healthcare workers described feeling isolated, with insufficient psychological assistance to manage the emotional toll of their work. Support from colleagues played a crucial role in helping workers cope, but the lack of structured, professional mental health resources, such as counselling and stress management programs, left a gap in addressing the emotional strain.

2. Mental Health Support

Mental health support was largely insufficient across various healthcare roles. Despite the availability of some counselling services, they were often not accessible due to high demand or the inability to attend due to long working hours. Many workers highlighted the absence of structured mental health initiatives, such as regular counselling, stress management, or psychological support programs, leaving healthcare workers to manage stress, burnout, and anxiety largely on their own.

3. Occupational Health Risks

Healthcare workers faced significant occupational health risks, particularly stress, mental fatigue, and physical exhaustion. The demanding nature of the work, compounded by long hours and increased patient loads, led to both mental and physical strain. While safety measures were in place to mitigate the risk of infection, physical exhaustion due to prolonged work hours, staff shortages, and heavy

workloads contributed to significant health challenges. Additionally, many healthcare workers reported musculoskeletal pain and fatigue.

4. Work-life balance

The work-life balance of healthcare workers was severely disrupted during the pandemic. The intense demands of their professional roles, coupled with concerns about exposure to COVID-19, made it difficult for healthcare workers to maintain personal and family connections. The fear of infecting loved ones and the overwhelming nature of the work created significant emotional strain, and efforts to balance work with personal responsibilities were often inadequate. Support from family and peers was valuable, but the increased workload and stress made it challenging to enjoy personal life.

5. Family and community support

Family support was crucial for healthcare workers, offering emotional encouragement and help in managing household responsibilities. However, the pandemic also posed challenges to accessing this support due to safety concerns and the physical distancing required. The community's initial fear of healthcare workers contributed to feelings of alienation, though this perception shifted over time, and community support grew stronger as the pandemic continued. Despite these efforts, many workers continued to face emotional distress due to limited access to close family support.

6. Feedback Suggestions given by the Respondents

Several key suggestions emerged for improving healthcare worker support in future public health crises. These included increasing manpower to reduce workload, providing comprehensive mental health resources such as regular counselling, and improving access to necessary protective equipment (PPE) and medical supplies. Additionally, more recognition should be given to the roles of behind-the-scenes workers, such as laboratory technicians, who also faced significant risks and stress during the pandemic. Recommendations also emphasized the importance of

preparing healthcare systems with sufficient staffing, mental health support, and proper training for future health emergencies.

Therefore, the major findings of the qualitative information underscore the critical need for a more robust support system for healthcare workers, including enhanced emotional, social, and mental health resources, improved work-life balance, and greater recognition of the physical and emotional toll of healthcare work during crises.

Suggestions for future action

Based on the findings, the study presents the following suggestions and recommendations for intervention. These are categorized into, institutional-related, research-level, and social work intervention strategies.

A. Policy related

The mental and emotional challenges faced by healthcare workers during the pandemic were immense, significantly affecting the lives of many healthcare professionals in Mizoram. Existing policies in India, such as the Mental Healthcare Act, 2017, the National Mental Health Programme, the Occupational Safety, Health, and Working Conditions Code, 2020, and guidelines from the Indian Medical Association (IMA), do not fully address the mental and emotional needs of healthcare workers, especially during public health crises. The study also revealed that professional counselling and mental health support were insufficient to help workers cope with the challenges they faced in the workplace, highlighting the need for greater attention to restore their mental and emotional well-being. While the *Employee Assistance Programs (EAPs)* in the United States have widely recognized in the healthcare sectors providing confidential counselling and support services to the HCWs who have faced problems due to their work.

The *Mental Healthcare Act, 2017* primarily focuses on protecting the rights of individuals with mental illnesses, but it does not specifically address the needs of healthcare workers (HCWs). The *National Mental Health Programme* aims to improve mental health services and access to care across the country, but it is designed for the general population and does not target healthcare workers directly.

The *Occupational Safety, Health, and Working Conditions Code, 2020* seeks to improve working conditions across all sectors, requiring institutions to ensure the safety and well-being of workers, which could include mental health support. While it focuses on physical safety, it also acknowledges the importance of creating a safe working environment. *Employee Assistance Programs (EAPs)* have recently been introduced in India, particularly in the private healthcare sector, but their implementation is not mandatory and depends on the decisions of individual institutions. In addition, the *Indian Medical Association (IMA)* has developed guidelines to address the mental health and emotional well-being of healthcare workers, emphasizing the importance of stress management, counselling, and a supportive work environment. While these guidelines are not mandatory and are primarily suggestions for healthcare institutions. Without mandatory implementation, some institutions may not adhere to these guidelines or may lack the resources to fully implement them.

While looking at other countries there are *National Institute for Occupational Safety and Health (NIOSH) Guidelines* in the US, this is a comprehensive guideline for worker safety, including mental health support for healthcare workers. The guidelines emphasize stress management, coping strategies, and the importance of psychological well-being. *NHS Wellbeing Framework* in the UK, this is a framework to address the mental and emotional health of healthcare workers. This includes counselling, stress management workshops, resilience training, and a focus on work-life balance as well as wellbeing guardians who monitor and advocate for staff well-being. *The Canadian Mental Health Association (CMHA) Initiatives* which offers mental health resources, including programs specifically designed for healthcare workers. It also promotes workplace mental health strategies, such as peer support groups, stress management, and counselling services. *National Mental Health Strategy* in Australia, this strategy promotes mental health in the workplace. It encourages healthcare institutions to adopt mental health policies and implement stress management programs for HCWs.

