

OCCUPATIONAL HAZARDS OF WOMEN HEALTHCARE
WORKERS IN AIZAWL DISTRICT, MIZORAM

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degree of Master of Philosophy in Social Work

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Certificate

This is to certify that the dissertation titled, “*Occupational Hazards of Women Healthcare Workers in Aizawl District, Mizoram*” submitted by Mr Lalrinzuala, Reg no. MZU/M.Phil./615 of 12.06.2020 for the award of Master of Philosophy in Social Work is carried out under my guidance and incorporates the student’s bonafide research.

The scholar has fulfilled all the required norms laid down for the MPhil Regulations by the Mizoram University. The dissertation has not been submitted for award of any degree in this or any other university or institute of learning.

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Declaration

I, Lalrinzuala, hereby declare that the subject matter of this dissertation is the record of work done by me, that the contents of this dissertation 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 dissertation has not been submitted by me for any research degree in any other University/ Institute.

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LIST OF ABBREVIATIONS

ASHA	: Accredited Social Health Activist
ANM	: Auxiliary Nursing Midwifery
CDCP	: Centre for Disease Control and Prevention
DNA	: Diploma in Nursing Assistant
DGNM	: Diploma in General Nursing Midwifery
EU-OHSA	: European Union- Occupational Health Safety Act
FNA	: Female Nursing Assistant
GNM	: General Nursing Midwifery
HIV	: Human Immune Deficiency Virus
ILO	: International Labour Organization
MLT	: Medical Laboratory Technician
NIOH	: National Institute of Occupational Health
NSCI	: National Safety Council of India
PPE	: Personal Protective Equipment's
OHS	: Occupational Health and Safety
TB	: Tuberculosis
WHO	: World Health Organization

CHAPTER- I

INTRODUCTION

The present study examines the occupational hazards of women healthcare workers in Aizawl district, Mizoram. The study aims to explore the challenges faced by the women healthcare workers, assessing the coping strategies adopted in times of difficulties and the institutional support available for the women healthcare workers. This section introduces the occupational hazards, the meaning and concepts of occupational hazards, certain laws and regulations related to occupational hazards.

As defined by the Collin English dictionary occupational hazard is something that we may suffer or experience as a result of doing our job. Occupational hazards are the risk or accidents or illnesses that workers faced or encountered at the workplace. In other word, hazards that workers experience in their place of work (Awodele et. al., 2014)

The involvement of women in the healthcare sector is increasing globally over the past ten years. In the United Kingdom 89.4% of female healthcare workers are from the nursing and midwifery department and in the United States 93% of the nurses are female. In Canada 41% of physicians are female, in Australia and the United States women healthcare workers and social assistance workers comprises 79% and 78.4% of the health workforce respectively (Bagilhole & Cross, 2014). Women perform various roles and responsibilities in the healthcare sectors such as doctors, nurses, midwives, radiographers, laboratory technicians, administrative workers and others in important roles (Lantz, 2008). However, with the increasing number of women involved in the healthcare sectors, they continue to face many issues and challenges at the workplace (ALobaid et al., 2020).

Healthcare workers plays a significant role on the promotion and prevention of health for the population, they provided services directly and indirectly as a doctor, nurses and as nursing assistance, laboratory technicians, physiotherapist, radiographer, community health workers, ASHA workers and even medical waste handlers (Awodele et al., 2014; Joseph, 2016). Healthcare workers are employed in primary, secondary and tertiary levels of health settings, the World Health Report stated that there are 59 million (approx.) health workers worldwide and in India healthcare workers are about 4.3 million serving a population of 1.2 billion (Senthil et al., 2015). Health setting is regarded as one of the most hazardous place and occur

numbers of job related injuries and infections among the workers, the International Labor Organization (ILO) reported that every 15s, 153 employees' experienced injuries related to work and premature mortality is increasing year by year as a result of occupational related injuries (Mona et al., 2019).

The health worker besides their role in the promotion and preventive in healthcare, they are exposed to different types of occupational hazards, occupational hazards can be understood as a risk, accidents and harm that an individual experiences at the workplace (Awodele et al., 2014). Inappropriate workers safety precautions, unsafe and unhealthy environment and inappropriate disposal of bio-chemical waste are some of the factors responsible for workplace hazards, absenteeism, lack of interest and unproductive job performance are the negative impact of workplace hazards (Akinbode, 2018). Health settings consist of various occupational hazards viz., biological hazards, chemical hazards, physical hazards, reproductive hazards and psychosocial hazards. Biological hazards include infection from blood borne viruses (HIV, Hepatitis), needle syringe injury, cut and wounds, tuberculosis infections from tuberculosis infected patients (Ndejjo et al., 2015). Prevention of biological hazards includes safety handling of bloods and equipment, safe disposal of biological equipment, proper use of personal protective equipment and immunization of the health worker. The chemical hazards at workplace are due to the exposure of anaesthetic gases, radiations and the disinfectant agents used for decontamination of equipment and some chemical hazards affects the reproductive health of the women healthcare workers which develops the possibility of still birth, miscarriage, low birth weight, irregular periods, infertility and development disorder among the children. Physical hazards are those which cause physical discomfort to the health worker such as bone fracture, muscles strain and accidental fall. Musculoskeletal problem is prevalent among the health workers due to handling of patients, awkward positioning, relocating patients from bed, chair, toilet for patient's diagnosis and therapy (Chhabra, 2016). The chance for development of mental illness such as stress, anxiety and depression are higher among the health workers due to the result of their working conditions and work schedule (Izadi, 2018).

Workplace violence like sexual harassment from patients and male colleagues, mental and verbal abuse are increasing among the healthcare workers, workplace violence have negative impact on the mental health of the healthcare workers which increase

the level of stress, loss of job satisfaction, low self-esteem and absenteeism among the healthcare workers (Chhabra, 2016). Further, nurses working in the healthcare setting have a higher chance of developing mental illness due to the job strain numbers of medical nurses are experiencing acute mental problems, extended work schedule, work overtime and shift work among the nurses results in burnout and more mental stress. Shift working among the nurses and health workers have resulted in lack of proper sleep and insomnia which affects the individual daily activities and performance. Shift work has reduced the numbers of hours spent in the family and society; they have to sacrifice for their work and have to minimize the social and family involvement. Gastrointestinal complaints are a common health complaint among the 'shift workers' and this is due to the changes in food consumption and lack of sleep (Trinkoff et al., 2008). The coping strategies adopted for the coping of occupational hazards are not satisfactory among the health workers, interfering with personal problems can cause a professional progression among the health workers and many problems are left unspoken. The chance of substance misuses are increasing among the health workers due to easy access and tendency of self-medication, alcohol consumption and substance abuse are emerging among the health workers to cope with their occupational stress. The rate of suicides among health professionals are increasing as a result of negative coping strategies (Mohanty et al., 2019). Furthermore, HIV and tuberculosis are the most infected diseases among the health workers (Kotwal & Taneja, 2010). The World Health Organization (WHO) estimated that 2.5% of HIV infection and 40% of hepatitis B and C infection cases among the health workers are infected from their patients and needle stick injury is the highest injury recorded among the health workers worldwide, the universal safety precautions prohibited recapping of needle as there numbers of injury occurs due to recapping of needles. Occupational hazards among the health workers become an increasing issue and which led to the development of standard precautions later known as universal safety precaution, it prevents the patients as well as the health worker.

The aims of universal safety precaution was to minimize the blood borne infection from patients to health worker, appropriate utilization of personal protective equipment, to reduce the shortage of personal protective equipment for the health workers and safe handling of contaminated equipment (Sadoh et al., 2006).

The number of occupational job-related injuries are increasing year by year and while occupational health & safety for the workers are neglected and importance are not given enough. Introduction of occupational health & safety in school curriculum aim to reflect the significance of workers safety and health in the workplace. Thus, the goal of occupational health & safety in school curriculum is to develop awareness and information. The first approach of adding occupational health & safety is to create awareness about nature and to which extend occupational injuries and illness that can have an impact on the person and family. The second approach is to assist young people with building up their abilities they will require as when they are employed and to recognize the hazards and safety measures and furthermore to decide how to dispose of or limit them. Finally, a specific job information approach is to differentiate the health and safety of each job and aware the job profile. Integrating occupational health & safety in school curriculum can be on a separate unit or included in other health topics on health education curriculum (Finn, 1978).

The World Health Organization had estimated that less than 10% of the workers in developing countries had access to occupational health services. The International Labour Organization had listed the 11 functions of occupational health services for the workers such as, (1) identifying and assessing risk, (2) surveilling workplace hazards, (3) designing safe workplaces, (4) developing programs for improved work practices and for evaluating new equipment, (5) advising on occupational health, safety, and hygiene, (6) surveilling workers' health, (7) promoting adaptation of work to the worker, (8) managing vocational rehabilitation, (9) organizing training and education, (10) organizing first aid and emergency treatment, and (11) analysing adverse conditions that lead to injury and illness. Providing these services depends on the ability of the government and the business, many of the government and business cannot provide these services as there is a shortage of expertise in this area who can provide the services. The ILO and WHO had reported that there are lack of occupational health professionals in most of the developing countries, least number of occupational health professionals in government and industrial sectors leads to more number of occupational injuries and illness. Further, the World Health Organization has also developed occupational health programs for hygiene, safety and health for the professionals such as nurses, physicians, labour inspectors, health minister and advocate workers. The principles of this program is, it has to be relevant to the practitioner worldwide, imparting knowledge through

practical skill building, it should be multidisciplinary, must be adaptable to various settings and in countries and educational programs in occupational health, hygiene and safety for professionals should be easily disseminated. The main aim of this educational program is to orient the occupational hazards and to control the hazards. The educational program is intended for experts who are working for the prevention of occupational injuries and injuries, including health workers or healthcare providers, industrial workers, environmental health officers, labour inspection and others. The WHO educational program on Occupational Health is accessible for use by instructors and trainers who are working on the implementation of workplace safety and hygiene program, policy maker, NGOs advocate and clinical workers who evaluate the safety and health of the workers safety (Forst et al., 2009).

The declaration on the rights of human rights proclaims that everyone has the right to attain the highest level of health care. Yet workers in different institutions are vulnerable to different kinds of occupational hazards and injuries. The effects of hazards among the workers always reflect the poor standard of living, socio economic problem and unsatisfactory job performance. In order to develop adequate occupational health and safety measures it requires cross sectional involvement of not only the health sector but also other sectors like labour sector, ministries, workers and community. The first and foremost important step is to aware the governmental sector, research institutes and the workers and their communities (Barten et al., 1996).

1. Occupational hazards encountered by healthcare workers

The advancement of medical technology had made things easier on the diagnosis and treatment of the patients but on the other hand it had brought many occupational hazards for the healthcare workers. The types of occupational hazards faced by the healthcare workers are physical, biological, psychological and reproductive hazards.

1.1.1 Physical hazards

Musculoskeletal problem are common among the healthcare workers due to handling of incapable patients and shifting of obese patients; back, neck, shoulder, knee problem are common among the medical, dental, surgery and nurse personnel which resulted in numbers of physical disability among the healthcare workers. Many of the nurses' left patient care due to the work related occupational injuries. Occupational injuries often occur on healthcare setting as comparing to construction and industrial settings. The reason for more numbers of occupational injuries among

the healthcare workers is, no formal training on proper lifting of equipment's on correct posture and causes more numbers of musculoskeletal injuries. Accidental cuts and wounds, falls, trips and slips due to wet floors and stairways lead to various musculoskeletal injuries among the healthcare workers. Study revealed that dental professionals encountered musculoskeletal problem at their earlier stage of their career as compare to other health professionals (Mohanty et al., 2019).

Sleeping patterns of the healthcare workers are deeply affected by the shift work, it affects the sleep and wake cycle, eating habits of the healthcare workers and are unable to recover on time. It is reported that healthcare workers having a lesser time of rest have a shorter period of muscle rest and increase the risk of muscle injuries.

Exposure to radiation (ionizing and non-ionizing) noise, high temperature and illumination which present in the hospital on daily basis affect the physical health of the healthcare workers. Noise pollution occurs many times at the hospitals which is annoying for the workers and their patients, noise comes from different sources which includes the equipment, monitor alarm, telephones, speakers, television and voices in the hospitals. The noise level in the hospitals are always above the recommendation level made by the World Health Organization. Surgical department can be regarded as one of the noisiest department due to the equipment used for surgery, the operational noise is associated with increase in stress and fatigue among the healthcare workers. World Health Organization had recommended that the noise in the hospitals must be 35db during daytime and 30db during night time, however hospital noise can reach to 70 to 75db during daytime.

Noise exposure has a negative result on the patients as well as for the healthcare workers in the hospital (staff), it disturbs the sleeping pattern, increase cardiovascular problem, health worker felt that loud noise increase the stress, anxiety, fatigue, burnout, hearing problem, inability to concentrate and work effectively and safely. Poor lighting in the hospital has resulted in visual discomfort, irritation, increased error rates and accidents, and decreased work productivity (Katz, 2014). Proper lightning in the hospital has a positive influence on workers safety, cognitive functioning and interpersonal relationships at work. Exposure to radiation is irreversible and have a number of negative consequences on the physical health of healthcare workers, ionizing radiation is used for x-rays, fluoroscopy (viewing interior object of the body), angiography (x-ray used for viewing blood vessels) and dental

radiograph, long term exposure is reported on decreasing the haemoglobin and red blood cells which affect the pregnancy, malnutrition for the women healthcare workers. Exposure to extreme high temperature is associated with heat illness, heat stroke, mortality, morbidity and pregnancy (El-Sallamy et al., 2018). Work overload causes more physical discomfort among the healthcare workers (Hamid et al., 2018).

1.1.2 Biological hazards

Healthcare workers performed a variety of roles at the healthcare settings not just focusing on patient's care they also performed activities such as disinfecting, cleaning, transporting of chemical and bio-chemical waste, nursing assistant and waste handler. Biological hazards consist of needle stick injuries, exposure to infections such as Tb, HIV and hepatitis viruses through direct and indirect contact with the patients and during the process of collecting blood and fluids related samples (Hamid et al., 2018). Healthcare workers especially nurses in the healthcare sectors are prone to needle stick injury, a report by the Centres for Disease Control and Prevention (2016), 40% of the nurses and laboratory workers suffered needle stick injury in their workplace, needle stick injuries does not only happened in the developing countries it is also seen in the developed countries. Serious infections like HIV and Hepatitis A, B & C are encountered due to needle stick injury. Other than needle stick injury there are other routes of transmission of infections to the healthcare workers like blood borne, droplet, airborne and contact routes. Blood borne infections are from bodily fluids and blood, needle stick injury have resulted in a number of blood borne infection cases among the nurses and laboratory workers, HIV, Hepatitis B & C infection are found among the healthcare workers but the chances of infection are less, it is estimated that hepatitis B and C virus chance of infection is 33.1% (1 in 3) and 3.3% (1 in 30) respectively while HIV infection (0.13%) is rarely to be found. Airborne transmission includes tuberculosis, measles, chicken pox and respiratory syndrome, these viruses can be transmitted from patients to healthcare workers by sneezing, coughing and talking to the person who has respiratory tuberculosis which remains in the air for a long time and can be hauled by air flow. Besides the health care workers, chemical waste handlers are also encountered biological hazards as they are working with many types of hospitals waste, during the time of segregation and transportation of waste there is a possibility of accidental contact with hazardous chemical waste which can have a negative health impact on the waste handlers (Sacadura-Leite et al., 2018).

Latex allergy among the health workers is common as some of the health workers are allergic to latex present on the gloves worn by the health workers. Allergic to latex have a possibility of developing skin irritation, rashes, urticarial (hives), nose, eye, sinus symptoms and asthma. Latex can cause serious reactions to anaphylaxis which can be deadly when contacted to sensitive people, difficulty in breathing, nausea and vomiting, low blood pressure, changes in pulse, dizziness and loss of consciousness can be identified when latex allergy is too serious for the health worker. Latex occurs in direct contact with the latex product and inhalation when the latex particles are released (Ghosh, 2013).