Suggestions and recommendations to improve the mental and emotional well-being of the healthcare workers are as follows:

1. Introduce a comprehensive Mental Health Policy for HCWs

- **Dedicated Policy:** India should implement a specific policy focused on the mental and emotional well-being of healthcare workers. This policy should include mandatory mental health support, regular screenings, counselling services, stress management programs, and specialized support for HCWs in crisis situations.
- **Integration with Existing Frameworks:** Integrating mental health provisions into existing frameworks like the *Mental Healthcare Act, 2017* and the *National Mental Health Programme* can ensure that HCWs benefit directly from these services.

2. Mental health support mandatory in all healthcare institutions

- **Legislative Requirement:** Healthcare institutions (public and private) should be legally required to provide comprehensive mental health support systems. This could include: counselling services, access to psychological therapies, resilience and stress management workshops, Peer support groups
- **Accessibility:** Mental health support should be easily accessible, confidential, and available during all shifts, especially in high-stress departments such as emergency rooms and intensive care units.

3. Expand Employee Assistance Programs (EAPs)

- **Mandatory EAPs for All Healthcare Institutions:** Make EAPs mandatory across both private and public healthcare sectors. These programs should offer: confidential counselling, immediate crisis intervention, long-term psychological support for workers dealing with trauma or burnout.

4. Implement mental health days off

- **Paid Mental Health Leave:** Just as sick leave is given for physical health concerns; healthcare workers should be granted paid mental health days. These days will allow HCWs to take a break when they feel emotionally or mentally exhausted, ensuring they can recover without the fear of losing their

pay or job security. Encourage regular rest periods and days off to prevent burnout and to allow workers to decompress after challenging shifts.

5. Implement Regular Mental Health Training and Education

- **Awareness and Destigmatization:** Educate HCWs about the importance of mental health and encourage them to seek help when needed. Training programs should aim to reduce the stigma around mental health issues and encourage workers to use available support systems.
- **Ongoing Training:** Incorporate stress management, emotional resilience, and self-care techniques into regular training programs for HCWs. This training should be provided at the start of their career and periodically throughout their employment.

6. Improving IMA guidelines

- **Mandate Implementation:** The Indian Medical Association (IMA) guidelines should be made mandatory for all healthcare institutions, both public and private. This can be done by working with the government to introduce regulations that require healthcare facilities to adopt and follow these mental health guidelines. Mandatory implementation ensures that mental health support is universally available to all healthcare workers, reducing the inconsistency seen across institutions.
- **Tailored guidelines for public health emergencies:** The IMA guidelines should be updated to include provisions that specifically address the mental and emotional needs of healthcare workers during public health emergencies such as pandemics or natural disasters. This could involve introducing special mental health care strategies, such as immediate psychological support, trauma counselling, and temporary relief from high-stress duties during peak periods of crisis.

7. Healthcare Worker Well-being Framework (Modelled on NHS UK)

- This framework would make well-being a priority in healthcare institutions by providing a structured approach to support HCWs and address mental health issues. Designate wellbeing guardians in every hospital or healthcare facility. These individuals would advocate for and monitor the well-being of healthcare workers.

B. Institutional related

Healthcare institutions have made significant efforts to protect their employees through provisions like personal protective equipment (PPE), vaccination against infectious diseases, and legal safeguards such as the *Epidemic Diseases (Amendment) Act, 2020* and the *Prevention of Violence Against Healthcare Professionals and Clinical Establishments Act, 2022*. These measures primarily focus on the physical health, safety, and protection of healthcare workers (HCWs) against abuse and unsafe working conditions. While these provisions are important, healthcare institutions need to go beyond just physical protection and also focus on the mental, emotional, and psychological well-being of HCWs.

Both the *Epidemic Diseases (Amendment) Act, 2020* and the *Prevention of Violence Against Healthcare Professionals and Clinical Establishments Act, 2022* focus primarily on *physical safety* and *legal protection* for healthcare workers (HCWs) during public health emergencies and instances of violence. While both Acts play a crucial role in safeguarding HCWs from *physical harm and violence*, they do not specifically address the *mental health and emotional well-being* of HCWs, which are critical components of their overall health, especially in high-stress environments like hospitals and during public health crises.

Suggestions and recommendations for the institutions to strengthened and improve the well-being of the HCWs are;

1. Integrating mental health provisions in the acts

- Both Acts should include *mental health care provisions* as part of the legal protections for HCWs. This would include requiring healthcare institutions to

establish mental health support systems, such as on-site counsellors, psychologists, or access to mental health professionals during high-stress periods or public health crises.

2. Mandating regular mental health screenings and assessments

- Incorporate *mandatory mental health screenings* for HCWs, similar to routine physical check-ups. These screenings would help identify early signs of *stress*, *burnout*, or *trauma* and offer appropriate interventions before these conditions become severe.
- These screenings should be done regularly, especially after HCWs have been exposed to stressful situations or crises, such as after long shifts, exposure to trauma, or patient deaths.

3. Strengthened professional Social Worker at the hospitals setting

- Hospital-based social workers primarily focus on patient care; however, healthcare institutions should expand and enhance their services to also support healthcare workers (HCWs), providing them with the emotional and psychological assistance they need.

4. Mental Health and Well-Being Policies for HCWs

- **Policy Focus:** A dedicated Mental Health Policy specifically for healthcare workers should be developed and enforced by healthcare institutions. This policy should focus on mental health screenings, access to counselling services, stress management programs, and overall emotional well-being.
- **Implementation:** The policy should ensure that all healthcare workers have access to mental health support, including on-site counsellors, regular psychological assessments, and resilience training programs to prevent burnout and stress.

5. Employee Assistance Programs (EAPs)

- **Policy Focus: Employee Assistance Programs (EAPs)** should be made mandatory for all healthcare institutions. These programs provide confidential counselling, mental health support, and crisis intervention services.

- **Implementation:** EAPs should be designed to support healthcare workers through confidential counselling, stress management workshops, and immediate emotional support during high-stress periods such as public health crises.