1.1.3 Reproductive hazards

Women healthcare workers have numbers of complaints on their reproductive health due to daily their exposure and contact with different substances in the hospital. In the health care setting, health workers have numbers of exposure to reproductive hazards when caring for their patients, while performing laboratory tests and cleaning of equipment and their patients room. The exposure to anaesthetic gases, radiation and surgical smoke increase the rate of infertility and pregnancy complications, poor working conditions like working long hours, long hours of standing and night duty also affect the outcome of the pregnancy. Pregnant mothers working in the surgical profession have more reproductive complications as compared to the general population and urologists have also a higher rate of infertility Anderson & Goldman, (2020). Clinical workers have a higher chance of having reproductive hazards like menses disorder compared to administrative workers as clinical workers are more exposed to chemical exposure (Assadi, 2013). When pregnant mother are exposed to 'aesthetic gases' it damage the foetus and results in miscarriage, chromosomes abnormalities can cause by contact with 'antineoplastic drugs' and exposure to 'ionizing and non-ionizing radiation' cause birth complications for pregnant mothers (Figà-Talamanca, 2000). Infertility rates increase when female health workers are exposed to radiation and for pregnant mother, it can cause miscarriage, low birth weight and development disorder (Gonzalez, 2011).

The physical and biological hazards have influenced the reproductive health of the women healthcare workers. Extreme exposure to radiation during gestation period of pregnancy causes abortion, still birth, neonatal death, growth retardation in the intrauterine, infertility, genetic defects, developmental disorder of the baby, behavioural disorder, chronic diseases and physical abnormality at birth. Exposure to

toxics at the workplace causes teratogens, mutagens and carcinogens for the pregnant mothers. Teratogens cause birth defects in the child and disturb the development of the embryo, teratogens occur due to exposure to chemicals that present in the laboratory. Altering or changing the cell or DNA is called mutagens, exposure to ultraviolet rays, x-rays and radioactive substances causes cancer and birth defects to the pregnant mothers. Carcinogens are substances which led to the development of cancer in the human body due to the exposure to certain types of radiation. The large number of laboratory workers and healthcare workers are experiencing mutagens, teratogens and carcinogens at their workplace (Bernhardt, 1990). Infection to rubella causes developmental disorder, low birth weight and deafness in the baby; cognitive and sensory development disorder is caused by cytomegalovirus which can spread on urine, blood, semen and breast milk. Anaesthetic gases used by the dentist and solvent used for cleaning and sterilizing of equipment is found to be associated with increase in spontaneous abortion where the foetus is unable to survive as the gases and chemical had disrupt the development of the foetus. The accidental spills and improper handling of pharmaceutical agents used in the hospital effects the menstrual cycle of the women healthcare workers and increased risk of spontaneous abortion for pregnant mother who are under first trimester (Gonzalez, 2011). Lifting heavy equipment for 15 times or more and standing for more than 8 or more hours per day, increase in hypertension among the pregnant mother is associated with fatal death or stillbirth. The environment condition also plays a vital role in the reproductive health of the women, environmental factors like noise, vibration, hot and cold are associated with spontaneous abortion (Bernhardt, 1990).

1.1.4 Psychological Hazards

Psychological hazards have a significant impact on the mental and well-being of the healthcare workers. Job dissatisfaction, poor interpersonal relationships, workload, work stress, bullying, violence at the workplace are the types of psychological hazards that the health workers are experiencing. The different factors encountered by the healthcare workers led to development of psychiatric disorders like stress, anxiety, depression and suicidal thoughts, and the increase of cardiovascular problems among the healthcare workers, the number of absenteeism and job performance are reduced due to the psychological problems encountered by the health workers. Psychological hazards among the healthcare workers are left unreported due to the work culture and not much attention are paid to the psychological distress of the

workers and at the same time the healthcare workers were also afraid that by reporting such cases hampered their professional progression (Okefor & Alamina, 2018).

Healthcare workers carry multiple roles and responsibilities at their hand and these roles and responsibilities have brought various psychological problems and stressors. The psychological stress has affected the physical and mental health of the health workers and it also disturbs the job performance, job insecurity, emotional burden at the workplace and imbalance between work life and family life (Scozzafave et al., 2019). Workplace has become a significant danger for the workers, the health care area is one of the weak areas where most of the psychological and other hazards occur simultaneously. The demand of high level job performance and low employment control were the reasons when psychological stress occurs especially among the women health workers (Kabito & Mekonnen, 2020). The spread of coronavirus had a negative impact on the well-being of the women health workers and which results in insufficient sleep, poor socializing and work overtime, due to the death of their colleagues and patients the healthcare workers are experiencing mental and emotional break down and the feelings of greater risk to exposure of the virus increases a number of anxiety among the women healthcare workers (Spoorthy et al., 2020).

Psychological hazards like stress, depression, anxiety and acute stress were developed by the women healthcare workers who are working with Covid 19 patients, insomnia and psychological distress are common among the nurses (Lai et al., 2020). During the early stage of the Covid 19, the women healthcare workers were being avoided by their family members as they were closely working with Covid 19 patients. Women health workers with poor mental health status have more number of psychosocial exhaustions which affects their duty and their performance. Health workers in isolation wards have more complaints of psychological pressure/stress as compared to other departments (Li et al., 2020). Women Medical workers during the Covid 19 pandemic had encountered allostatic overload, the stress, anxiety and depression that they encountered had reached beyond their coping skills and were not able to cope by themselves. Insufficient sleep, lack of energy due to lack of proper rest time, sadness, irritability, imbalance social and occupational functioning are the reasons for psychological distress among the health workers (Zhang et al., 2020).

Workplace bullying is frequently encountered by the health employees as compared to other working sectors like industrial workers. Health workers are bullied by their own patients, bullying has affected a large number of hospital employees, the

mental health and well-being of the health workers are affected and there are an increase in more numbers of job dissatisfaction (Ariza-Montes et al., 2013). The prevalence of bullying among the nurses in health settings creates a negative impact on the job performance, quality of life and increases the work stress. The quality of health provided to their patients has deteriorated due to the insecurity and pressure given to them (Baburajan et al., 2019). Workplace bullying is associated with increase in anxiety and fear among the health workers, female health workers encountered more number of workplace bullying which resulted in more number of medical errors and depression (Al Omar et al., 2019)

1.2 Controlling Occupational Hazards and Risk Assessment

To control and minimize the risk of occupational injuries at the workplace, Occupational Health and Safety Act proposed three types of control measures such as engineering control, administrative control and personal protection control. Engineering control is considered to be one of the best methods to control the occupational hazards. It eliminates or minimizes the degree of exposure systematically which means replacing or substituting the equipment with less hazardous for the workers. In fact the implementation of engineering control in hospital settings is found to be complicated as it requires a lot of financial involvement and it is always rejected by the higher authority. Administrative control is applied by majority of the healthcare settings, this control involves changing or finding alternatives on the procedure by minimizing or limiting the amount of work time for the workers. Setting a limit or routine for the workers for lesser exposure to hazardous substances, minimizing the amount of work hours, night duty and work rotation. This control system is also criticized as it requires more number of workers which sometimes the hospital cannot employ more number of workers. Personal protection control is the third control that is commonly applied, it is regarded as the last resort when engineering and administrative control are not applicable. The workers were given and provided with an adequate amount of personal protective equipment to safe themselves from occupational hazards. Workers were given training on how to effectively and efficiently utilize it for their personal safety to reduce injuries at the workplace. Immunization and vaccination is given to the workers to protect from preventable diseases like polio, measles, influenza, rubella, tetanus, diphtheria, hepatitis B infection, mumps and pertussis (Gaffney & Roberts, 2008).

To control occupational risk at the workplace, workers' involvement is essential for effective and efficient occupational health and safety management. The participation of workers in safety management have greatly influenced the measures taken for preventing, controlling and minimizing occupational risk for the workers in health settings. According to the EU-OSHA employers can take necessary risk assessment by following the process:

- A. Identifying hazards and those at risk
- B. Evaluating and prioritizing risk
- C. Deciding and preventive action
- D. Taking action
- E. Documentation, monitoring and review
- A. Identifying hazards and those at risk

The first and foremost important thing for assessment of risk is to identify the various available hazards that occur in the health settings. It is necessary to involve the workers for the identification of hazards at the workplace, visiting the workplace and experiencing the conditions of the workplace is important for the employers to get first-hand information.

Hospital or healthcare settings is associated with numbers of occupational hazards or risk such as musculoskeletal hazards, psychosocial, chemical, biological and reproductive hazards, specific hazards that needs special focuses are, blood borne pathogens, chemical agents, bullying and violence at workplace, shift work and night work, handling of patients, lifting, pushing and pulling of weight, interpersonal relationship, work pressure and workload. Tasks associated with occupational risk/ hazards must be well documented in order to avoid lesser numbers of injuries for the future. Checklist, screening and other tools can be utilized for risk assessment tools.

Inclusion of gender aspect in risk assessment

- Asking female and male workers the types of occupational hazards and risk that they encountered at the workplace.
- Stir up the women workers to report on the physical and psychological hazards that they faced relating to their work.

B. Evaluating and prioritizing task

For all the identified risks and hazards, solutions to the problem will not be able to be found at once or can be addressed at the same time. Prioritizing the hazards or risk and agreeing to which hazards or risk have to be tackled first is important to reduce the number of hazards and risk occurring at the healthcare or hospital settings. Improving the working conditions of the workers should be seen as a non-stop improvement cycle and then moving to more urgent risk and hazards and proceeding to other related hazards and risk to build a safe, healthy and productive work environment. To evaluate the risk and hazards there are three ways to look at it; is it negligible, acceptable for a short period of time and not acceptable. Some risk and hazards can be neglected as it has less potential health risk and hazards, but if risk and hazards is not acceptable prompt action is needed to be taken and if risk and hazards can be accepted for a period of time it can be addressed later on.

Inclusion of gender aspect in risk assessment

- Include women workers on risk assessment
- Providing sufficient information and awareness on gender issues, harassment, reproductive hazards and emotional stressors.

C. Deciding and preventive action

After prioritizing and identification of risk and hazards the next step is to identify the appropriate action to be taken for reducing and minimizing the risk and hazards. There are three strategies involved in deciding and preventive action, such as; technical measures, organizational measures and personal/ individual measures. Technical measures aim to reduce and minimize the risk by providing better appliances, aids and constructing better things that helps in reducing the risk. Organizational measures try making an agreement with the workers to have better working conditions for reducing risk at the workplace. Personal and individual measures focus on individual instruction and training on personal safety and retraining them on proper use of PPE to avoid workplace hazards and risk.

Inclusion of gender aspect in risk assessment

- Women must be included in decision making
- Wearing of PPE should be comfortable for the women workers

D. Taking action

Prioritization of the plan has to be implemented for the prevention and protection of the workers. Workers are needed to inform about the outcome of the risk assessment and the improvement made as per the plan. The success of the protection and prevention plan lies in the hand of the workers and their approval of the plan. Occupational health and safety and quality management officers have to coordinate on balancing the activities for the health and safety of the workers.

Inclusion of gender aspect in risk assessment

- Female worker must be involved on the solution of the implementation
- Female and male workers are to be provided with necessary safety information on occupational health and training.

E. Documentation, monitoring and review

Documentation should include the risk assessment, result of the assessment, improvement implemented and the result for the evaluation of the improvement. The safety and preventive measures implemented have to be monitored and evaluated and based on the success of the measures implemented alteration of the safety and preventive measures may be needed. The head of the department and supervisor are responsible for monitoring and documentation of the reviewing process. Risk assessment should be reviewed on a regular basis, a date of review and re-evaluation of hazards and risk have to be documented. Risk assessment has to be revised when an important change occurs like use of new equipment, changes in work schedule, using new chemical agents, increase in number of accidents and leaves, modification of new laws and regulations. Occupational health and safety have to be updated yearly, the improvement of the health and safety is a continuous process, when things do not go as planned consultation of the workers is important as they know things better as they can give immediate feedback.

Inclusion of gender aspect in risk assessment

- Making sure female workers participate and involved on the reviewing process
- Aware of the new gender based occupational related health hazards.

1.3 Safety Measures for the Healthcare Workers

The government of India has formulated policies and laws for the safety and protection of workers from occupational hazards, there are approximately 16 laws relating to the protection of workers from occupational hazards, Factories Act (1948) and Mines Act (1952) have the effective legal provisions for the protection of health and safety of the workers from occupational hazards. Ministry of Labour and Ministry of Health and Family Welfare are the ministries that focuses on the protection of employees against all types of occupational hazards at workplace, Ministry of Labour responsible for the protection of health and safety of the workers, the Ministry of Health and Family Welfare is responsible for providing health and medical aid to workers in times of occupational injuries. The constitution of India on article 24, 39 (e & f) and 42 had also safeguarding the health and safety of the workers and under aged workers, provision for compulsory maternity leave for pregnant mother and lactating mother. Furthermore, the establishment of National Institute of Occupational Health (NIOH) and the National Safety Council of India (NSCI) had a positive impact on promoting and preventing the health and safety of workers from various occupational accidents and injuries.

The National Institute of Occupational Hazards works closely with the Ministry of Labour, Ministry of Health and Family Welfare and helps the government to develop appropriate policy for health and safety to reduce and minimize the work related occupational accidents and injuries whereas the National Safety Council of India was established with an aim to promote awareness and education on safety of occupational hazards to reduce accidents and injuries at workplace, three area where the National Safety Council of India operated are; road transport safety, construction safety, health and environment from small to large enterprises (Saha, 2018). Among the various laws and act formulated the Epidemic Diseases Act 1897 now known as The Epidemic Diseases (Amendment) Ordinance, 2020 The amendment of this act aim that healthcare worker are treated with more respect and dignity on their services and reducing the amount of issues that healthcare workers encountered at their workplace, the act protect and prevent the healthcare workers from any forms of violence, violence against the healthcare workers will be punish by imposing non-bail able offence and seven years imprisonment and a fine of not less than 1,000 (P. V. & Varma, 2020). “Systematic occupational prevention program” recommended by the International Commission on Occupational Health is to aware, educate and train the

healthcare workers to minimize the risk and prevent from different hazards that exist in the hospitals. Proper use of protective equipment and the addressing the quality of care for the healthcare workers at the administrative level plays an integral part of this recommendation. This recommendation tries to involve the authority more on supervising the health of their employees (McDiarmid, 2014). Standard precautions are designed to protect and prevent the healthcare workers from all kinds of infection and prevent from passing on to their patients, standard precautions includes uses of personal protective equipment (gloves, goggles, mask, apron etc...), proper handling of needle (needle safety), safety handling of medical and contaminated equipment, safety disposal of hospital waste and hand hygiene (Punia et al., 2014). In spite of the detailed guidelines provided for the safety of the healthcare workers, the standard precautions are not appropriately practiced both in developed and developing countries. Doctors and nurses have appropriately made use of the safety precautions while multipurpose health workers do not have correct information and awareness on the safety precautions, hand gloves, masks, caps, gowns and aprons are not properly utilized for their safety and the patients (Chawla et al., 2017).

1.4 Statement of the problem

Healthcare settings is regarded as one of the most hazardous places for work and occupational related hazards among the healthcare workers are increasing year by year (Nordqvist, 2013). Several studies have shown that occupational health hazards encountered or experienced by the healthcare workers are affecting the physical, psychosocial, biological and reproductive health. Occupational health hazards have affected the healthcare workers in many areas of their lives and hampered their efficiency and development. Occupational hazard is prevalent increasingly among the workers all over the world. The WHO 2004 on 'Comparative Quantification of Health Risks', reported 6 major occupational risk factors as back pain' (37%), hearing loss (16%), (13%) of chronic obstructive pulmonary disease, 11% of asthma, 9% of lung cancer, 8% of injuries and 2% of leukaemia and the National Institute of Occupational Health, Ahmedabad, identified major occupational diseases which are 'occupational injuries', occupational lung diseases, occupational cancers, occupational dermatomes, occupational Infections, occupational toxicology and occupational mental disorders (Saha, 2018).

There are few studies available on occupational hazards in India and those are mainly on the chemical, biological, physical and psychological related hazards. Similarly, limited research on occupational hazard has been conducted in the North-Eastern region of India. There is no specific research available on gender and occupational hazard and or a study primarily focused on specific professions apart from reports of laboratories and technical settings. Thus, there is little information related to occupational health of the women in India and no research based evidence found on occupational hazards of women healthcare workers in the state of Mizoram. In spite of the fact, the presence of occupational hazards is observed and encountered among women healthcare workers in Mizoram as shown by preliminary survey conducted by the researcher. Therefore, the present study attempted to explore and assess the occupational hazards faced by women healthcare workers, coping mechanisms adopted by women healthcare Workers, workplace health and safety measures implemented for the healthcare workers and the available institutional support to women working in healthcare settings in Aizawl district, Mizoram.

CHAPTER II

LITERATURE REVIEW

This chapter contains literature that is relevant to the present study. The review of this literature helps to understand more about the concepts and circumstances of the study. In regards to this chapter, an attempt is being made to create the linkages with other appropriate studies. It is divided into 4 parts.

2.1 Demographic profile of the healthcare workers

The demographic profile of the healthcare workers is found in Crispin et al., 2012; Karan et al., 2019; Kemppainen et al., 2013; Rao et al., 2016; Saikia, 2018, Aluttis et al., 2014. Health workforce in India includes both formal and informal medical practitioners such as traditional birth attendants, snake bite healer, faith healers, bonesetter and so on (Karan *et al.*, 2019). Community health workers are regarded as the third health service delivery workforce who comes under the medical and paramedical workforce. Community health workers are trained to limit extend but do not necessarily possess formal medical education and their basic responsibilities are to ensure maximum public health care utilization and focus on the promotion of sanitation, referral services, nutritional counselling, maternal health and child health surveillance, awareness on family planning, controlling of communicable diseases, community development, data collection and record-keeping for the community (Crispin *et al.*, 2012). Therefore, to improve the community health and public health in the country the Ministry of Health and Family Welfare under National Rural Health Mission, Government of India has formulated the Accredited Social Health Activist (ASHA) workers to promote and protect the health of the people in the community like providing medicines, promoting pregnant mothers for institutional delivery they are trained to handle minor injury and illness, bringing the children for immunization, improving community sanitation and demographic report of the community (Rao *et al.*, 2016). Also nurses in the formal health workforce play an important role in promotion and prevention of health and diseases (Kemppainen *et al.*, 2013). The WHO report and World Bank report analysed the situation of the nurses in India. The shortage of health workers can be due to different factors such as reluctance to sanction new posts and facilities, lack of proper manpower planning and migration of nurses (Saikia, 2018).

The Indian Health workforce does not reach the minimum requirement of WHO recommendation (10,000 populations per 22.8 skilled health professionals); this is due to the insufficient numbers of workers in the rural and semi-rural area. There are sufficient health workers in the urban area whereas insufficient workers in the rural area (Karan *et al.*, 2019). The shortage of doctors, nurses, midwives, technicians and other health workers nearly reached 4.3 million globally, the shortage of healthcare workers are mostly found in the African region due to the economical factor and while North America, Middle East and Oceania depends on importing the healthcare workers for the sustainability of their healthcare service, under-develop, developing and developed countries have a huge difference on sustaining the healthcare services as due to the financial and economic factors in the country (Aluttis *et al.*, 2014). In low and middle income countries the attainment and achievement of fundamental healthcare services are limited due to insufficient and shortage of trained and skilled healthcare workers which can provide the required health services (Liu *et al.*, 2017). In addition, approx. 25% of the professionals working in health sectors does not fulfil the requirements laid down by the professional council. In contrast, another 20% of qualified doctors in India are not retained in the workforce at present (Karan *et al.*, 2019).

Nurses are the frontline workers having direct contact with patients and the need for nurses in India is increasing year by year and more of the Indian nurses are employed outside the country. The India scenario presented that 77.4% of qualified nurses were located in urban areas having 31% of the total population of the country and the female doctor comprises only 6% out of the 17% doctors in India. The percentage of female doctors in India is less compared to male doctors because female struggle to balance work and family responsibilities. Further, the profession is viewed as male dominance profession and women are expected to join the nursing profession and so as the paramedical profession has more women healthcare workers as compared to that of the male. In wider observation, the number of laboratory technologists, radiologists, physiotherapists and pharmacists are increasing in the profession among women in India (Rao *et al.*, 2016).

The numbers of trained and professional health workers in India is still minimal and does not reach the minimum requirement (10,000 populations per 22.8 skilled health professionals) recommended by the World Health Organization. Accredited Social Health Activist workers are formulated in urban and rural areas to provide basic healthcare services and unequal distribution of healthcare personnel in urban and rural areas creates a burden for the rural community.

2.2 Challenges faced by the women healthcare workers

Tan, C. C. (1991), Harrington (1982), Chhabra (2016), (DiBenedetto, 1995), Arasi Senthil *et al.*, (2015), Sacadura-Leite *et al.*, (2018), Pornpimol Kongtip *et al.*, (2018), Rawlance Ndejjo *et al.*, (2015), Rim & Lim, (2014), Favero, (1987), Moore & Kaczmarek (1990) has studied the biological hazards faced by the women healthcare workers in the hospitals. Health workers engaging in radiation and surgery departments reported more skin disease (Report of Health and safety in Medical Laboratories). Furthermore, it is found that the laboratory technicians are prone to infectious diseases like TB, Hepatitis B, HIV/AIDS, skin diseases, cancer and needle syringe injury with an average rate of 1 in 3 months (Arasi Senthil *et al.*, 2015), needle syringe injury has led many infectious diseases and related death to the health workers (DiBenedetto, 1995) and laboratory workers are exposed to certain hazardous chemicals and materials which can have long term health effects (Harrington 1982). Laboratory technicians are at a higher risk of being infected with Hepatitis B as they regularly handle blood and contaminated items (Favero, 1987). While conducting a clinical examination, assisting the incapable patients, drawing body fluids samples from the patients and treating wounds nurses and doctors are also prone to biological infection, performing other activities such as transporting the chemical waste, cleaning, disinfecting and working on contaminated places can cause other health worker exposed to biological hazards (Sacadura-Leite *et al.*, 2018). Workers in the radiology department have a higher chance of developing cancer and other skin diseases (Chhabra 2016). Women health workers in surgery and anaesthesia department reported that they have skin problems due to exposure radiation, blur vision and eye irritation due to inadequate lightning in the operation room (Pornpimol Kongtip *et al.*, 2018).

Biological hazards are classified into two categories; allergic/toxic agents and ‘zoonosis’ agents which can be transmitted to humans from animals and other infectious diseases. Infectious diseases can be transmitted from needle syringe injury and physical contact with the patients. Allergic and toxic agents are those chemicals and radiations that are used in the hospital for treating their patients (Rim & Lim, 2014).

Assadi, (2013), Figà-Talamanca, (2000) Gonzalez, (2011), Anderson & Goldman, (2020) has studied the occupational hazards faced by women healthcare workers and based on the survey report of Occupational Reproductive Hazards for female Surgeons in the Operating Room, reproductive hazards are among female surgeon who are engaging in the operational room regularly in contact with anaesthetic gases, radiation and surgical smoke which can increase the rate of infertility and pregnancy complications, the working conditions, long hours of working, long hours of standing and night duty can also affect the outcome of the pregnancy. Thus, the reproductive age mothers need to be aware of the chemical hazards that can affect reproductive health. A comparative study was conducted among the administrative workers and clinical workers of the pregnant mother, performing heavy physical activities and using tobacco is related to low birth weight. The study revealed that clinical workers have a higher chance of having reproductive hazards like menses disorder as they are more often exposed to chemical Assadi, (2013) and ‘aesthetic gases’, ‘antineoplastic drugs’, and some ‘physical agents’, particularly ‘ionizing and nonionizing radiation’, are found to be common in the healthcare settings as compared to other types of the work environment. These are one of the main factors resulting in reproductive hazards of women healthcare workers. When the pregnant mothers are exposed to ‘aesthetic gases’ there is a risk to damage the foetus and results into miscarriage, chromosomes abnormalities and exposure to ‘ionizing and non-ionizing radiation’ causing birth complications and the possibility of developing cancer (Figà-Talamanca, 2000). The study also found that performing heavy physical activities and using tobacco is related to low birth weight. The clinical workers have a higher chance of having reproductive hazards like menses disorder compared to administrative workers and clinical workers are more exposed to chemical exposure (Assadi, 2013).

Further, the hazards that health workers are exposed to and reproductive health effects of the health workers and pregnant mother was studied by Gonzalez, (2011) and found that biological hazards, physical hazards and chemical hazards all have the potential threat affecting reproductive hazards of the health workers with and increasing infertility rates, causing miscarriage, low birth weight and development disorder to pregnancy. In addition, the performance of physical activities such as lifting and carrying heavy objects during pregnancy, direct contact with the patients and cleaning of the patient room can cause severe allergy to the women health workers.

Biological and reproductive health problems are prevalent among the women health workers. Health workers engaging in the radiation and surgery department are prone to be infected with reproductive hazards and laboratory workers are having a higher chance of infection to biological hazards, physical and chemical hazards are also the contributor of occupational injuries among the healthcare worker.

Triolo, (1989), Kemp & Jenkins, (1992), Ross-Walker *et al.*, (2012), Faller *et al.*, (2018), Huang *et al.*, (2018), McDowall *et al.*, (2017), Wu *et al.*, (2018), Osaretin Owie & Apanga, (2016), Manju Chhugani (2017), Shimizu *et al.*, (2010), Masoudi Alavi (2014), Rajan, D (2014), Triolo, (1989) had studied the physical and psychosocial hazards encountered by the nurses and healthcare workers, nurses have reported more number of wrist and back problem, neck and shoulder problem, back pain or injury cause more number of leaves among the nurses and followed by sprain and strain injury or illnesses, others physical injuries such as noise hazards, laser burns, electrical burns and fires are also common among the nurses (Kemp & Jenkins, 1992). Health complaints such as muscle pain, skeleton pain, and back injuries are the common physical harm encountered by the nurses (Triolo, 1989). Workload is one of the hazards that the nurses are experiencing, nurses are experiencing physical and psychological hazards when the working hours are too much to handle, due to limited hours of break and rest there are increase in poor job performance especially for the night duty (Ross-Walker *et al.*, 2012), nurses in Intensive Care Unit (ICU) has more number of a physical complaint because it requires constant supervision of the patients (Shimizu *et al.*, 2010).

Shift working has a negative impact among the nurses and which hinder their capacity to provide quality care to their patients, shift work affects the sleeping pattern of the nurses as it affects the health and the quality of their performance at their workplace. Poor sleep affects the gastrointestinal problem, cardiovascular diseases, anxiety and irritability among the nurses (McDowall *et al.*, 2017). Substance use is increasing among the nurses due to the stressful environment at workplace, nurses suffers anxiety, depression, insomnia, substance use and development of psychiatric problem as result of their stressful working conditions, although nurses have a higher level of stress than the general population, stress and anxiety of the nurses are left untreated. Middle age group and late middle age group nurses have higher levels of anxiety, depression and insomnia compared to younger nurses (Huang *et al.*, 2018). Working overtime was prevalent among the nurses and working beyond schedule hours among the nurses increases the physical, biological, psychological and chemical hazards, better work environment and work schedule result in fewer number of injuries (Wu *et al.*, 2018). Further, The health of the health workers are neglected in the public health setting and due to the negligence of workers health, health workers are infected to occupational diseases which hamper the performance and well-being of the workers (Osaretin Owie & Apanga, 2016) and nurses suffered more injuries in the health care sector; workload and stress are the factors that affect the mental health of the nurses which cause burnout among the nurses (Masoudi Alavi 2014). In addition, musculoskeletal injury was prevalent among physiotherapists. Younger nurses are prone to work related stress compared to the older senior nurses, wearing of latex gloves cause skin allergies among the health care workers (Osaretin Owie & Apanga, 2016).

Exploratory study was conducted to know the occupational hazards experienced by the nurses, respiratory problems, needle syringe injury, stress and overwork, work related illness and musculoskeletal pain are the occupational hazards experienced by the nurses. Nursing profession is identified as one of the most hazardous jobs compared to other healthcare roles, personal and work related stress are common among the nurses as they find difficulty in balancing their personal life and professional life (Faller *et al.*, 2018). Further, verbal abuse, sexual harassment, work related stress, long working hours, lack of recognition and inter-personal problem among the colleagues were encountered by the nurses (Alhassan & Poku, 2018; Manju Chhugani 2017).

Healthcare workers experience a wide range of occupational hazards at their workplace besides the curative and preventive services, they are immune to injury and illnesses. Infection to hepatitis, Tuberculosis and HIV was easy for the health workers as they are in direct contact with patients and also due to negligence and improper disposal of chemical waste. Needle prick injury was the common factor that caused infections to the nurses and technicians, musculoskeletal injuries are more among the older nurses and compared to the younger nurses. It is also reported that chemical waste handlers are also infected with biological and chemical hazards while collecting and disposal of hospital wastes (Ghosh, 2013).

2.3 Coping strategy adopted by the healthcare workers

Araujo Bastos Teixeira *et al.*, 2016; Bastos Teixeira *et al.*, 2015; Cain, 2019; Eslami Akbar *et al.*, 2015; Fonseca *et al.*, 2015; Jan *et al.*, 2017; Kalichman *et al.*, 2000; Koinis *et al.*, 2015; Laal & Aliramaie, 2010; Manzoor *et al.*, 2018; McAbee, 1994; Ofei *et al.*, 2019; Parikh *et al.*, 2004; Rajan, 2014; Reis *et al.*, 2020; Xu *et al.*, 2019; Zhou & Gong, 2015, had studied the coping strategies adopted by the women healthcare workers in times of stress, to identify the coping strategy adopted by the nurses using the Problem Coping Scale Mode including the problem focus strategy, emotion focused strategy, religious coping and seeking social support strategy. The results show that problem focus strategy was adopted by most of the nurses and followed by spiritual coping and social support coping, emotion focused strategy was the least adopted strategy adopted by nurses (Fonseca *et al.*, 2015). In addition, a study was conducted among nurses in emergency ward and general ward on the different coping strategies to relieved from stressful working conditions and found that problem focus and emotional focus are the two coping strategy adopted by the nurses; problem focus tries to change and modify the root cause of stress by seeking social support, confront with the situations and plan a strategic steps to cope with stress and emotional coping strategy helps in modifying the stressful behaviour by self-reflection, control over one's emotion, distancing and avoidance (Jan *et al.*, 2017).

The nursing staff experienced several stresses at the workplace and these stresses had affected their performance and wellbeing. Coping strategies like self-controlling (positive thinking, self-learning, tolerance, being silence and use of sports), seeking support from friends, colleagues and relatives, avoidance or escaping of stressful situation as including diversion from negative thoughts, avoidance of negative feelings and stressful conditions, spiritual coping like prayer and meditation

are adopted to relieved from stress (Eslami Akbar *et al.*, 2015). Specifically, in relation to occupational stress the seeking for social support and problem solving were commonly adopted. The purpose of seeking for social support coping strategies is to develop better well-being and also found that the nurses with poor seeking of social support are associated with the development of psychosocial symptoms. The avoidance coping strategy is associated with negative effect on work and where problem solving and seeking for social support is strongly associated with positive effect on work (Parkh *et al.*, 2004). In addition, nurses adopted strategies like positive attitude and ignoring past experiences to minimize the mental and personal stress in their life, nurses do not want their past experiences to interfere in the present life (Manzoor *et al.*, 2018). Laal & Aliramaie, 2010 identified the positive and negative coping strategy adopted by the nurse and positive strategy includes listening to music, reading books, painting, shopping, watching movies, singing or composing, having a quiet time, relaxation, physical exercise, ventilate feelings, prayer and meditation. Negative coping strategy includes over drinking tea, coffee, alcohol, smoking, drug abuse, negative speech, suicidal thoughts, isolation, distancing from others and impatience. The types of coping strategies adopted by the nurses, the coping behaviour and characteristics of the nurses were studied and found that the regular (employee) nurses applied more of a positive coping strategy as compared to casual/temporary nurses. Thus, nurses with 1-4 years of working experience have applied more of the negative coping strategy whereas nurses with working experiences of 5-9 years have applied more of a positive coping strategy. Nurses between the ages of 30-39 years have better coping skills when comparing to nurses below the age of 30. Similarly, Xu *et al.*, 2019 in the study on positive and negative coping strategies adopted by the female doctors and nurses in the emergency department identified the adoption of negative coping strategies like resignation from work, substance abuse, arguing with others, pessimistic thinking and ignoring the problem. The positive coping strategies like situational control, use of past experiences as examples to cope with stress, problem solving and maintaining a normal life were adopted by the nurses. In comparison to positive and negative coping strategies, positive coping strategies were least adopted by the female doctors and nurses in the emergency department.