C. Social work interventions

The study highlights significant challenges faced by healthcare workers (HCWs) during the COVID-19 pandemic, including emotional distress, mental health struggles, physical exhaustion, and difficulty balancing work and personal life. These issues emphasize the urgent need for social work interventions to improve their well-being. Social work interventions aim to enhance quality of life by addressing emotional, mental, and physical challenges through structured approaches. These methods provide practical solutions, emotional support, and advocacy.

Social work methods include social case work, which involves one-on-one support to assess and address personal issues; group work, where individuals with similar challenges come together for mutual support; and community organization, which focuses on mobilizing communities to address larger social issues. Social welfare administration ensures social services effectively meet people's needs, while research helps improve interventions and develop evidence-based practices. Below are the social work methods that can be implemented to address these issues and improve healthcare workers' overall well-being. To address these challenges, social work interventions should be developed at the *micro*, *macro*, and *mezzo* levels, with tailored approaches for individual, organizational, and societal needs.

i. Micro Level Interventions (Individual Focus)

At the micro level, the focus is on **individual healthcare workers** and their immediate needs. Social workers can intervene by providing:

1. **Psychological Support and Counselling:** Healthcare workers should have access to regular individual counselling or psychotherapy sessions to help manage stress, burnout, and mental health challenges. These sessions can be delivered both in-person and virtually to ensure accessibility. Additionally, social workers can assist in developing coping strategies for stress management, emotional regulation, and self-care practices.
2. **Health Education and Training:** Training programs focused on mental health awareness, stress management, and coping strategies can be provided to help healthcare workers recognize signs of stress, burnout, and emotional fatigue early. Social workers can also offer self-care workshops that encourage healthcare workers to prioritize their well-being, focusing on proper time management, sleep hygiene, and physical fitness.
3. **Peer Support Systems:** Social workers can help establish peer support groups where healthcare workers can share their experiences, offer emotional support, and discuss the challenges they face. This can enhance their social support networks and provide a safe space for emotional expression.

ii. Mezzo Level Interventions (Group or Organizational Focus)

At the mezzo level, social work interventions can target *teams, departments, and organizations* to improve the collective well-being of healthcare workers. Possible interventions include:

1. **Workplace Support Programs:** Social workers can develop programs that focus on improving the workplace environment, such as ensuring adequate break times, rotating shifts, and manageable workloads to reduce the physical and mental strain. They can also promote mental health days and stress-relief activities to encourage employees to take necessary breaks and focus on their well-being.
2. **Support Networks and Employee Assistance Programs (EAPs):** Social workers can work with healthcare institutions to expand Employee Assistance Programs (EAPs) that provide counselling, stress management, and other supportive services. Establishing a mentorship or buddy system within teams

could also help less experienced or overwhelmed workers navigate the high-pressure environment of healthcare.

- 3. Incorporation of Well-Being Initiatives:** Within healthcare institutions, social workers can advocate for well-being initiatives such as wellness programs, mental health training for staff, and better PPE provisions to ensure a more supportive and safer work environment. Collaborating with HR departments, they can implement policies that address mental health issues and support healthcare workers during crises.

iii. Macro Level Interventions (Societal or Policy Focus)

At the macro level, interventions focus on *societal, policy, and systemic changes* that address broader issues affecting healthcare workers. Social workers can play a key role in advocating for changes in healthcare policies, funding, and public health systems. Key interventions include:

- 1. Advocacy for Better Mental Health Policies:** Social workers can advocate for national or regional policies that prioritize mental health support for healthcare workers. This may include policies that fund and mandate regular mental health check-ups, counselling services, and the development of psychological support systems within healthcare institutions.
- 2. Government Support and Public Health Infrastructure:** At the macro level, social workers can work with governments to ensure that healthcare workers' needs are recognized and met. This includes advocating for adequate staffing levels, improved PPE availability, better working conditions, and financial incentives for healthcare workers. Social workers can also lobby for mental health initiatives to be embedded in public health responses during future crises.
- 3. Community-Based Programs:** Social workers can partner with community organizations to create community support networks for healthcare workers. These programs can focus on reducing stigma, increasing public appreciation,

and fostering a community-wide support system to ensure healthcare workers feel valued and supported in their efforts.

- 4. Policy Development for Work-Life Balance:** Social workers can collaborate with policymakers to implement work-life balance policies that offer flexible working hours, increased leave, and paid time off for healthcare workers. These policies can help mitigate the personal and emotional strain faced by HCWs, ensuring their mental and physical well-being is prioritized.

Social work interventions at the *micro*, *mezzo*, and *macro* levels are essential to improving the well-being of healthcare workers, especially during public health crises like the COVID-19 pandemic. At the *micro level*, social workers can offer direct support to individuals, enhancing coping mechanisms and mental health resilience. At the *mezzo level*, workplace initiatives can provide structured support within healthcare institutions to improve working conditions and mental health resources. Finally, at the *macro level*, social workers can advocate for systemic changes that ensure healthcare workers have the necessary resources, support, and policies in place to protect their well-being. By addressing these needs, healthcare systems can create a more supportive environment that enhances the emotional, physical, and mental well-being of those on the frontlines.

D. Multidisciplinary approach

The challenges faced by healthcare workers require a multidisciplinary approach, as their mental, emotional, and psychosocial needs cannot be addressed by healthcare professionals alone. While they are capable of managing the medical aspects of their work, they require support from other disciplines to address the emotional and psychosocial aspects of their well-being.

Social work can evaluate healthcare workers' well-being using a bio-psycho-spiritual approach, which goes beyond medical treatment to address their physical, psychological, and spiritual needs.

Bio: The biological or medical aspect, which is traditionally handled by doctors and nurses, addresses physical health, physical stress, and direct medical care for HCWs.