Apart from this, proper time management, expression of feelings rather than bottling up, regular physical exercise, developing effective communication and interpersonal relationships, delegation of tasks or duties, taking a break, relaxation, meditation and prayer and consumption of drugs were common among them. It is identified that absence of break during working hours, heavy workload, long working hours, poor working conditions, and lack of incentive for work overtime, poor interpersonal communication, conflict with colleagues, low salary, shortage of staff, inadequate delegation of responsibilities and inadequate support from the management another stressors to the nurses (Ofei *et al.*, 2019).

The study on coping strategy of the BSc Nursing, Diploma in General Nursing and Midwifery (DGNM), Diploma in Nursing Assistants (DNA) and Female Nursing Assistant (FNA) were the ‘positive and action focus’ (making a better plan and follow it, understanding the problem and analyse it better), ‘wishful thinking’ strategy (changing oneself for betterment, looking at the bright side of life), ‘distancing coping’ strategy (trying to avoid the stressful environment by doing other things and trying to forget about the stressful condition), ‘social support’ strategy (seeking support from friends and relatives, empathy and understanding from others). The study revealed that positive action focus was mostly adopted by the nurses and where seeking social support was the least adopted by the nurses (Rajan, 2014). The descriptive design study to analyse the effects of prayer as a coping strategy for nurses shows that coping methods like self-help, stress management, taking a break, emotional support and personal belief system was adopted by the nurses but prayer as a coping strategy helps in decreasing stress, improving well-being and self-esteem, optimistic feelings towards life and meaning in life. Prayer is associated with proper stress management among the nurses (Cain, 2019). To cope with stresses, nursing technicians and nursing assistants adopted problem focus coping, to change and modify the situation or attempt to change the stressful situation. Further, the educational level is associated with better adoption of problem focus coping and older women of above 40 years of age have a better coping skills than below 40 years of age, individual age and experience influence in better coping strategy among the nursing technicians and assistance (Bastos Teixeira *et al.*, 2015).

Furthermore, sharing problems with colleagues, performing regular physical exercise, having a quiet time, isolating from others and ventilating feelings with close ones are the coping strategies adopted by the laboratory worker. The sources of stress among the laboratory technicians are mainly physical and psychological hazards (Zhou & Gong, 2015).

Cross-sectional study was conducted among the nurses and technicians to understand the occupational stress and coping strategies adopted. Work pressure, work shift, insufficient rest and sleep, inadequate staff, performing dual role and low wages are the stressors that encountered and the coping strategy adopted by the nurses and technicians shown 59.4% on problem focus coping 20.3% on religious coping practices, 19.0% on social support coping strategy and 1.3% on the emotional coping strategy (Araujo Bastos Teixeira *et al.*, 2016). Further, nurses tackle the stressors directly to minimize the occurrences by adopting problem focus coping strategy and use of relational skills helps the nurses to share freely about their situations and helpful in conflict resolution which causes a number of stresses among the nurses. Spiritual coping is commonly adopted by the nurses, practicing prayer and meditation helps the nurses to cope with stress in their workplace. Koinis *et al.*, 2015 mentioned that more women healthcare workers adopted coping strategies like wishful thinking and seeking help from God as compared to male healthcare workers (Reis *et al.*, 2020). Furthermore, personal coping strategies adopted by nurses in oncology departments are taking regular physical exercise, having a good relaxation and proper break, sound sleep, listening to music and humour, reading books, doing hobbies, prayer and medication (McAbee, 1994). Isa *et al.*, 2019 mentioned that confronting coping behaviour (express feelings to responsible person), seeking for social support, systematic problem solving (step by step planning or thinking for alternative), emotion coping strategy, distancing (ignorance, resigned from work), self-controlling, accepting responsibilities, escaping avoidance coping (adapting unhealthy lifestyle for coping abusing drug or alcohol), positive appraisal (self-improvement) were adopted by the nurses in emergency and critical care centre. Systematic problem solving, seeking social support, positive reappraisal, self-control found to be the most effective coping strategy for the nurses (Lambert & Lambert, 2008).

Adaptive approaches like social support, problem solving, and self-control and symptoms management are commonly adopted by the nurses and maladaptive approach coping strategy of escape- avoidance was the least strategy adopted by the nurses to manage stress (Tesfaye, 2018)

Health workers encountered different types of stresses at their workplace, to cope with stresses they adopted different types of strategy, the coping strategy and skills differed from one person to the other, emotional coping, seeking for social support, meditation and prayer are the common coping strategies adopted by the health worker. Health workers who are above 40 years of age have a better coping strategy as compared to health workers below the age of 40 years.

2.4 Healthcare safety measures implemented for of women healthcare workers

Abbas & El-Gohary, 2010; Abd Elrazek Mahmoud & Said Sabry, 2019; Alingh *et al.*, 2018; Almost *et al.*, 2018; Aluko *et al.*, 2016; Amoran & Onwube, 2013; Bahcecik & Ozturk, 2009; Buowari, 2012, Beekmann & Henderson, 2005; Brunton, 1992; Buowari, 2012; Catlette, 2005; Dukic *et al.*, 2015; Fadeyi *et al.*, 2011; Garnett *et al.*, 2020; Goswami *et al.*, 2011; Hinkin *et al.*, 2008; Jones & Mathieson, 2016; Lesiewicz & Herson, 1975; Manyele *et al.*, 2008; Muriuki *et al.*, 2018; Mustafa *et al.*, 2008; Obono *et al.*, 2019; Özsahin *et al.*, 2006; Ozturk & Babacan, 2014; Park & Lee, 2016; Phukan, 2014; Punia *et al.*, 2014; Sabriye & Cavdar, 2016; Sadoh *et al.*, 2006; Sewunet *et al.*, 2014; Sheshi & Agbana, 2019; Siddique *et al.*, 2008; Soliman *et al.*, 2019; Wilburn & Eijkemans, 2004 had studied the safety precautions implemented in the hospitals for the safety health worker. Safety precaution is an action to protect healthcare workers from infections (bodily fluids and blood borne pathogens) and providing first aid in time of injuries. Safety precautions follow four standard practices for the safety of healthcare workers which includes hand washing, use of protective equipment, safe handling and disposal of sharp equipment and safe decontamination of instruments. The safety measures adopted by the hospital to minimize occupational injuries are proper disposal of needle, vaccination of health workers against tetanus and hepatitis virus, wearing of hand gloves and mask and improving body posture during a clinical procedure (Muriuki *et al.*, 2018). Staff training on safety procedures was conducted to minimize the risk of occupational hazards among health workers, study revealed that majority, 52.1% of health workers always follow the safety precautions and 47.9% does not always follow the safety precaution adopted by the hospitals (Aluko *et al.*, 2016).

Similarly, training and awareness on safety precautions was conducted to minimize the occupational injuries among laboratory workers, sanitization of equipment, regular change of laboratory clothing, and washing of hands after every procedure.

Laboratory workers having a working experience of more than 10 years have better knowledge on chemical and disposal of laboratory waste when compared to workers who are having less than 10 years of experiences (Özsahin *et al.*, 2006). Physicians, nurses and laboratory workers in the community hospital revealed that health screening for the health workers are neglected. Safety measures like protection of workers from radiation and harmful chemical products, inspection on chemical and infectious diseases do exist, but it is insufficient for the health workers. Occupational safety was reported to be insufficient in times of work-related injuries, accidents and chemical burns. Insufficient safety measures at the hospital are associated with more number of reported occupational injuries among the health workers (Ozturk & Babacan, 2014). Siddique *et al.*, 2008 revealed that in developing countries like Pakistan most of the health workers are unaware about the universal safety precautions and there is a need to increase awareness to reduce occupational injuries and to promote safe working practices among the health workers. Safety measures at the workplace for health workers reduces the risk of occupational hazards, training and education on safety measures for the health workers are necessary to prevent occupational hazards. It is reported that hospitals with better implementation of safety measures result in low injury rates among the health workers, when workplaces are safe for health workers; they can perform their task effectively without injuries (Park & Lee, 2016).

Lack of implementation of occupational and health safety management in the hospital is an issue among the health workers, hospitals and healthcare settings do not appoint occupational and health safety officers to take care of the occupational injuries and safety of the workers in most of the healthcare settings are neglected. Proper training on safety measures and better supervision from occupational health safety officers result in better working conditions and less likely to suffer occupational injuries (Almost *et al.*, 2018). Catlette, 2005 study revealed that safety measures followed in many of the hospitals are inadequate and not applicable for the nurses. psychological support for nurses were not given in times of work related stress and safety measures existed in the hospitals are not aware and informed to the nurses and nurses do not feel safe at the workplace due to the different occupational hazards

which can hamper their career and well-being (Catlette, 2005). Syringes were disposed of without recapping and caused several injuries among the worker; nurses and technicians do not receive hepatitis vaccination for the prevention of hepatitis disease and shoe covers were not worn by the nurses and technicians. Hepatitis infection is prevailing among the health workers; vaccination against hepatitis infection is neglected by hospital administration (Beekmann & Henderson, 2005). The knowledge and practices of personal protection and safety were higher among the workers in the labour room and operational theatre as compared to the outpatient department and laboratory workers. Doctor and higher rank healthcare workers having a higher level of educational status have more knowledge and awareness of the prevention and safety measures as compared to the lower rank of healthcare workers. Lack of knowledge of personal protection and safety among healthcare workers causes several injuries (Phukan, 2014). Jones & Mathieson, 2016 reported that among the healthcare professionals there is lack of knowledge on radiation safety, radiation safety training is necessary for the healthcare workers to improve their knowledge and skills and to protect themselves and their patients from excessive exposure to radiation. The health and safety of laboratory workers in Ethiopia are unsatisfactory, equipment are disposed of without decontamination, biosafety was neglected, workers do not have safety guidelines to follow in the laboratory, cleaners and waste handlers at the laboratory are not trained and unaware of the safety measures (Sewunet *et al.*, 2014). Similarly, health workers at a tertiary hospital in Nigeria revealed that hospital management neglected safety for the health workers and safety training are not conducted, there is an inadequate supply of personal protective equipments for the health workers and improper disposal of hospital wastes which causes biological and chemical infections among the health workers (Obono *et al.*, 2019). Abbas & El-Gohary, 2010 stated that hospitals in Egypt neglected and not implemented the universal safety precautions and which results in a number of blood and bodily fluids infections among the healthcare workers. There is insufficient information regarding safety measures and insufficient supply of personal protective equipment for the nurses, laboratory workers, waste handlers and cleaners. Comparing to Indian laboratory workers and laboratory workers in other developing countries, Indian laboratory workers are provided with better protective clothing, hepatitis vaccination was given to all the laboratory workers, safety manual and safety poster is available at the workplace, decontamination of equipment is done at the laboratory to prevent

infection, staff are instructed with proper handling of acids and toxic agents, safety aids was available at workplace and they are also provided fire extinguisher in times of accidental flames at the workplace (Mustafa *et al.*, 2008).

Laboratory environments contain a number of hazardous substances that are harmful for the laboratory workers, laboratory guidelines on safety at the workplace were adopted to minimize the occupational hazards. Training was conducted for the workers on safety practices at the workplace as to equip laboratory workers with better knowledge on safety measures, personal habits also played a vital role in minimizing the risk of occupational hazards. Laboratory workers reported that after the implementation of laboratory safety guidelines there is a significant improvement on personal safety, safe handling of biochemical wastes, radiation safety, fire safety and electrical safety among the laboratory workers (Abd Elrazek Mahmoud & Said Sabry, 2019). Training on safe handling of toxic chemical waste and disposal of waste and sharp objects are necessary. Staff must be trained to cope with the occupational hazards and should understand the safety precautions to protect themselves from infectious diseases (Brunton, 1992). The reasons for not always comply with the safety precautions are lack of protective equipment and medication, incorrect practices like use of hand gloves, hand wash techniques, disposal of hospital wastes and cleaning procedure were common among the private hospital as compared to public hospitals. Inadequate staff training and shortage of trained health personnel contribute to unsafe practices at the hospital (Amoran & Onwube, 2013). Universal safety precautions for health workers at the workplace are not followed appropriately at the healthcare settings, occupational health and safety guidelines does not allow recapping of syringes as it causes injuries, the health workers ignored vaccination of hepatitis and blood even though it has been made compulsory. Personal protective equipment (PPE) is to be made available to the entire health worker but still facing a shortage of supply (Sadoh *et al.*, 2006). Public hospital in Israel gave utmost important on the safety and health of the worker, training and orientation on safety measures was given to each and every workers from different departments, especially for the workers in radiology department workers were given training on safety use of x-ray equipment and safety use of radiation protection equipment (Soliman *et al.*, 2019). To eliminate and minimize needle stick injuries among the health workers safety controls are adopted by the hospital like reduction unnecessary injection and provide medication through alternative routes like tablets or inhalers. Regular training on safe handling of

needles and not placing sharp objects at eye and hand level, emptying sharp containers before they are full and training on appropriate use of Personal protective equipment (Wilburn & Eijkemans, 2004).

The knowledge on safety precautions is poor among the healthcare workers and often forgets to report their injuries and is not aware about the existing safety precautions in times of injuries (Buowari, 2012). Goswami et al. 2011 stated that training had changed the attitude of the laboratory workers regarding the safety practices, trained laboratory workers are more aware of the safety practices and the importance of using PPE during working hours, laboratory workers are instructed about safety handlings of equipment and ways to avoid latex allergy, awareness on proper disposal of laboratory equipment is also given to laboratory workers to avoid occupational injuries and inadequate and insufficient supply of Personal Protective Equipment (PPE) like gloves, mask and face shield are the reason for the causes tuberculosis infection among laboratory workers. Lack of implementation of health safety measures in the hospitals and inadequate training on safety measures causes barriers to the laboratory workers (Garnett *et al.*, 2020). Punia *et al.*, 2014 stated that PPE provided for the hospital workers are not adequately utilized by the doctors and nurses they are not comfortable on working with PPE and are too busy to use PPE and o inadequate supply of PPE among the nurses and doctors are also the factors. Surgery department nurses do not take enough safety precautions, lack of personal protective equipment at surgical departments is considered to be the reason for increase in numbers of blood and bodily fluids infections among nurses at surgical departments (Sabriye & Cavdar, 2016). Insufficient supply of personal protective equipment is prevalent in private health setting comparing to a public setting, private hospitals have reported more number of occupational injuries comparing to public health settings due to shortage of Personal Protective Equipment (Dukic *et al.*, 2015). Public and private hospital workers have insufficient numbers of trained health workers and occupational safety precautions are neglected for the health workers, hospitals are given less priority on the safety and health of their workers (Manyele *et al.*, 2008). Safe disposal and handling of syringes and sharp objects, toxic substances and safety from radiation exposure were not instructed to the healthcare workers. Safety practices in the hospitals are neglected by the workers and immediate action is not taken when health workers do not wear protective clothing.

The health workers felt that wearing of personal protective equipment are not necessary and often forget to use it and health workers felt that hepatitis vaccination was not necessary, as a result of negligence and improper use of protective equipment, there are reported numbers of occupational injuries like needle syringe injury, hepatitis, HIV/AIDS, skin irritation and infection from patients to health workers (Sheshi & Agbana, 2019). Furthermore, the study revealed that hand rub, hand wash and hand gloves are used before and after contacting patients while safely disposing of needle syringes were neglected by the nurses as this resulted in numbers of hepatitis and HIV infection among the nurses. Inadequate Personal Protective Equipment, inadequate health safety training and lack of occupational health safety (OHS) are the barriers that affect the proper implementation of safety practices in healthcare settings. Furthermore, wearing of personal protective equipment is the standard precautions that must be followed by the health workers. Personal Protective Equipment (PPE) prevents and minimizes infection among health workers from various chemical and biological agents. It must be worn appropriately; inappropriate use of Personal Protective Equipment (PPE) increases a chance of biological and chemical infection. The shortage of Personal Protective Equipment (PPE) is likely to be associated with an increase in the rate of infections among health workers. Hand gloves, mask, visors and caps are most worn by the health worker and the least wear personal protective equipment (PPE) are apron, gowns and goggles (Hinkin *et al.*, 2008). Muriuki *et al.*, 2018 revealed that the ignorance of personal protective equipment among health workers is a serious issue that results in most of the occupational hazards among health workers. Fadeyi *et al.*, 2011 reported that laboratory workers are not feeling comfortable working with protective clothing and also non-availability and insufficient supply of PPE is the reason for not wearing personal protective equipment among the laboratory workers. Health workers performed curative and preventive services and besides their curative and preventive services health workers are also exposed to occupational hazards that affect their profession and well-being. Safety precautions at the workplace protect the health workers in times of occupational accidents and injury, safety at workplaces are neglected by most of the healthcare institutions especially in private settings safety precautions are not taken seriously. Personal Protective Equipment supply in most of the healthcare settings is insufficient and hence there is a need for appropriate safety precautions to protect the health and safety of the health workers.

CHAPTER III

METHODOLOGY

This chapter mainly deals with the research methodology and design. The present study includes sample design, tools of data collection, data processing and analysis of processed data.

The study adopted descriptive design and it is cross-sectional in nature. The primary data is collected through both qualitative and quantitative methods. The study follows a mixed-method approach and quantitative and qualitative data is concurrently collected.

3.1 Objectives

1. To study the demographic profiles of the women healthcare workers in Aizawl district, Mizoram.
2. To explore the challenges faced by women healthcare workers in Aizawl district, Mizoram.
3. To assess the coping strategy adopted by the women healthcare workers in Aizawl district, Mizoram.
4. To identify the institutional support available to women healthcare workers in Aizawl district, Mizoram.

3.2 Sources of data collection

The primary data is collected through a quantitative method using a structured interview schedule and qualitative data is collected through Key Informants Interview. The secondary data was collected through literature survey, reports, documents, journals and open access articles, etc.

3.3 Method of sampling

A purposive sampling method was adopted to collect the data. The criteria of samples includes women healthcare workers both from private and public hospitals in Aizawl district. The unit of the study was working women in healthcare sectors including the medical and paramedical practitioners such as laboratory technicians, radiologist, nurses (GNM, ANM), and community healthcare workers, who are having a minimum working experience of more than 2 years.

The inclusion is restricted to women healthcare professionals who are currently a practitioner in any of the healthcare settings both in public and private sectors. The study was conducted among 100 working women in the hospital.

3.4 Tools for data collection

The quantitative data was collected through the administration of a structured questionnaire. The tools are designed with the help of Kobo tool box, an online open data kit website. Data was collected through android cell phones using the Kobo collect application. The qualitative information was collected through Key Informant Interviews.

3.5 Data Processing and Analysis

The quantitative data collected through structured questionnaires is processed and analysed with the help of Ms Excel and SPSS software. The data is presented in the form of tables. Results and findings of both the quantitative and qualitative methods are presented.

3.6 Field of the study

The present study had been conducted in public and private healthcare settings in Aizawl district, Mizoram. The list of public healthcare settings where the study was conducted are Civil Hospital, Aizawl, Mizoram State Cancer Referral Institute, Psychiatry hospital and Health Sub- centre. Whereas, the list of private healthcare sectors are Adventist hospital, Aizawl hospital & Research Centre, BN hospital & research centre, Care hospital, Ebenezer hospital, Greenwood hospital, LRM hospital, Nazareth hospital, Synod hospital and Trinity hospital. The pre-testing of the tools contracted was done among ten members of the respondents and the necessary changes were made and additional requirements were done.

3.7 Limitation of the study

The size of the sample is limited and the area of the study is confined to one district in Mizoram. Hence, the generality of the finding is limited to the population of Aizawl district, Mizoram.

3.8 Operational Definition

Occupational hazard: It refers to the risks, accidents or illnesses that the workers experience from work. It includes physical, biological, chemical and psychological hazards.

Women healthcare workers: It refers to the women professional healthcare degree holders such as laboratory technicians, radiologists, and nurses (GNM, ANM) who are working in both private and public hospitals in Aizawl district, Mizoram.

Healthcare sectors: It refers to public and private healthcare sectors in Aizawl district, Mizoram.

3.9 Ethical consideration

Prior informed consent was obtained from the respondents.

3.10 Tentative Chapterization

Chapter I – Introduction

Chapter II –Review of Literature

Chapter III – Methodology

Chapter IV - Result and Discussion

Chapter V – Conclusion and Suggestions

CHAPTER IV

RESULTS AND DISCUSSION

The study attempts to explore the Occupational hazards of women healthcare workers in Aizawl district, Mizoram. For the purpose of the study public and private hospitals in Aizawl are purposely chosen. Public hospital includes Civil hospital Aizawl, Health Sub-Centre, Mizoram State Cancer Referral Hospital, Psychiatry hospital and Zoram Medical College and the list of private hospital included in the study are like Adventist hospital, Aizawl hospital and research centre, BN hospital & research centre, Care hospital, Ebenezer hospital, Greenwood hospital, LRM hospital, Nazareth hospital, Synod hospital and Trinity hospital. The total unit of the study is 100 respondents comprising women healthcare workers. To have a better understanding, the researcher had conducted four (4) Key Informant Interviews exploring the issues, hazards and coping strategy adopted. The key informants interview consisted of the nursing superintendent, research assistant (Medical Laboratory Technologist), midwifery educator and community health workers.

4.1 Quantitative Data

The data of the respondents were collected through the administration of structure interview schedule.

1. Structural Based of the Respondents

The following background highlighted the demographic characteristics of the respondents such as age group, marital status, type of family, educational qualification, profession, and name of hospitals and years of experience.

Table 1 Background of the Respondent

Sl. no.	Category	Characteristics	Frequency (N=100)
1.	Age group	20-24 Years	33 (33.0)
		25-29 Years	49 (49.0)
		>30 Years	17 (12.0)
2.	Marital status	Married	18 (18.0)
		Unmarried	82 (82.0)
3.	Type of family	Nuclear family	46 (46.0)
		Joint family	28 (28.0)
		Extended family	9 (9.0)
		Single parent family	17 (17.0)
4.	Educational Qualification	High School HSLC	2 (2.0)
		Higher Secondary (HSSLC)	2 (2.0)
		HSSLC Diploma	41 (41.0)
		Graduate	47 (47.0)
		Post Graduate	8 (8.0)

(Source: Computed)

(Figures in parentheses are percentage)

The demographic characterises the age group, marital status, type of family and educational qualifications of the women healthcare workers. The age group of the respondents is between the age of 20 years and 50 years and it is categorized into six age groups as 20-24 years, 25-29 years, 30-34 years, 35-39 years, 40-44 years, and 45-50 years. Nearly half (49%) of the entire respondents are belonging to 25-29 years followed by one-third (33%) of the respondents between the age group of 20-24 years. The remaining percentage with a minimum respondents is above 30 years (17%).

The marital status of the respondents is presented in table 1 on the background of the respondents. A maximum of more than four-fifth (82%) of the respondents are unmarried and the other 18% of the respondents are married.

The type of family of the respondents is given as nuclear family, joint family, extended family and also single parent family type. The data shows that nearly half (46%) of the respondents are belonging to the nuclear family followed by little more than one-fourth (28%) of the respondents belonging to the joint family and single parent family. Thirdly, 17% of the respondents are belonging to a single parent family and a minimum of 9% of the respondents are belonging to the extended family type.

The educational qualifications of the respondents are classified into five educational status such as high school leaving certificate, higher secondary school leaving certificate, higher secondary school leaving certificate and diploma holder, completion of degree course and post-graduation. The educational background of the respondent shows that a maximum of nearly half (47%) has completed their degree course i.e. graduation and amongst the degree holder a maximum of 28% of the respondents are B.Sc. Nursing, 10% are degree holders from B.Sc. Radiology and Imaging Technology 5% of the respondents are B.Sc. in Medical Laboratory Technology and equally 2% of the respondents are B.Sc. in Operation Theatre Management and B.Sc. in Renal Dialysis Technology. Secondly, more than two-fifth of the respondents are graduated and diploma certificate holders indicating 36% of the respondents working in general nursing and midwifery and 5% of the respondents are diploma holders in medical and laboratory technology. Thirdly, 8% of the respondents had completed their post-graduation and amongst them there is an equal distribution of 4% each in MSc Nursing and MSc Radiology and Imaging Technology. Further, a minimum of 2% each of the respondents' have completed high school leaving certificate (HSLC) and higher secondary school leaving certificate (HSSLC).

4.1.2 Professional characteristics of the Respondents

The professional characteristics of the respondent comprises the type of profession at present, the name of the healthcare settings and the number of years of experience. It is important to have an exploration on the professional characteristics of the respondents as it is possible that it might be one of the factors that cause occupational hazards to the women healthcare workers because the profession, place of work and the year of experience have an influence on the women healthcare workers.

Table 2 Professional characteristics of the Respondents

Sl. No.	Characteristics	Items	N=100
1.	Profession	Medical	76 (76.0)
		Para-medical	24 (24.0)
2.	Settings	Private	62 (62.0)
		Public	38 (38.0)
3.	Years of experience	2-4 years	55 (55.0)
		5-7 years	35 (36.0)
		8 years and above	10 (10)

Source: computed (Figures in parentheses are percentage)

The profession of the respondents are divided into 2 categories such as medical and para-medical profession, the maximum numbers of the respondents are from the medical profession (76%) and while the minimum number of the respondents are from para-medical profession (26%). The medical profession of the respondents comprises staff nurse, midwifery, ward superintendent, health & wellness officer and health worker also known as community health workers and the para- medical profession comprises radiographer, laboratory technicians and renal dialysis technologist. The maximum numbers of respondents among the medical profession are staff nurse (40%) and followed by midwifery (17%), ward superintendent (13%), health & wellness officer (5%) and health workers (4%). Further, among the para- medical profession the maximum number of the respondents are from radiographers (13%) and followed by laboratory technicians (9%), and renal dialysis technologist (2%).

The health settings of the respondents are divided into public and private sectors. Private sectors are owned and managed by the individual or group without the interference/ support from the government and while public sectors are owned and managed by the government. The maximum numbers of the respondents are from the private sector and while a minimum number of the respondents are from the public sector.

Under the private sector, hospitals like Adventist hospital, Aizawl hospital and research centre, BN hospital & research centre, Care hospital, Ebenezer hospital, Greenwood hospital, LRM hospital, Nazareth hospital, Synod hospital and Trinity hospital are surveyed. While five hospitals are surveyed on public sector and they are Civil hospital Aizawl, Health Sub-Centre, Mizoram State Cancer Referral Hospital, Psychiatry hospital and Zoram Medical College. The maximum number of the respondents of the where the respondents are practicing are surveyed and a maximum of 12% of the respondents are working in Civil Hospital, Aizawl followed by Ebenezer hospital, Aizawl (10%), Synod hospital, Durtlang (9%). While, an equal 8% of the respondents are practising in Zoram Medical College (ZMC) and Health Sub-Centre, Aizawl District. Further, an equal number of 6% each of the respondents are working in Trinity Hospital, Nazareth Hospital and LRM hospital and accordingly 5% each of the respondents are working in Psychiatry Hospital, Kulikawn, Greenwood Hospital, Care Hospital, BN Hospital & Research Centre, Aizawl hospital & Research Centre and Adventist Hospital.

The number of years of experience of the respondents are classified into 3 categories such as 2-4 years, 5-7 years and above 8 years. The years of experience shows that more than half (55%) of the respondents are having a working experience of between 2-4 years followed by 35% of the respondents working between 5-7 years, 10% of the respondents are having above 8 years of working experience.

4.2 Occupational issues of women healthcare workers

The common occupational issues of women healthcare workers are explore using 10 items viz. standing for long hours, difficulty in balancing work and family responsibility, work overtime, gastrointestinal problem, lifting of heavy equipment at workplace, working without protective equipment, emotional abuse, verbal abuse, physical abuse and sexual abuse.

Table 3 Issues

Sl. No.	Issues	Response N=100
1.	Difficulty in balancing work and family responsibility	63 (63.0)
2.	Standing for long hours	61 (61.0)
3.	Work overtime	56 (56.0)
4.	Gastrointestinal problem	55 (55.0)
5.	Lifting heavy equipment at workplace	48 (48.0)
6.	Working without protective equipment's	30 (30.0)
7.	Emotional abuse	21 (21.0)
8.	Verbal abuse	20 (20.0)
9.	Physical abuse	6 (6.0)
10.	Sexual abuse	3 (3.0)

Source: Computed (Figures in parentheses are percentage)

Table 3 on the occupational issues of women healthcare workers represented the issues that are commonly experienced by the women healthcare workers at the workplace. Among the listed issues nearly two-third (63%) and (61%) of the respondents reported difficulty in balancing work and family responsibilities and also bring the issue of constant standing for long hours. More than half of the respondents (56%) and (55%) reported work over stipulated time and are having gastrointestinal problems that is one among the common health complaints of the respondents. While 48% respondents are having an issue of lifting heavy equipment at the workplace and nearly one third of the total respondents (30%) of the respondents work without wearing personal protective equipment. The respondents also encountered harassment at workplace such as emotional abuse (21%), verbal abuse (20%), physical abuse (6%) and sexual abuse (3%).

4.3 Occupational hazards faced by women healthcare workers

The occupational hazards faced by the women healthcare workers are identified using 27 items and these items are classified into 4 areas such as physical hazards, psychosocial hazards, biological hazards and reproductive hazards.

Table 4 Occupational Hazards

Sl. No.	Hazards	Factors	Responses N=100
1.	Physical hazards	Body aching	80 (80.0)
		Headache	79 (79.0)
		Eye problem	59 (59.0)
		Loss of appetite	57 (57.0)
		Allergy and skin irritation	41 (41.0)
		Bone fracture	6 (6.0)
2.	Psychosocial hazards	Anxiety	45 (45.0)
		Insomnia	44 (44.0)
		Assaulted by patients	43 (43.0)
		Emotional Insecurity	37 (37.0)
		Social withdrawal	36 (36.0)
		Low Self Esteem	36 (36.0)
		Aggressiveness	34 (34.0)
		Poor interpersonal relationship	31 (31.0)
		Helplessness	28 (28.0)
		Depression	17 (17.0)
3.	Biological hazards	Needle syringe injury	35 (35.0)
		Chemical spills	14 (14.0)
		Hepatitis infection	4 (4.0)

		Tuberculosis infection from patients	3 (3.0)
		HIV infection	3 (3.0)
		Skin Cancer	1 (1.0)
4.	Reproductive hazards	Irregular menstrual cycle	40 (40.0)
		Still Birth	5 (5.0)
		Low birth weight	4 (4.0)
		Miscarriage	3 (3.0)
		Cervical cancer	2 (2.0)

Source: Computed (Figures in parentheses are percentage)

Firstly, the factors that lead to physical hazards are categorised into 6 items such as body aching, headache, eye problem, loss of appetite, allergy & skin irritation and bone fracture. Health workers' roles require lots of physical input/activity to care for their patients and it affects their physical health in many ways. The maximum of the respondents reported that headache (80%) and body aching (79%) are the major factor contributing to the occurrence of physical hazards among the women healthcare workers followed by eye problem (59%), loss of appetite (57%) allergy & skin irritation (41%) and bone fracture (6%).

Secondly, factor of psychosocial hazards is categorised into 9 items such as insomnia, anxiety, assault by patients, emotional insecurity, social withdrawal, low self-esteem, aggressiveness, poor interpersonal relationship, helplessness and depression. The maximum of nearly half of the respondents reported that anxiety (45%), insomnia (44%) and assaults by patients (43%) are the main causes of psychosocial problems among the respondents. More than one third of the respondents reported that emotional insecurity (37%), social withdrawal (36%), low self-esteem (36%) and aggressiveness (34%) are encountered by the respondents. Further, less than one third of the respondents had encountered helplessness (28%), and depression (17%).

Thirdly, the factors of biological hazards among the respondents are classified into 6 categories and they are needle syringe injury, chemical spills, hepatitis infection, tuberculosis infection, HIV infection and skin cancer. The maximum of more than half of the respondents had encountered needle syringe injury (58.3%) and more than one fifth of the respondents encountered chemical spill (23.3%), and less than one fifth of the respondents had encountered hepatitis infection (4%), tuberculosis infection from patients (3%), HIV infection (3%) and skin cancer (1%).

Lastly, the risk factors of reproductive hazards among the respondents are classified into 5 items such as irregular menstrual cycle, still birth, low birth weight, miscarriage, cervical cancer. Due to work related issues a maximum of nearly half of the respondent had encounter irregular menstrual cycle (40%) and followed by still birth (5%), low birth weight 4%), miscarriage (3%) and cervical cancer (2%).

4.4 Signs & symptoms of occupational hazards

The sign and symptoms of occupational hazards were explored by using nine questions such as changes in lifestyle, relationship problem, loss of interest, impatience, and low confidence, outburst of anger, discouragement, poor performance and irregular at work by using 5 point scale as never, rarely, sometimes, often, always with a score value of 1, 2, 3, 4 and 5.