Psycho: The psychological aspect, which is critical in managing stress, trauma, anxiety, depression, or burnout, requires mental health professionals like psychologists, counsellors, or psychiatrists. Social workers also contribute to this by providing counselling and emotional support.

Spiritual: The spiritual or existential aspects may relate to personal meaning, coping with moral distress, or finding a sense of purpose in challenging work. This can involve support from chaplains or spiritual counsellors, helping HCWs address spiritual crises or emotional burnout related to their work.

E. Role of social work in a multidisciplinary approach

Social work, specifically, brings a holistic approach by addressing the social and psychosocial factors affecting HCWs. Social workers can provide:

- Emotional **support** through counselling and one-on-one sessions.
- Crisis intervention during traumatic events or high-stress situations.
- Advocacy for systemic changes to improve HCWs' working conditions and emotional well-being.
- Peer support and group therapy to reduce feelings of isolation and encourage mutual support among colleagues.
- Connecting HCWs with community resources for external support, such as family care, housing assistance, or financial aid, which can impact their mental health.

F. Future research prospects

1. Impact of social support systems on mental health outcomes
2. Long-term effects of occupational stress and social support
3. Effectiveness of social support programs
4. Social work interventions and their impact on HCWs' well-being
5. Cultural differences in social support systems

Conclusion

The study has shown the resilience and vulnerability of Mizoram's healthcare workers under pandemic conditions. It shows that when the workload increases and resources are limited, it leads to physical and mental harm. However, when there is strong support from others such as family, peer and colleagues and the organization responds well, their well-being improves, and the healthcare system performs better. The study emphasizes the importance of listening to healthcare workers' experiences and calls for ongoing efforts to protect their safety, recovery, and dignity, as they are key to a strong healthcare system.

REFERENCES

- Aggarwal, S., Simmy, S., Mahajan, N., & Nigam, K. (2024). Challenges Experienced by Health Care Workers During Service Delivery in the Geographically Challenging Terrains of North-East India: Study Involving a Thematic Analysis. *JMIR Formative Research*, 8, e57384. <https://doi.org/10.2196/57384>
- Alhourri, A., Abu Shokor, M., Marwa, K., Sharabi, A., Mohammad Nazir Arrouk, D., Al Hourri, F. N., & Al Hourri, H. (2023). COVID-19 and Its Impact on Healthcare Workers: Understanding Stigma, Stress, and Quality of Life. *Cureus*, 15(4), e37846. <https://doi.org/10.7759/cureus.37846>
- Alon, T., Doepke, M., Olmstead-Rumsey, J., & Tertilt, M. (2020). *The Impact of COVID-19 on Gender Equality* (No. w26947; p. w26947). National Bureau of Economic Research. <https://doi.org/10.3386/w26947>
- Alrajhi, A. M., Hussain, W. A.-H., Rafie, B. A., Taj, M., & Elgarf, A. M. (2022). Knowledge and awareness of COVID-19 epidemic preparedness and response among health care workers in Makkah city. *Therapeutic Advances in Infectious Disease*, 9, 204993612210794. <https://doi.org/10.1177/20499361221079452>
- Andrews, M., Areekal, B., Rajesh, K., Krishnan, J., Suryakala, R., Krishnan, B., Muraly, C., & Santhosh, P. (2020). First confirmed case of COVID-19 infection in India: A case report. *Indian Journal of Medical Research*, 151(5), 490. https://doi.org/10.4103/ijmr.ijmr_2131_20
- Athe, R., Dwivedi, R., Singh, K., Babusab Hulmani, S., Karadi, N., Boraiah, C., & Vasu, S. (2023). Impact of COVID-19 on the Mental Health of Healthcare Workers and Job Loss from a Gender Perspective in India: A Systematic Review and Meta-Analysis. *Cureus*. <https://doi.org/10.7759/cureus.48219>
- Baker, M. G., Wilson, N., & Anglemeyer, A. (2020). Successful Elimination of Covid-19 Transmission in New Zealand. *New England Journal of Medicine*, 383(8). <https://doi.org/10.1056/NEJMc2025203>
- Bakker, A. B., Demerouti, E., & Sanz-Vergel, A. I. (2021). Burnout and work engagement: The JD–R approach. *Annual Review of Organizational Psychology and Organizational Behavior*, 8, 407–431. <https://doi.org/10.1146/annurev-orgpsych-012119-045129>
- Baskin, R. G., & Bartlett, R. (2021). Healthcare worker resilience during the COVID-19 pandemic: An integrative review. *Journal of Nursing Management*, 29(8), 2329–2342. <https://doi.org/10.1111/jonm.13395>
- Biber, J., Ranes, B., Lawrence, S., Malpani, V., Trinh, T. T., Cyders, A., English, S., Staub, C. L., McCausland, K. L., Kosinski, M., Baranwal, N., Berg, D., & Pop, R. (2022). Mental health impact on healthcare workers due to the COVID-19

- pandemic: A U.S. cross-sectional survey study. *Journal of Patient-Reported Outcomes*, 6(1), 63. <https://doi.org/10.1186/s41687-022-00467-6>
- Biswas, B., Das, K., & Chouhan, P. (2022). Assessment of COVID-19 pandemic healthcare infrastructure of Mizoram, India. *International Journal of Health Sciences*, 3535–3554. <https://doi.org/10.53730/ijhs.v6nS6.10188>
- Boucher, V. G., Dahl, M., Lee, J., Faulkner, G., Beauchamp, M. R., & Puterman, E. (2025). An umbrella review and meta-analysis of 87 meta-analyses examining healthcare workers' mental health during the COVID-19 pandemic. *Journal of Affective Disorders*, 375, 423–436. <https://doi.org/10.1016/j.jad.2025.01.109>
- Casper, E. (2021). Occupational health risk among healthcare workers during COVID-19 pandemic: Actions to limit the risk. *Journal of the Egyptian Public Health Association*, 96(1), 13. <https://doi.org/10.1186/s42506-021-00076-z>
- Chatterjee, S. S., Chakrabarty, M., Banerjee, D., Grover, S., Chatterjee, S. S., & Dan, U. (2021). Stress, Sleep and Psychological Impact in Healthcare Workers During the Early Phase of COVID-19 in India: A Factor Analysis. *Frontiers in Psychology*, 12, 611314. <https://doi.org/10.3389/fpsyg.2021.611314>
- Chatzittofis, A., Constantinidou, A., Artemiadis, A., Michailidou, K., & Karanikola, M. N. K. (2021). The Role of Perceived Organizational Support in Mental Health of Healthcare Workers During the COVID-19 Pandemic: A Cross-Sectional Study. *Frontiers in Psychiatry*, 12, 707293. <https://doi.org/10.3389/fpsyt.2021.707293>
- Che Huei, L., Chiu Ming, Y., Ya-Wen, L., Li Chen, H., Jong Yi, W., & Ming Hung, L. (2020). Occupational health and safety hazards faced by healthcare professionals in Taiwan: A systematic review of risk factors and control strategies. *SAGE Open Medicine*, 8, 2050312120918999. <https://doi.org/10.1177/2050312120918999>
- Chhablani, N., & Choudhari, S. G. (2022). Behind the Frontline: A Review on the Impact of COVID-19 Pandemic on Healthcare Workers. *Cureus*. <https://doi.org/10.7759/cureus.29349>
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98(2), 310–357. <https://doi.org/10.1037/0033-2909.98.2.310>
- Debbarma, S. (2023). COVID-19 Pandemic and Challenges Faced by Healthcare Professionals in India. *Cureus*, 15(4), e38278. <https://doi.org/10.7759/cureus.38278>
- Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist*, 55(1), 34–43. <https://doi.org/10.1037/0003-066X.55.1.34>

- Diener, E., & Seligman, M. E. P. (2004). Beyond money: Toward an economy of well-being. *Psychological Science in the Public Interest*, 5(1), 1–31. <https://doi.org/10.1111/j.0963-7214.2004.00501001.x>
- Dorn, A. V., Cooney, R. E., & Sabin, M. L. (2020). COVID-19 exacerbating inequalities in the US. *The Lancet*, 395(10232), 1243–1244. [https://doi.org/10.1016/S0140-6736\(20\)30893-X](https://doi.org/10.1016/S0140-6736(20)30893-X)
- Dutta, A., & Fischer, H. W. (2021). The local governance of COVID-19: Disease prevention and social security in rural India. *World Development*, 138, 105234. <https://doi.org/10.1016/j.worlddev.2020.105234>
- Elhadi, M., Msherghi, A., Alkeelani, M., Zorgani, A., Zaid, A., Alsuyihili, A., Buzreg, A., Ahmed, H., Elhadi, A., Khaled, A., Boughididah, T., Khel, S., Abdelkadir, M., Gaffaz, R., Bahroun, S., Alhashimi, A., Biala, M., Abulmida, S., Elharb, A., ... Amshai, A. (2020). Assessment of Healthcare Workers' Levels of Preparedness and Awareness Regarding COVID-19 Infection in Low-Resource Settings. *The American Journal of Tropical Medicine and Hygiene*, 103(2), 828–833. <https://doi.org/10.4269/ajtmh.20-0330>
- Gupta, N., Dhamija, S., Patil, J., & Chaudhari, B. (2021). Impact of COVID-19 pandemic on healthcare workers. *Industrial Psychiatry Journal*, 30(Suppl 1), S282–S284. <https://doi.org/10.4103/0972-6748.328830>
- Hall, H. (2020). The effect of the COVID-19 pandemic on healthcare workers' mental health. *Journal of the American Academy of Physician Assistants*, 33(7), 45–48. <https://doi.org/10.1097/01.JAA.0000669772.78848.8c>
- Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, 44(3), 513–524. <https://doi.org/10.1037/0003-066x.44.3.513>
- House, J. S. (1981). *Work Stress and Social Support* (Vol. 12). <http://www.jstor.org/stable/2069001?origin=crossref>
- House, J. S. (1981). *Work stress and social support*. Addison-Wesley.
- Huang, L., Liu, X., & Wang, T. (2021). Team-based problem-solving approaches and their effect on job satisfaction and productivity. *Journal of Applied Behavioral Science*, 56(1), 75–94.
- Huppert, F. A., & So, T. T. C. (2013). Flourishing across Europe: Application of a new conceptual framework for defining well-being. *Social Indicators Research*, 110(3), 837–861. <https://doi.org/10.1007/s11205-011-9966-7>
- Huy, N. T., Chico, R. M., Huan, V. T., Shaikhkhalil, H. W., Uyen, V. N. T., Qarawi, A. T. A., Alhady, S. T. M., Vuong, N. L., Truong, L. V., Luu, M. N., Dumre, S. P., Imoto, A., Lee, P. N., Tam, D. N. H., Ng, S. J., Hashan, M. R., Matsui, M., Duc, N. T. M., Karimzadeh, S., ... contributors of the TMGH-Global