Table 5 Signs & Symptoms

Sl. No.	Signs	N	Min	Max	Mean	S.D
1.	Changes in lifestyle	100	1.00	5	2.8	1.1
2.	Relationship problem	100	1.00	5	2.5	1.1
3.	Loss of interest	100	1.00	5	2.5	0.8
4.	Impatience	100	1.00	5	2.5	0.9
5.	Low confidence	100	1.00	5	2.5	0.9
6.	Outburst of anger	100	1.00	5	2.4	1.0
7.	Discouragement	100	1.00	5	2.3	0.9
8.	Poor performance	100	1.00	5	2.1	0.9
9.	Irregular at work	100	1.00	4.00	1.7	0.8

Source: Computed

The table 5 on the sign and symptoms of occupational hazards encountered by the respondents' shows that the changes in lifestyle is most common among the respondents with a score value of 2.8. The respondent reported that symptoms like relationship problems, loss of interest, impatience, and low confidence are also affecting them having a score value of 2.5 each. The other symptoms of occupational hazards like outburst of anger, discouragement and poor performance are still prevalent among the respondents with a score value of 2.4, 2.3 and 2.1 each. Further, despite the occupational hazards being encountered, women healthcare workers are sometimes irregular and or not punctual at work with a lowest score value of 1.7. Thus, among the signs and symptoms of occupational hazards experienced by the respondents the change (s) in lifestyle is the most common sign among the respondents that occurs due to occupational hazards.

4.5 Coping strategies adopted by the women healthcare workers

The coping strategy adopted by the respondents are explored by using 31 items such as sleep & relaxation, medication, consult physicians, regular physical exercise, consult psychiatrist, consult dietician, smoking, use of drug, use of alcohol, prayer and meditation, flexible and mindfulness, deviation from negative environment, ventilate negative feelings, exploring new hobbies & interest, seeking psycho-social help from friends, seeking emotional advice from relatives, pent-up emotion, social withdrawal, use of face mask, follow safety procedure, use sanitized equipment's, use of gloves, goggles, apron, face shield, shoe cover, keeping away from radiation, changes with lifestyle, change of nature of work, consult gynaecologist.

Table 6 Coping Mechanisms

Sl. No.	Hazards	Strategy	N	Min	Max	Mean	S.D
1.	Physical hazards	Sleep & relaxation	100	1	5	3.3	1.0
		Medication	100	1	5	2.6	1.2
		Consult physician	100	1	5	2.5	1.1
		Regular physical exercise	100	1	5	2.5	0.9
		Consult psychiatrist	100	1	5	1.6	1.1
		Consult dietician	100	1	5	1.5	0.9
		Smoking	100	1	5	1.4	0.7
		Use of Drug	100	1	4	1.3	0.7
		Use of Alcohol	100	1	4	1.1	0.5
Average mean score 1.9							

2.	Psychosocial hazards	Prayer & Meditation	100	1	5	3.9	0.9
		Flexible and mindfulness	100	1	5	3.1	1.2
		Deviation from negative environment	100	1	5	2.9	1.3
		Ventilate negative feelings	100	1	5	2.9	1.2
		Exploring new hobbies & Interest	100	1	5	2.9	1.0
		Seeking psycho-social help from friends	100	1	5	2.8	1.2
		Seeking emotional advice from relatives	100	1	5	2.8	1.3
		Pent-up emotion	100	1	5	2.5	1.3
		Social withdrawal	100	1	5	2.5	1.3
		Average mean score 2.9					
3.	Biological hazards	Face mask	100	2	5	4.6	0.6
		Follow safety procedure	100	1	5	4.5	0.9
		Use sanitized equipment's	100	1	5	4.3	1.0
		Gloves	100	1	5	4.1	0.9
		Apron	100	1	5	3.6	1.1
		Goggle	100	1	5	2.6	1.2
		Face shield	100	1	5	2.5	1.1
		Shoe cover	100	1	5	2.5	1.2
		Average mean score 3.5					
4.	Reproductive hazards	Keeping away from radiation	100	1	5	3.9	1.1
		Changes with lifestyle	100	1	5	3.1	1.0
		Change of nature of work	100	1	5	2.9	1.1
		Consults gynaecologist	100	1	5	2.3	1.3
		Average mean score 3.1					

Source: Computed

The four broad coping strategies of hazards are coping strategies for physical hazards, psychosocial hazards, biological hazards and reproductive hazards are again sub-classified. The data show that sleep & relaxation is the most adopted coping strategy with the mean score of 3.3 and it is extremely significant among the respondents.

Secondly, one of the most adopted coping strategies is medication with a mean score of 2.6, followed by consultation of physicians and regular physical exercise with a mean score of 2.5 each. The strategies which are least applied under physical hazards are consult psychiatrist, dieticians, smoking, use of drug and alcohol with the mean score of less than 1.5 to 1.1. The overall score of coping strategy for physical hazards ranges between a maximum of 3.3 and a minimum of 1.1 which is considered satisfactory according to mean score.

The psychosocial coping strategy was classified into 9 items viz., prayer and meditation, flexible and mindfulness, deviation from negative environment, ventilate negative feelings, exploring new hobbies and interests, seeking psychosocial and emotional help and advice from friends and relatives, pent up emotion and social withdrawal. Among them, prayer & meditation were extremely significant with a mean score of 3.9, followed by flexible and mindfulness with a score of 3.1. Deviation from a negative environment, ventilating negative feelings and exploring new hobbies & interests shared a mean score as high as 2.9 each. Seeking psychosocial help and advice from friends & family scored a mean score of 2.8 each and the least applied strategies are pent up emotion and social withdrawal with the score of 2.5 each which is at a satisfactory level.

Further, the coping strategy for biological hazards was classified into 8 items such as following safety procedures, use of sanitized equipment, wearing of gloves, apron, goggles and use of face shield and shoe cover from protection of biological hazards. A maximum number of the respondents reported that they always follow the safety procedure and use their sanitized equipment and gloves with the score of 4.5, 4.3 and 4.1 respectively and apron is also frequently used with a mean score of 3.6. Besides, goggles, face shield and shoe cover are also used as a part of their protection shield from biological hazards with a mean score 2.6 and 2.5 each respectively.

Furthermore, the coping strategy adopted to protect against reproductive hazards was explored with 4 items such as keeping away from radiation, changes with lifestyle, change of nature of work, consult gynaecologist. The respondents reported that they distanced themselves from radiation with a score of 3.9, followed by changing lifestyle and score 3.1, while change of nature score 2.9 and consultation of gynaecologist score the least with 2.3. On an average, the coping strategies on reproductive hazards are well applied.

4.6 Health safety measures implemented for the women healthcare workers

The health safety measure available for the women healthcare workers are examined by using 10 items such as proper biomedical waste management, first aid in times of accident, placed of safety signage & warning signage at workplace, training on safety handling of equipment, orientation on safety working in the job training, use of personal protective equipment, psychosocial support to employees, employees health screening, frequent break to reduce work stress and vaccination against communicable diseases.

Table 7 Health safety measures

Sl. No.	Precautions	N	Min	Max	Mean	S.D
1.	Proper biomedical waste management	100	1	5	4.5	0.8
2.	First Aid in times of accident	100	1	5	4.4	0.9
3.	Placed of safety signage & warning signage at workplace	100	1	5	3.9	1.1
4.	Training on safety handling of equipment's	100	1	5	3.8	1.1
5.	Orientation on safety working in the job training	100	1	5	3.8	1.3
6.	Use of Personal Protective Equipment (PPE)	100	1	5	3.6	1.3
7.	Psycho-social support to employees	100	1	5	3.5	1.2
8.	Employees health screening	100	1	5	3.1	1.2
9.	Frequent break to reduce work stress	100	1	5	3.0	1.0
10.	Vaccination against communicable diseases	100	1	5	2.8	1.3
Average mean score 3.64						

Source: Computed

The respondents reported that there is a proper biomedical waste management in the hospital with a mean score of 4.5 and first aid in times of injuries and accident scored 4.4 which mean respondents are given immediate aid in times of injuries and accident. Safety signage & warning signage at the workplace are often to be found and scored 3.9, training on safety handling of equipment and orientation on safety working

in the job training, use of personal protective equipment and psychosocial support to employees for the respondents are also often held with the score of 3.8, 3.8, 3.6 and 3.5 each respectively. While employee's health screening, frequent breaks to reduce work stress and vaccination against communicable diseases are available and given to the employees with a score of 3.1, 3.0 and 2.8 each respectively.

4.7 Institutional support provided for the women healthcare workers

The institutional support available for the women healthcare workers are explored by using 9 items such as medical reimbursement, relieving women from night shift duty, additional pay for night duty, maternity leave, avail of regular salary during maternity leave, avail of casual leave, number of day for casual leave, paid of full salary when not attending work due to personal problems, provide meals/ food the employees.

Table 8 Available Institutional support

Sl. No.	Support system	N	Min	Max	Mean	S.D.
1.	Medical reimbursement	100	0	1	0.7	0.4
	If Yes, how much	100	1	5	2.6	1.4
2.	Relieving women from night shift duty	100	0	1	0.3	0.4
3.	Additional pay for night duty	100	0	1	0.1	0.3
4.	Maternity leave	100	0	1	0.8	0.4
	If Yes, duration of maternity leaves	89	1	3	1.8	0.7
5.	Did you avail regular salary during maternity leave?	100	0	1	0.7	0.4
6.	Did you avail casual leave?	100	0	1	0.8	0.4
7.	Eligible number of days casual leave availed in a year	100	1	3	1.4	0.5
8.	Are you paid full salary when you are not able to attend your work?	100	0	1	0.6	0.4
9.	Hospital provide free meal/foods for employees	100	0	1	0.3	0.4

Source: Computed

Table 8 shows the institutional support available for the women healthcare workers. The data shows that medical reimbursement to the respondents are provided with a maximum score of 0.7, almost all of the respondents are getting medical reimbursement from the healthcare settings. The maximum number of the respondents reported that they are reimbursing with 30% of their actual medical expenses with a score value of 2.6. However, the respondents (*women healthcare workers*) are not relieved from night duty with a low score value of 0.3. In addition, a maximum number of the respondents are not given an additional pay for night duty with a score value of 0.1. The maximum number of the respondents are given maternity leave benefit with the score of 0.8 and the maximum duration of maternity leave can avail by the respondents is 3-6 months and the score value is 1.8. In addition, the respondents reported that more than half received their monthly salary regularly even during the maternity leave with a score value of 0.7. The maximum number of the respondents reported that they did avail casual leave with a high score of 0.8 and the maximum number days of casual leave avail by the respondents is between 10 and 15 days with a score value of 1.4. Further, the maximum numbers of the respondents are given full salary in spite of availing casual leave and the score value is 0.6. In the workplace the maximum numbers of the respondents are not provided with meals/food by the employers with a low score value of 0.4.

4.2 Qualitative information

The qualitative information on occupational hazards of women healthcare workers are conducted through key informant interview.

4.2.1 Key informant interviews (KII)

A key informant is a qualitative source of information which can be conducted with an expert in the area who is assumed to have knowledge in the particular field of the study. The technique of KII is an ethnographic research method which was originally used in the field of cultural anthropology and is now being used more widely in other branches of social sciences investigations. Thus, the KIIs help the researcher to have an in-depth understanding of the ground reality of the adolescence living with single parent families.

The four (4) key informant interviews (KIIs) is exploring the hazards & common issues and the coping strategy adopted. The key informant interview includes Ward superintendent, Health Worker, Radiologist and Medical Laboratory Research Assistant. For the key informants, interview a professional who has more numbers of experiences in the field and are selected and interviewed.

4.2.1 (a) Ward superintendent of Ebenezer hospital Aizawl, Mizoram

Name	:	Mrs Pari (<i>Fictitious name</i>)
Venue	:	Ebenezer hospital
Duration	:	20 minutes
Represented body	:	Nursing
Date	:	20 th November 2020

The key informant interview was held with Mrs Pari who is the present Ward superintendent of the Ebenezer hospital, Aizawl, Mizoram. The objective of the interview was to explore the occupational issues, hazards and their coping strategies adopted. The informant highlighted that the general problem faced by the women healthcare workers such as inability of balancing work- family responsibility, lack of proper sleep, hectic schedule and women healthcare workers faced more numbers of verbal abuse from the patients as comparing to male workers. Needle injury often occur among the nurses as sometimes the nurses forget to recap the syringes.

To cope with their problem most of them usually demand work rotation from the administrative department. When they are unable to perform their duty due to unavoidable circumstances they usually exchange their duty with their peers and compensate it coming days. The informants added that, the hospital rules and regulation are not stringent and is flexible to the workers and that make it easier for the nurses to adjust with the hectic schedule.

4.2.1 (b) Health Worker

Name	:	Ms Ziki (<i>Fictitious name</i>)
Venue	:	Sub Centre
Duration	:	10-20 minutes
Represented body	:	Community Health Workers
Date	:	26 th November 2020

The key informant interview is held with Ms Ziki who is the health worker at Luangmual Sub-Centre, Aizawl, Mizoram. The focus of the key informant interview is to know the issues they encountered at the workplace and how they cope with it. The major issues encountered by the health workers are lack of training, insufficient equipment, lack of motivation, lack of supervision from the higher authority.

The informant added that the work of the health workers is not that hectic as the nurses but during the time of vaccination they need to work overtime as they have to supervise two or three Sub-centre for giving vaccination due to shortage of workers, especially the female workers in the villages have to travel for long hours just for giving vaccination. There are cases of needle syringe injury and irregular menstrual cycle among the women community health workers.

4.2.1 (c) Radiologist

Name	:	Ms Janet (<i>Fictitious name</i>)
Venue	:	Trinity Hospital, Aizawl
Duration	:	20 minutes
Represented body	:	Radiologist
Date	:	12 th October 2020

The key informant interview is held with Ms Janet who is the radiologist at Trinity Hospital, Silaimual, Aizawl, Mizoram. The aim of this KII is to explore the occupational hazards that is related to their work and how they cope with it. The informant responded that the workload of the radiologist are increasing every year. Hazards like eye irritation, blur vision and headache are prevalent among the radiologist. Exposure to high level radiation have the probability causes cancer among the radiologist, during pregnancy staying close to radiation is dangerous as it can cause

a higher chance of still birth, birth defects and developmental disorder of the child. In some of the healthcare setting women radiologist are not employed due to the side effects of the radiation, so more numbers of women radiologist are left unemployed.

To cope with the hazards the informants said that they take frequent break but they are not able take so much of time due to demanding of work. To avoid from blur vision and eye irritation they usually approach optometrist to solve their issues. Pregnant mother are advice to stay away from radiation and are assign other task that they are able to handle.

4.2.1 (d) Medical Laboratory Research Assistant

Name	:	Mrs MSI (<i>Fictitious name</i>)
Venue	:	Civil Hospital, Aizawl
Duration	:	20 minutes
Represented profession	:	Laboratory technician
Date	:	2 th December 2020

The informant interview is held with Mrs MSI who is the Research Assistant, Dept. of Medical Laboratory Technician at Civil Hospital Aizawl, Mizoram. The aim of this KII is to know the hazards and other problem faced by the technicians and their coping strategy for various hazards that they encountered.

According to the informant, laboratory technicians have more number of occupational injuries as comparing to other profession. Needle syringe injury and chemical spills is prevalent among medical technologist, sometimes there are shortage of personal protective equipment and that make it difficult for them to work safely. Storing of blood sample, urine and stool test are a problem due to shortage of storage and allergic to latex (chemical used on gloves) are common among laboratory technicians

To cope with the problem, the informant reported that the safety practices are applied more than other department as they are working with blood and human waste (urine and stool). Allergic to latex are given medication to reduce the allergy.

4.6 Summary of Qualitative information

The qualitative information was collected using key informant interviews (KII) among the nurse (ward superintendent), laboratory technologist, community healthcare workers and the radiologist. The objectives of the key informant interview (KII) is to explore the occupational hazards encountered by the women healthcare workers, to identify the health safety measures taken by the respondents, the coping strategy adopted and the support provided to the respondents by the institutions. In addition, the purpose of conducting key informant interviews is to gather first-hand information that is based on experiences and also to enable the researcher to have an in-depth knowledge on the study. Further, conducting key informant interviews helps the researcher to formulate recommendations and suggestions that are significant for future research.