- COVID-19 Collaborative. (2021). Awareness and preparedness of healthcare workers against the first wave of the COVID-19 pandemic: A cross-sectional survey across 57 countries. *PLOS ONE*, 16(12), e0258348. <https://doi.org/10.1371/journal.pone.0258348>
- Jamir, L., Najeeb, S., & Aravindakshan, R. (2020). COVID-19 preparedness among public and healthcare providers in the initial days of nationwide lockdown in India: A rapid electronic survey. *Journal of Family Medicine and Primary Care*, 9(9), 4756. https://doi.org/10.4103/jfmmpc.jfmmpc_902_20
- Jeleff, M., Traugott, M., Jirovsky-Platter, E., Jordakieva, G., & Kutalek, R. (2022). Occupational challenges of healthcare workers during the COVID-19 pandemic: A qualitative study. *BMJ Open*, 12(3), e054516. <https://doi.org/10.1136/bmjopen-2021-054516>
- Joseph, B., & Joseph, M. (2016). The health of the healthcare workers. *Indian Journal of Occupational and Environmental Medicine*, 20(2), 71–72. <https://doi.org/10.4103/0019-5278.197518>
- Kamaryati, N. P., & Malathum, P. (2020). *Family Support: A Concept Analysis*. 24(3), 9.
- Kapoor, M., Nidhi Kaur, K., Saeed, S., Shannawaz, M., & Chandra, A. (2023). Impact of COVID-19 on healthcare system in India: A systematic review. *Journal of Public Health Research*, 12(3), 22799036231186349. <https://doi.org/10.1177/22799036231186349>
- Karan, A., Negandhi, H., Hussain, S., Zapata, T., Mairembam, D., De Graeve, H., Buchan, J., & Zodpey, S. (2021). Size, composition and distribution of health workforce in India: Why, and where to invest? *Human Resources for Health*, 19(1), 39. <https://doi.org/10.1186/s12960-021-00575-2>
- Kaufman, S., Hamlin, D., & Greco, E. (2015). The power of teamwork: Building better workplaces through collaborative problem-solving. *Journal of Business and Psychology*, 30(4), 553–567.
- Keyes, C. L. M. (1998). Social well-being. *Social Psychology Quarterly*, 61(2), 121–140. <https://doi.org/10.2307/2787065>
- Kisely, S., Warren, N., McMahon, L., Dalais, C., Henry, I., & Siskind, D. (2020). Occurrence, prevention, and management of the psychological effects of emerging virus outbreaks on healthcare workers: Rapid review and meta-analysis. *BMJ*, m1642. <https://doi.org/10.1136/bmj.m1642>
- Koh, D., Lim, M. K., & Chia, S. E. (2020). Managing mental health challenges faced by healthcare workers during COVID-19 pandemic: A review of the literature. *International Journal of Occupational and Environmental Medicine*, 11(2), 95–105.

- Koh, D., Lim, M. K., & Chia, S. E. (2020). Managing mental health challenges faced by healthcare workers during COVID-19 pandemic: A review of the literature. *International Journal of Occupational and Environmental Medicine*, 11(2), 95–105.
- Kumar, Y. S., & Kamath, J. S. (2024). Healthcare Workers on the Frontlines of War: Essential Roles and Responsibilities. *American Journal of Medicine Open*, 11, 100064. <https://doi.org/10.1016/j.ajmo.2024.100064>
- Labrague, L. J., McEnroe-Petitte, D. M., Leocadio, M. C., Van Bogaert, P., & Cummings, G. G. (2018). Stress and ways of coping among nurse managers: An integrative review. *Journal of Clinical Nursing*, 27(7–8), 1346–1359. <https://doi.org/10.1111/jocn.14165>
- Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., Wu, J., Du, H., Chen, T., Li, R., Tan, H., Kang, L., Yao, L., Huang, M., Wang, H., Wang, G., Liu, Z., & Hu, S. (2020). Factors Associated With Mental Health Outcomes Among Health Care Workers Exposed to Coronavirus Disease 2019. *JAMA Network Open*, 3(3), e203976. <https://doi.org/10.1001/jamanetworkopen.2020.3976>
- Lalramdini, C., Lalremsanga, H. T., Saikia, L., & Malsawmtluanga, H. T. (2024). Perceived stress and coping strategies among B.Sc. Nursing students in Mizoram during COVID-19 pandemic. *Indian Journal of Psychiatric Nursing*, 21(1), 10–16.
- Lalrinzuala, & Elizabeth, H. (2021). Challenges of women healthcare providers during Covid-19 pandemic in Aizawl City, Mizoram, India. *International Journal of Science and Healthcare Research*, 6(3), 221–224.
- Langford, C. P. H., Bowsher, J., Maloney, J. P., & Lillis, P. P. (1997). Social support: A conceptual analysis. *Journal of Advanced Nursing*, 25(1), 95–100. <https://doi.org/10.1046/j.1365-2648.1997.1997025095.x>
- Lazarus, R. S., & Folkman, S. (2020). Stress, appraisal, and coping. *Springer Publishing Company*.
- Loeppke, R., Boldrighini, J., Bowe, J., Braun, B., Eggins, E., Eisenberg, B. S., Grundy, P., Hohn, T., Hudson, T. W., Kannas, J., Kapp, E. A., Konicki, D., Larson, P., McCutcheon, S., McLellan, R. K., Ording, J., Perkins, C., Russi, M., Stutts, C., & Yarbrough, M. (2017). Interaction of Health Care Worker Health and Safety and Patient Health and Safety in the US Health Care System: Recommendations From the 2016 Summit. *Journal of Occupational & Environmental Medicine*, 59(8), 803–813. <https://doi.org/10.1097/JOM.0000000000001100>
- Madhavan, R. (2020, November 20). Stressed doctors turn to state psychiatric helpline. *The New Indian Express*.

<https://www.newindianexpress.com/cities/bengaluru/2020/nov/20/stressed-doctors-turn-to-state-psychiatric-helpline-2225640.html>

- MaloneBeach, E. E., & Zarit, S. H. (1995). Dimensions of Social Support and Social Conflict as Predictors of Caregiver Depression. *International Psychogeriatrics*, 7(1), 25–38. <https://doi.org/10.1017/S1041610295001827>
- Maslach, C., & Leiter, M. P. (2016). *Burnout: A social and occupational perspective*. CRC Press.
- Mathias, E. G., Anupama, D. S., Phagdol, T., & Nayak, B. S. (2023). Impact of COVID-19 on mental health among healthcare workers in India: A mixed-methods systematic review. *Oman Medical Journal*, 38(5), e544. <https://doi.org/10.5001/omj.2023.111>
- Matta, M. A., Fitzpatrick, M., & Wright, P. A. (2021). Peer support programs for healthcare workers: A review of the literature. *Journal of Healthcare Leadership*, 13, 21–31. <https://doi.org/10.2147/JHL.S317411>
- Mondal, M., & Chakraborty, C. (2022). The analysis of unparalleled struggle for existence of urban women informal workers in West Bengal, India for survival and resilience to COVID-19 pandemic risk. *GeoJournal*, 87(S4), 607–630. <https://doi.org/10.1007/s10708-022-10620-9>
- Mukherjee, A., Bandyopadhyay, G., & Chatterjee, S. S. (2021). COVID-19 pandemic: Mental health and beyond – the Indian perspective. *Irish Journal of Psychological Medicine*, 38(2), 140–144. <https://doi.org/10.1017/ipm.2020.63>
- Murray, C. J. L., & Piot, P. (2021). The Potential Future of the COVID-19 Pandemic: Will SARS-CoV-2 Become a Recurrent Seasonal Infection? *JAMA*, 325(13), 1249. <https://doi.org/10.1001/jama.2021.2828>
- Nicola, M., Alsafi, Z., Sohrabi, C., Kerwan, A., Al-Jabir, A., Iosifidis, C., Agha, M., & Agha, R. (2020). The socio-economic implications of the coronavirus pandemic (COVID-19): A review. *International Journal of Surgery*, 78, 185–193. <https://doi.org/10.1016/j.ijsu.2020.04.018>
- Nikore, M., Mehta, C., & Kanikar, A. (2023). COVID-19 and the Indian Economy: Constructing Roadmaps to an Inclusive Recovery. In S. Pachauri & A. Pachauri (Eds.), *Global Perspectives of COVID-19 Pandemic on Health, Education, and Role of Media* (pp. 99–146). Springer Nature Singapore. https://doi.org/10.1007/978-981-99-1106-6_6
- P. V., R., & Varma, Dr. A. J. (2020). Safety of Healthcare Workers in India. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3629428>
- Paolo Emilio Santoro, Ivan Borrelli, Maria Rosaria Gualano, Carlotta Amantea, Antonio Tumminello, Alessandra Daniele, Maria Francesca Rossi, & Umberto Moscato. (2022). Occupational hazards and gender differences: A narrative

- review. *Italian Journal of Gender-Specific Medicine*, 2022September-December. <https://doi.org/10.1723/3927.39110>
- Pappa, S., Ntella, V., Giannakas, T., Giannakoulis, V. G., Papoutsis, E., & Katsaounou, P. (2020). Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain, Behavior, and Immunity*, 88, 901–907. <https://doi.org/10.1016/j.bbi.2020.05.026>
- Parthasarathy, R., Ts, J., K, T., & Murthy, P. (2021). Mental health issues among health care workers during the COVID-19 pandemic – A study from India. *Asian Journal of Psychiatry*, 58, 102626. <https://doi.org/10.1016/j.ajp.2021.102626>
- Patel, A., Patel, S., Fulzele, P., Mohod, S., & Chhabra, K. G. (2020). Quarantine an effective mode for control of the spread of COVID19? A review. *Journal of Family Medicine and Primary Care*, 9(8), 3867–3871. https://doi.org/10.4103/jfmpc.jfmpc_785_20
- Petersen, E., Koopmans, M., Go, U., Hamer, D. H., Petrosillo, N., Castelli, F., Storgaard, M., Al Khalili, S., & Simonsen, L. (2020). Comparing SARS-CoV-2 with SARS-CoV and influenza pandemics. *The Lancet Infectious Diseases*, 20(9), e238–e244. [https://doi.org/10.1016/S1473-3099\(20\)30484-9](https://doi.org/10.1016/S1473-3099(20)30484-9)
- Raman, R., Patel, K. J., & Juneja, D. (2021). COVID-19 vaccination in India: Progress and challenges. *Indian Journal of Public Health*, 65(3), 217–222.
- Ripp, J., Peccoralo, L., & Charney, D. (2020). Attending to the Emotional Well-Being of the Health Care Workforce in a New York City Health System During the COVID-19 Pandemic. *Academic Medicine*, 95(8), 1136–1139. <https://doi.org/10.1097/ACM.0000000000003414>
- Ruggeri, K., Garcia-Garzon, E., Maguire, Á., Matz, S., & Huppert, F. A. (2020). Well-being is more than happiness and life satisfaction: A multidimensional analysis of 21 countries. *Health and Quality of Life Outcomes*, 18(1), 192. <https://doi.org/10.1186/s12955-020-01423-y>
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069–1081. <https://doi.org/10.1037/0022-3514.57.6.1069>
- Sachs, J., Schmidt-Traub, G., Kroll, C., Lafortune, G., & Fuller, G. (2021). *Sustainable Development Report 2020: The Sustainable Development Goals and Covid-19 Includes the SDG Index and Dashboards* (1st ed.). Cambridge University Press. <https://doi.org/10.1017/9781108992411>
- Saha, R. K. (2018). Occupational Health in India. *Annals of Global Health*, 84(3), 330–333. <https://doi.org/10.29024/aogh.2302>