The findings of the key informant interviews reveals that the majority of the respondents are facing difficulty in balancing work and family responsibility, lack of proper and adequate sleep, hectic working schedule and work overtime which is mainly due to under-staffing. The needle syringe injuries are commonly encountered by the nurses, laboratory technologist as well the community healthcare workers and forget to recap the used needle is the main cause of needle stick injuries. The informants reported the lack of supervision, insufficient equipment, inadequate training, and lack of motivation is prevalent among the community healthcare worker respondents apart from hectic schedules that are due to shortage of staff/ workers. Further, the radiologist workers are encountering eye irritation, blur vision and headache, and the incidence of birth related complications in spite of the fact that there is a less preference given to women radiologist candidates at the time of recruitment.

Meanwhile, the laboratory workers encountered much more of occupational injuries as comparing to the other healthcare workers, as because of the fact that they are in close physical contact with chemical and bodily waste apart from needle syringe injury, chemical spills and or accidental situations such as HIV/AIDS, hepatitis infections and skin burns due to chemical spills. Moreover, some of the women health care workers have to work without personal protective equipment (PPE) due to shortage of supply of personal protective equipment (PPE). Thus, this cause to inefficiency as well as the working condition placed them at risk of workplace accidents.

The coping strategies adopted by the respondents are explored in the key informants' interview. The coping mechanisms includes seeking for social support in a way like rotation of work-timing among the colleagues so as to balance between family responsibility and work responsibility, taking of frequent break from work to reduce work induced stress, consultation of doctor on the physical, biological and reproductive hazards, consultation of psychiatrist on psychosocial problems. Furthermore, meditation and praying are a common coping mechanism used by the respondents. Meanwhile, regular use of PPE and also keeping oneself away from radiation is common practices to avoid reproductive health hazards among the respondents.

CHAPTER V

CONCLUSION

The study examines the occupational hazards of women healthcare workers in Aizawl District, Mizoram. The present study adopted a mixed method approach i.e. quantitative and qualitative. The source of data is both from primary and secondary sources. The quantitative data was collected using a structured interview schedule and qualitative information was gathered through Key Informant Interview. This chapter attempts to sum up the results of the analysis and the information collected and discussions on it. The study then further explored the occupational hazards, issues, adopted coping strategies, use of safety measures and the institutional support available for the women healthcare workers. Further, suggestions and recommendations for social work intervention are evolved out of the study.

A purposive sampling was utilized for identifying the respondents. Overall respondents are 100 women healthcare workers in Aizawl District, Mizoram. The inclusion criteria for the selection of respondents include women healthcare workers between the age of 20 to 50 years who have a minimum working experience of 2 years and above working both in the private and public sector. Thus, the respondents are from 14 hospitals i.e. 5 public hospitals and 9 private hospitals in Aizawl district, Mizoram.

The objectives of the study is to examine the demographic profiles of the women healthcare workers, to identify the challenges faced by the women healthcare workers, to assess the coping strategy adopted by the women healthcare, and to identify the institutional support available to women healthcare workers in Aizawl district, Mizoram. Therefore, the study explores and examines the occupational hazards of women healthcare workers in Aizawl District, Mizoram.

5.1. Major Findings of the Study

The major findings of the research study by using both quantitative and qualitative methods are presented. The results of the analysis of the data are presented in 4 sections. The first section of the study comprises the demographic profile and the professional characteristics of the respondents. The second section is addressing the findings on the issues and the signs and symptoms encountered by the respondents due to occupational hazards. The third section presents the coping strategy adopted by the

respondents and finally, the fourth and section present the available institutional support for the women healthcare workers and the safety measures implemented by the employing institutions to the women healthcare workers in Aizawl district, Mizoram.

Firstly, the structural basis of the study consisted of the demographic profile of the respondents and the professional characteristics of the respondents. The demographic characteristics of the respondents comprise the age group, marital status, type of family and the educational qualification. The analysis of the data shows that the maximum of nearly more than half of the respondents (49%) falls under the age group of 25-29 years and minimum of 3.0% are belonging to the age group of 45-50 years. In terms of marital condition of the respondents that a maximum of more than half (82%) of the respondents are unmarried and a minimum of less than one-fifth (18%) of the respondents are married. The study enquiry on the type of family of the respondents includes nuclear family, joint family, and extended family and single parent family. Nearly half (46%) of the respondents are belonging to the nuclear family and a minimum of 9% of the respondents are belonging to an extended family. The educational qualification of the respondents shows that a maximum of nearly half (47%) of the respondents have completed graduation degree and a minimum of 2% each have completed higher school leaving certificate and higher secondary school leaving certificate.

The professional characteristics of the respondents comprises the profession, name of the healthcare settings and years of working experience of the respondents. The analysis shows that a maximum of more than three-third (76%) of the respondents are medical workers and the other 24% of the respondents are Para-medical workers. The data shows that the maximum of nearly two-third (62%) of the respondents are working in the private sector and more than one-third (38%) of the respondents are working in the public sector. Further, a maximum of more than half (55%) of the respondents are having a working experience between 2 and 4 years and the minimum of one-tenth (10%) of the respondents are having an working experience of 8 years and above.

Further, exploration on the common occupational issues is another relevant factor that is determining occupational hazards among the respondents. The study found that nearly two-third (63%) of the respondents' are having an issue of balancing between the work and their own family responsibilities that is followed by more than

half (61%) of the respondents constantly standing for long hours at work. Furthermore, more than one-fifth (20%) of the respondents had reported that they are facing emotional abuse and verbal abuse, and 6% of the respondents are facing physical abuse and 3% of the respondents encountered sexual abuse at workplace.

The occupational hazards encountered by the women healthcare worker are classified into four categories such as physical hazards, psychosocial hazards, biological hazards and reproductive hazards. Firstly, the physical hazards are again classified into body aching, headache, eye problem, loss of appetite, allergy & skin irritation and bone fracture. The study found that a maximum of fourth-fifth (80%) of the respondents had encountered body aching and headache followed by eye problem and loss of appetite and a minimum of 6% of the respondents had encountered bone fracture. Secondly, the psychosocial hazards are classified into 10 items such as insomnia, anxiety, assault by patients, emotional insecurity, social withdrawal, low self-esteem, aggressiveness, poor interpersonal relationship, helplessness and depression and amongst which nearly half of the entire respondents reported anxiety. More than two-third of the respondents reported anxiety, insomnia and assaulted by patients (45%, 44% and 43%) and more than one-third of the respondents reported of emotional insecurity, social withdrawal, low self-esteem and aggressiveness (37%, 36%, 36% and 34%), low aggressiveness, poor interpersonal relationship helplessness and depression are also experienced by the respondents. Thirdly, the biological hazards encountered by the respondents are classified into 6 viz. needle syringe injury, chemical spills, hepatitis infection, tuberculosis infection, HIV infection and skin cancer. Of which more than one-third (35%) of the respondents reveal that needle syringe injury as the most common form of biological hazard among the healthcare workers. Meanwhile, 14 % of them reported the incidence of chemical spills and another 11% reported hepatitis infection, Tuberculosis infection, HIV infection and skin cancer infected through the patients. Fourthly, reproductive hazards are also classified into 5 items such as irregular menstrual cycle, still birth, low birth weight, miscarriage, cervical cancer. The maximum of more than one-third (40%) of the respondent reported irregular menstrual cycle and another 14% of the respondents had reported still birth, low birth weight, miscarriage and cervical cancer. Hence, similar research findings are given by Gonzalez, (2011), DiBenedetto, (1995), Pornpimol Kongtip *et al.*, (2018), Figà-Talamanca, (2000), Assadi, (2013).

The sign and symptoms of occupational hazards of the respondents are explored by using nine questions such as changes in lifestyle, relationship problem, loss of interest, impatience, and low confidence, outburst of anger, discouragement, poor performance and irregular at work by using 5 point scale as *never, rarely, sometimes, often* and *always*. The analysis has shown that the respondents have an experience of changes in lifestyle, relationship problem, loss of interest, impatience and low confidence with a mean score between 2.8 and 2.5 while, outburst of anger, discouragement, poor performance, and irregular at work are ranging a mean score between 2.4 and 1.7. Overall, a change in lifestyle has a highest mean score of 2.8 and irregular at work has a lowest mean score of 0.8.

A maximum number of the respondents' revealed changes in lifestyle is highly prevalent. Secondly, the respondent reported that they often have relationship problems due to work culture and the hazards they encountered. Thirdly, with all respect to the hazards they encountered the respondents revealed that they are never irregular at work.

The coping strategy adopted by the respondents are explored by using 31 items such as sleep & relaxation, medication, consult physicians, regular physical exercise, consult psychiatrist, consult dietician, smoking, use of drug, use of alcohol, prayer and meditation, flexible and mindfulness, deviation from negative environment, ventilate negative feelings, exploring new hobbies & interest, seeking psycho-social help from friends, seeking emotional advice from relatives, pent-up emotion, social withdrawal, use of face mask, follow safety procedure, use sanitized equipment, use of gloves, goggles, apron, face shield, shoe cover, keeping away from radiation, changes with lifestyle, change of nature of work, consult gynaecologist. A maximum number of the respondents have adopted sleep and relaxation as to cope from physical hazards while for psychosocial hazards prayer & meditation is mostly adopted by the maximum of the respondents. To cope with biological hazards maximum of the respondents have followed the safety procedure lastly maximum number of the respondents reported that keeping away from radiation and consulting gynaecologist is the way of coping form reportative hazards. Hence, similar research findings are given by Xu *et al.*, 2019, Cain, 2019, Eslami Akbar *et al.*, 2015, Fonseca *et al.*, 2015.

The health safety measure available for the women healthcare workers are examined by using 10 items such as proper biomedical waste management, first aid in times of accident, placed of safety signage & warning signage at workplace, training on safety handling of equipment, orientation on safety working in the job training, use of personal protective equipment, psychosocial support to employees, employees health screening, frequent break to reduce work stress and vaccination against communicable diseases. The maximum number of the respondents reported that medical waste is properly disposed of and in times of accident and injury in the hospital immediate first aid is provided to the respondent. Vaccination against communicable diseases are provided to the respondents with a low score of 2.8 as it means that vaccination is not given compulsorily to the healthcare workers. Hence, similar research finding is given by Soliman *et al.*, 2019, Wilburn & Eijkemans, 2004.

The institutional support available for the women healthcare workers are explored by using 9 items such as medical reimbursement, relieving women from night shift duty, additional pay for night duty, maternity leave, avail of regular salary during maternity leave, avail of casual leave, number of day for casual leave, paid of full salary when not attending work due to personal problems, provide meals/ food the employees. Medical reimbursements for the respondents are provided with a maximum number of the respondents with a score of 0.7 and the average medical reimbursement amount is 30% from their expenses. The maximum number of the respondents are not relieved from night shift duty and there is no extra pay for night duty for the respondents. Hence, similar research finding is given by Muriuki *et al.*, 2018, Aluko *et al.*, 2016.

The qualitative information reflects that the respondents are having difficulty in balancing between work responsibilities and family responsibilities and issues like needle syringe injuries, headache, eye problem, and shortage of supply of personal protective equipment (PPE) are encountered by the respondents. The common coping mechanisms adopted by the respondents are seeking for social support from co-workers, frequent break in between the work to reduce stress, consultation of doctors, keeping away from radiation and following safety procedures.

Hence, in conclusion, the integration of the findings of the quantitative method and qualitative method firstly reflects on difficulty in striking balance between work responsibilities and family responsibilities, lack of proper sleep and hectic schedule that is evidenced by a maximum of nearly two-third (63%) of the respondents who have reported difficulty in striking balance between work responsibilities and family responsibilities, and more than half (56%) of the respondents reported work over time and lack of proper sleep and similar research finding is given by Shivakumar & Pujar, 2018, Stimpfel et al., 2012 and Stanojevic et al., 2016. Secondly, irregular menstrual cycle and needle syringe injury are common among the respondents that two-fifth (40%) of the respondents are having irregular menstrual cycle and more than one-third (35%) of them experienced needle syringe injury and similar research findings are given by Hatch et al., 1999, Kebede & Gerensea, 2018, Sriram, 2019. Thirdly, eye irritation, blur vision and headache are common and that a maximum of nearly fourth-fifth (79%) of the respondents are having headache and more than half of the respondents (59%) are having eye problems. Hence, a similar research finding is given by Onwuekwe et al., 2014 and Hughes et al., 2013. In regard to the coping mechanism used by the respondents the qualitative exploration reveals that consultation of doctors, keeping self away from radiation and following of safety procedure are the most commonly adopted coping mechanisms and following of safety procedure with a mean score of 4.5 and keeping self away from radiation with a mean score of 3.9 and consultation of doctor with a mean score of 2.5. Hence, similar research findings are given by Trinkoff et al., 2008 and Kim, 2018.

5.2. Suggestions and recommendations

From the light of the findings, the study proposed the following suggestions and recommendation for intervention on occupational hazards of women healthcare workers. The proposed suggestions, recommendation and social work intervention are classified into policy related, institutional related, research level and social work intervention.

1) Policy Related

- The study suggested that the implementation of ‘work- friendly policies’ at the workplace are necessary for better improvement of workers health and for the promotion of better well-being.
- The implementation of universal safety precautions for the healthcare workers is necessary to minimize occupational injuries. Therefore, it is important to have a regulating body in the institutions to ensure universal safety precautions for the healthcare workers.

2) Institutional Related

- The institution must fully ensure that the employees’ rights launched by the labour law such as Maternity Benefit Act 1961 as there are few workers who claim that they are unable to avail maternity leave.
- Monitoring and evaluation of workers health and safety at the workplace, the regular availability and use of PPE is necessary for the institution to minimize occupational injuries among the workers.
- The study suggested that the institution must arrange a counselling cell to provide psychosocial support and emotional support to their workers to minimize the mental and emotional strain that is affecting the workers.

3) Research level

- National-wide study could be conducted among different professions in public and private sectors on the occupational health hazards.
- Gender wise comparison study on issues and challenges, coping strategies of healthcare workers.

4) Social work intervention

- Provide an awareness on various issues that healthcare workers can encounter in their day to day activities.
- Sensitizing the healthcare workers on occupational health & safety.
- Educate the healthcare workers on various laws and policies that protect the health & safety of the healthcare workers.

APPENDICES

Occupational Hazards of Women Healthcare Workers in Aizawl District, Mizoram

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Questionnaire

(Confidential & M.Phil Research purpose only)

Schedule no:

Section A. Demographic Profile of the Respondents

Sl.no	Particulars	Category	
1.	Name		
2.	Age	a. 20-24 years b. 25-29 years c. 30-34 years	d. 35-39 years e. 40-44 years f. 45-50 years
3.	Marital status	a. Married b. Remarried	c. Unmarried d. Widow
4.	Type of family	a. Joint family b. Extended family	c. Nuclear family d. Singled parent family
5.	Educational qualification	a. HSLC b. HSSLC c. Graduation d. Post-Graduation e. BSc Nursing f. MSc Nursing	g. BSc MLT h. MSc MLT i. BSC RIT j. BSc OTT k. Diploma Others, Specify_____
6.	Profession	a. Nurse b. RIT technologist c. Lab. technician d. ASHA worker	e. Optometrist f. Waste handlers g. Others, specify_____

7.	Name of healthcare setting	a. Aizawl Civil hospital b. Synod hospital, Durtlang c. Zoram Medical College d. Mizoram State Cancer Institute e. Psychiatry hospital, Kulikawn	f. Mizoram Healthcare g. LRM hospital h. Ebenezer hospital i. Nazareth hospital j. Trinity Diagnostic Centre k. Aizawl hospital & Research Centre
8.	Years of experience	a. 2-4 years b. 5-7 years c. 8-10 years	d. 11-13 years e. 14 years and above

Issues

Section B.1. Common Occupational Issues of Women Healthcare Workers

Sl.no	Issues		
1.	Harassment at workplace	a. Yes	b. No
	a. Physical abuse	a. Yes	b. No
	b. Mental abuse	a. Yes	b. No
	c. Verbal abuse	a. Yes	b. No
	d. Sexual abuse	a. Yes	b. No
2.	Work overtime	a. Yes	b. No
3.	Lifting heavy equipment's at workplace	a. Yes	b. No
4.	Standing for long hours	a. Yes	b. No
5.	Working without protective equipment	a. Yes	b. No
6.	Work timing	a. Yes	b. No
7.	Difficulty in balancing work and family responsibilities	a. Yes	b. No

Section B 2. Occupational Hazards faced by Women Healthcare Workers

1.	Physical hazards	a. Body aching b. Fatigue c. Loss of appetite	d. Headache e. Eye problem f. Allergy & Skin irritation g. Bone fracture
2.	Psychosocial hazards	a. Depression b. Anxiety c. Emotional insecurity d. Aggressiveness e. Helplessness f. Low self-esteem	g. Insomnia h. Social withdrawal i. Poor interpersonal relationship j. Assaulted by patients

3.	Biological Hazards	a. Needle syringe injury b. HIV infection c. Skin cancer	d. Hepatitis A/B/C e. Tuberculosis f. Chemical spills
4.	Reproductive Hazards	a. Still birth b. Irregular menstrual Cycle Cervical cancer	c. Low birth weight d. Infertility e. Miscarriage

Signs & Symptoms of occupational hazards.