- Şahin, M. K., Aker, S., Şahin, G., & Karabekiroğlu, A. (2020). Prevalence of Depression, Anxiety, Distress and Insomnia and Related Factors in Healthcare Workers During COVID-19 Pandemic in Turkey. *Journal of Community Health*, 45(6), 1168–1177. <https://doi.org/10.1007/s10900-020-00921-w>
- Saiyed, H., Jaitli, H., & Jain, P. (2006). Introduction to Occupational Health and Safety Programs. *Journal for Units of Certificate in Occupational Health and Safety Unit*, 1–30.
- Saragih, I. D., Tonapa, S. I., Saragih, I. S., Advani, S., Batubara, S. O., Suarilah, I., & Lin, C.-J. (2021). Global prevalence of mental health problems among healthcare workers during the Covid-19 pandemic: A systematic review and meta-analysis. *International Journal of Nursing Studies*, 121, 104002. <https://doi.org/10.1016/j.ijnurstu.2021.104002>
- Sasangohar, F., Jones, S. L., Masud, F. N., Vahidy, F. S., & Kash, B. A. (2020). Provider Burnout and Fatigue During the COVID-19 Pandemic: Lessons Learned from a High-Volume Intensive Care Unit. *Anesthesia & Analgesia*, 131(1), 106–111. <https://doi.org/10.1213/ANE.0000000000004866>
- Schlünssen, V., & Jones, R. M. (2023). Gender aspects in occupational exposure and health studies. *Annals of Work Exposures and Health*, 67(9), 1023–1026. <https://doi.org/10.1093/annweh/wxad063>
- Schorow, S. (2021). *Supporting the mental health of those on the COVID-19 frontlines*. Ariadne Labs. <https://www.ariadnelabs.org/2021/12/10/supporting-the-mental-health-of-those-on-the-covid-19-frontlines/>
- Shanafelt, T., Ripp, J., & Trockel, M. (2020). Understanding and Addressing Sources of Anxiety Among Health Care Professionals During the COVID-19 Pandemic. *JAMA*, 323(21), 2133. <https://doi.org/10.1001/jama.2020.5893>
- Sharma, N., Hasan, Z., Velayudhan, A., M. A., E., Mangal, D. K., & Gupta, S. D. (2020). Personal Protective Equipment: Challenges and Strategies to Combat COVID-19 in India: A Narrative Review. *Journal of Health Management*, 22(2), 157–168. <https://doi.org/10.1177/0972063420935540>
- Shaukat, N., Ali, D. M., & Razzak, J. (2020). Physical and mental health impacts of COVID-19 on healthcare workers: A scoping review. *International Journal of Emergency Medicine*, 13(1), 40. <https://doi.org/10.1186/s12245-020-00299-5>
- Smallwood, N., & Willis, K. (2021). Mental health among healthcare workers during the COVID-19 pandemic. *Respirology (Carlton, Vic.)*, 26(11), 1016–1017. <https://doi.org/10.1111/resp.14143>
- Smith, J. A., & Judd, J. (2020). COVID-19: Vulnerability and the power of privilege in a pandemic. *Health Promotion Journal of Australia*, 31(2), 158–160. <https://doi.org/10.1002/hpja.333>

- Smith, L., & Judd, J. (2020). The role of informational support in the healthcare system during COVID-19. *Journal of Health Communication*, 25(3), 193–199.
- Styra, R., Hawryluck, L., McGeer, A., Dimas, M., Lam, E., Giacobbe, P., Lorello, G., Dattani, N., Sheen, J., Rac, V. E., Francis, T., Wu, P. E., Luk, W.-S., Nadarajah, J., & Gold, W. L. (2022). Support for health care workers and psychological distress: Thinking about now and beyond the COVID-19 pandemic. *Health Promotion and Chronic Disease Prevention in Canada*, 42(10), 421–430. <https://doi.org/10.24095/hpcdp.42.10.01>
- Tan, B. Y. Q., Chew, N. W. S., Lee, G. K. H., Jing, M., Goh, Y., Yeo, L. L. L., Zhang, K., Chin, H.-K., Ahmad, A., Khan, F. A., Shanmugam, G. N., Chan, B. P. L., Sunny, S., Chandra, B., Ong, J. J. Y., Paliwal, P. R., Wong, L. Y. H., Sagayanathan, R., Chen, J. T., ... Sharma, V. K. (2020). Psychological Impact of the COVID-19 Pandemic on Health Care Workers in Singapore. *Annals of Internal Medicine*, 173(4), 317–320. <https://doi.org/10.7326/M20-1083>
- Thoits, P. A. (2011). Mechanisms linking social ties and support to physical and mental health. *Journal of Health and Social Behavior*, 52(2), 145–161. <https://doi.org/10.1177/0022146510395592>
- Tikka, S. K., Bhatia, V., Sahoo, D. P., Malathesh, B. C., Meena, S. K., & Nuthan, S. (2025). COVID-19 Pandemic–Related Perceived Stress, Insomnia, Depression, and Anxiety Among Rural Primary Care Health Workers: A Mediation Analysis. *The Primary Care Companion for CNS Disorders*, 27(1). <https://doi.org/10.4088/PCC.24m03723>
- Trivedi, A., Fontelera, M., Ishak, N., Lai, A., Win, K. N., Ismail, K., & Koh, D. (2022). Healthcare workers’ preparedness and response during COVID-19 pandemic. *Proceedings of Singapore Healthcare*, 31, 201010582110507. <https://doi.org/10.1177/20101058211050752>
- Vera San Juan, N., Aceituno, D., Djellouli, N., Sumray, K., Regenold, N., Syversen, A., Mulcahy Symmons, S., Dowrick, A., Mitchinson, L., Singleton, G., & Vindrola-Padros, C. (2021). Mental health and well-being of healthcare workers during the COVID-19 pandemic in the UK: Contrasting guidelines with experiences in practice. *BJPsych Open*, 7(1), e15. <https://doi.org/10.1192/bjo.2020.148>
- World Health Organization. (2001). *Occupational health: A manual for primary health care workers*. WHO.
- Zothantluanga, J. H., H., L., Shakya, A., & Joseph H., L. (2020). COVID-19 incidence in Mizoram, India. *Science Vision*, 20(3), 93–105. <https://doi.org/10.33493/scivis.20.03.01>