Sl.no.	Indicators	Never	Rarely	Some-times	Often	Always
1.	Loss of interest					
2.	Irregular					
3.	Outburst or anger					
4.	Problem with colleagues					
5.	Impatience					
6.	Poor job performance					
7.	Changes in diet					
8.	Discouragement					
9.	Low confidence					
10.						

Section C 1. Coping Mechanisms of Women Healthcare Workers.

Sl.no	Category	Coping strategy	Never	Rarely	Some-times	Often	Alwa ys
1.	Physical Hazards	Consult physician					
		Consult psychiatrist					
		Consult dietician					
		Use of drug					
		Use of alcohol					
		Smoking					
		Regular physical exercise					
		Sleep & relaxation					
		Medication					

2.	Psychosocial hazards	Pray & Meditation					
3.		Seeking psychosocial help- from friends					
		Seeking emotional advice from relatives					
		Ventilate negative feelings					
		Deviation from negative environment					
		Flexible and mindfulness					
		Exploring new hobbies					
		Social withdrawal					
		Pent-up emotion					
		Emotional exhaustion					
		Professional burnout					
4.	Biological hazards	Use of protective equipment as-					
		a. Gloves					
		b. Facemask					
		d. Goggle					
		e. Face shield					
		f. Shoe cover					
		g. Apron					
		Use sanitise equipment's					
Follow safety procedure							

5.	Reproductive hazards	Consults gynaecologist doctor					
		Distant from radiation					
		Lifestyle changes					
		Change of nature of work					
		Flexibility in work					

Section D. Health safety measures implemented for Women healthcare workers.

Sl.no	Measures	Never	Rarely	Some-times	Often	Always
1.	Orientation on safety working on the job training					
2.	Place of safety signage & warning signage at workplace					
3.	Training on safety handling of equipment's					
4.	Protective equipment's (PPE)					
5.	First Aid in times of accident.					
6.	Psychosocial support to employees					
7.	Employees health screening					
8.	Frequent break to reduce work stress					
9.	Vaccination					
10.	Proper biomedical waste management					

Section E. Institutional support provided to the women healthcare workers

Sl.no	Support System		
1.	Medical reimbursement	a. Yes	b. No
	a. If Yes, how much?	a. 10% b. 20%	c. 30% d. 40% e. 50%
2.	Relieve women employee from night shift duty	a. Yes	b. No
3.	Additional pay for night duty	a. Yes	b. No
4.	Permitted maternity leave	a. Yes	b. No
	a. If yes, duration of maternity leave	a. 0-3 months b. 3-6 months c. 6-12 months	
5.	Did you avail regular salary during maternity leave?	a. Yes	b. No
6.	Did you avail casual leave?	a. Yes	b. No
	a. Eligible number of days casual leave availed in a year	a. 10-15 days b. 15-30 days c. 2-3 months	
7.	Are you paid full salary when you are not able to attend your work?	a. Yes	b. No
8.	Hospital provide meal/foods during the working hour	a. Yes	b. No

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Degree	: Master of Philosophy (M.Phil.)
Department	: Social Work
Title of dissertation	: Occupational Hazards of Women Healthcare Workers in Aizawl district, Mizoram
Date of payment of admission (Commencement of first semester)	: 19 th Aug 2019
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Approval of research proposal	
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2. School Board	: 12 th June 2020
3. Academic Council	: 23 rd June 2020
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5. Registration number & date	: MZU/M.Phil./615 of 12.06.2020
6. Date of submission	: 30. 03. 2021
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INTRODUCTION

The present study examines the occupational hazards of women healthcare workers in Aizawl district, Mizoram. The study aims to explore the challenges faced by the women healthcare workers, assessing the coping strategies adopted in times of difficulties and the institutional support available for the women healthcare workers.

This section introduces the occupational hazards, the meaning and concepts of occupational hazards, certain laws and regulations related to occupational hazards.

Occupational hazards are the risk or accidents or illnesses that workers faced or encountered at the workplace. In other word, hazards that workers experience in their place of work (Awodele et. al., 2014)

Healthcare workers are one who delivers care and services to the sick and ailing either directly as doctors and nurses or indirectly as aides, helpers, laboratory technicians, or even medical waste handlers (Joseph, B., & Joseph, M. 2016).

1. Occupational hazards encountered by healthcare workers

The advancement of medical technology had made things easier on the diagnosis and treatment of the patients but on the other hand it had brought many occupational hazards for the healthcare workers. The types of occupational hazards faced by the healthcare workers are physical, biological, psychological and reproductive hazards.

1.1.1 Physical hazards

Musculoskeletal problem are common among the healthcare workers due to handling of incapable patients and shifting of obese patients; back, neck, shoulder, knee problem are common among the medical, dental, surgery and nurse personnel which resulted in numbers of physical disability among the healthcare workers. Many of the nurses' left patient care due to the work related occupational injuries. Occupational injuries often occur on healthcare setting as comparing to construction and industrial settings. The reason for more numbers of occupational injuries among the healthcare workers is, no formal training on proper lifting of equipment's on correct posture and causes more numbers of musculoskeletal injuries. Accidental cuts and wounds, falls, trips and slips due to wet floors and stairways lead to various musculoskeletal injuries among the healthcare workers. Study revealed that dental professionals encountered musculoskeletal problem at their earlier stage of their career as compare to other health professionals (Mohanty et al., 2019).

1.1.2 Biological hazards

Healthcare workers performed a variety of roles at the healthcare settings not just focusing on patient's care they also performed activities such as disinfecting, cleaning, transporting of chemical and bio-chemical waste, nursing assistant and waste handler. Biological hazards consist of needle stick injuries, exposure to infections such as Tb, HIV and hepatitis viruses through direct and indirect contact with the patients and during the process of collecting blood and fluids related samples (Hamid et al., 2018). Healthcare workers especially nurses in the healthcare sectors are prone to needle stick injury, a report by the Centres for Disease Control and Prevention (2016), 40% of the nurses and laboratory workers suffered needle stick injury in their workplace, needle stick injuries does not only happened in the developing countries it is also seen in the developed countries. Serious infections like HIV and Hepatitis A, B & C are encountered due to needle stick injury. Other than needle stick injury there are other routes of transmission of infections to the healthcare workers like blood borne, droplet, airborne and contact routes. Blood borne infections are from bodily fluids and blood, needle stick injury have resulted in a number of blood borne infection cases among the nurses and laboratory workers, HIV, Hepatitis B & C infection are found among the healthcare workers but the chances of infection are less, it is estimated that hepatitis B and C virus chance of infection is 33.1% (1 in 3) and 3.3% (1 in 30) respectively while HIV infection (0.13%) is rarely to be found. Airborne transmission includes tuberculosis, measles, chicken pox and respiratory syndrome, these viruses can be transmitted from patients to healthcare workers by sneezing, coughing and talking to the person who has respiratory tuberculosis which remains in the air for a long time and can be hauled by air flow. Besides the health care workers, chemical waste handlers are also encountered biological hazards as they are working with many types of hospitals waste, during the time of segregation and transportation of waste there is a possibility of accidental contact with hazardous chemical waste which can have a negative health impact on the waste handlers (Sacadura-Leite et al., 2018).

1.1.3 Reproductive hazards

Women healthcare workers have numbers of complaints on their reproductive health due to daily exposure and contact with different substances in the hospital.

In the health care setting, health workers have numbers of exposure to reproductive hazards when caring for their patients, while performing laboratory tests and cleaning of equipment and their patients room. The exposure to anaesthetic gases, radiation and surgical smoke increase the rate of infertility and pregnancy complications, poor working conditions like working long hours, long hours of standing and night duty also affect the outcome of the pregnancy. Pregnant mothers working in the surgical profession have more reproductive complications as compared to the general population and urologists have also a higher rate of infertility Anderson & Goldman, (2020). Clinical workers have a higher chance of having reproductive hazards like menses disorder compared to administrative workers as clinical workers are more exposed to chemical exposure (Assadi, 2013). When pregnant mother are exposed to 'aesthetic gases' it damage the foetus and results in miscarriage, chromosomes abnormalities can cause by contact with 'antineoplastic drugs' and exposure to 'ionizing and non-ionizing radiation' cause birth complications for pregnant mothers (Figà-Talamanca, 2000). Infertility rates increase when female health workers are exposed to radiation and for pregnant mother, it can cause miscarriage, low birth weight and development disorder (Gonzalez, 2011).

1.1.4 Psychosocial hazards

Psychological hazards have a significant impact on the mental and well-being of the healthcare workers. Job dissatisfaction, poor interpersonal relationships, workload, work stress, bullying, violence at the workplace are the types of psychological hazards that the health workers are experiencing. The different factors encountered by the healthcare workers led to development of psychiatric disorders like stress, anxiety, depression and suicidal thoughts, and the increase of cardiovascular problems among the healthcare workers, the number of absenteeism and job performance are reduced due to the psychological problems encountered by the health workers. Psychological hazards among the healthcare workers are left unreported due to the work culture and not much attention are paid to the psychological distress of the workers and at the same time the healthcare workers were also afraid that by reporting such cases hampered their professional progression (Okefor & Alamina, 2018).

1.2 Controlling Occupational Hazards and Risk Assessment

To control and minimize the risk of occupational injuries at the workplace, Occupational Health and Safety Act proposed three types of control measures such as engineering control, administrative control and personal protection control.

Engineering control is considered to be one of the best methods to control occupational hazards. It eliminates or minimizes the degree of exposure systematically which means replacing or substituting the equipment with less hazardous for the workers.

In fact the implementation of engineering control in hospital settings is found to be complicated as it requires a lot of financial involvement and it is always rejected by the higher authority. Administrative control is applied by majority of the healthcare settings, this control involves changing or finding alternatives on the procedure by minimizing or limiting the amount of work time for the workers. Setting a limit or routine for the workers for lesser exposure to hazardous substances, minimizing the amount of work hours, night duty and work rotation. This control system is also criticized as it requires more number of workers which sometimes the hospital cannot employ more number of workers. Personal protection control is the third control that is commonly applied, it is regarded as the last resort when engineering and administrative control are not applicable. The workers were given and provided with an adequate amount of personal protective equipment to safe themselves from occupational hazards. Workers were given training on how to effectively and efficiently utilize it for their personal safety to reduce injuries at the workplace. Immunization and vaccination is given to the workers to protect from preventable diseases like polio, measles, influenza, rubella, tetanus, diphtheria, hepatitis B infection, mumps and pertussis (Gaffney & Roberts, 2008).

To control occupational risk at the workplace, workers' involvement is essential for effective and efficient occupational health and safety management. The participation of workers in safety management has greatly influenced the measures taken for preventing, controlling and minimizing occupational risk for the workers in health settings. According to the EU-OSHA employers can take necessary risk assessment by following the process:

- A. Identifying hazards and those at risk
- B. Evaluating and prioritizing risk
- C. Deciding and preventive action
- D. Taking action
- E. Documentation, monitoring and review

A. Identifying hazards and those at risk

The first and foremost important thing for assessment of risk is to identify the various available hazards that occur in the health settings. It is necessary to involve the workers for the identification of hazards at the workplace, visiting the workplace and experiencing the conditions of the workplace is important for the employers to get first-hand information.

Hospital or healthcare settings is associated with numbers of occupational hazards or risk such as musculoskeletal hazards, psychosocial, chemical, biological and reproductive hazards, specific hazards that needs special focuses are, blood borne pathogens, chemical agents, bullying and violence at workplace, shift work and night work, handling of patients, lifting, pushing and pulling of weight, interpersonal relationship, work pressure and workload. Tasks associated with occupational risk/ hazards must be well documented in order to avoid lesser numbers of injuries for the future. Checklist, screening and other tools can be utilized for risk assessment tools.

Inclusion of gender aspect in risk assessment

- Asking female and male workers the types of occupational hazards and risk that they encountered at the workplace.
- Stir up the women workers to report on the physical and psychological hazards that they faced relating to their work.

B. Evaluating and prioritizing task

For all the identified risks and hazards, solutions to the problem will not be able to be found at once or can be addressed at the same time. Prioritizing the hazards or risks and agreeing to which hazards or risks have to be tackled first is important to reduce the number of hazards and risk occurring at the healthcare or hospital settings. Improving the working conditions of the workers should be seen as a non-stop improvement cycle and then moving to more urgent risk and hazards and proceeding to other related hazards and risk to build a safe, healthy and productive work environment. To evaluate the risk and hazards there are three ways to look at it; is it negligible, acceptable for a short period of time and not acceptable. Some risk and hazards can be neglected as it has less potential health risk and hazards, but if risk and hazards is not acceptable prompt action is needed to be taken and if risk and hazards can be accepted for a period of time it can be addressed later on.

Inclusion of gender aspect in risk assessment

- Include women workers on risk assessment
- Providing sufficient information and awareness on gender issues, harassment, reproductive hazards and emotional stressors.

C. Deciding and preventive action

After prioritizing and identification of risk and hazards the next step is to identify the appropriate action to be taken for reducing and minimizing the risk and hazards. There are three strategies involved in deciding and preventive action, such as; technical measures, organizational measures and personal/ individual measures. Technical measures aim to reduce and minimize the risk by providing better appliances, aids and constructing better things that help in reducing the risk. Organizational measures try making an agreement with the workers to have better working conditions for reducing risk at the workplace. Personal and individual measures focus on individual instruction and training on personal safety and retraining them on proper use of PPE to avoid workplace hazards and risk.

Inclusion of gender aspect in risk assessment

- Women must be included in decision making
- Wearing of PPE should be comfortable for the women workers

D. Taking action

Prioritization of the plan has to be implemented for the prevention and protection of the workers. Workers are needed to inform about the outcome of the risk assessment and the improvement made as per the plan. The success of the protection and prevention plan lies in the hand of the workers and their approval of the plan. Occupational health and safety and quality management officers have to coordinate on balancing the activities for the health and safety of the workers.

Inclusion of gender aspect in risk assessment

- Female worker must be involved on the solution of the implementation
- Female and male workers are to be provided with necessary safety information on occupational health and training.

E. Documentation, monitoring and review

Documentation should include the risk assessment, result of the assessment, improvement implemented and the result for the evaluation of the improvement. The safety and preventive measures implemented have to be monitored and evaluated and

based on the success of the measures implemented alteration of the safety and preventive measures may be needed.

The head of the department and supervisor are responsible for monitoring and documentation of the reviewing process. Risk assessment should be reviewed on a regular basis, a date of review and re-evaluation of hazards and risk have to be documented. Risk assessment has to be revised when an important change occurs like using of new equipment, changes in work schedule, using new chemical agents, increase in number of accidents and leaves, modification of new laws and regulations. Occupational health and safety have to be updated yearly, the improvement of the health and safety is a continuous process, when things does not go as planned consultation of the workers is important as they know things better as they can give immediate feedback.

Inclusion of gender aspect in risk assessment

- Making sure female workers participate and involved on the reviewing process
- Aware of the new gender based occupational related health hazards.

1.3 Safety Measures for the Healthcare Workers

The government of India has formulated policies and laws for the safety and protection of workers from occupational hazards, there are approximately 16 laws relating to the protection of workers from occupational hazards, Factories Act (1948) and Mines Act (1952) have the effective legal provisions for the protection of health and safety of the workers from occupational hazards. Ministry of Labour and Ministry of Health and Family Welfare are the ministries that focuses on the protection of employees against all types of occupational hazards at workplace, Ministry of Labour responsible for the protection of health and safety of the workers, the Ministry of Health and Family Welfare is responsible for providing health and medical aid to workers in times of occupational injuries. The constitution of India on article 24, 39 (e & f) and 42 had also safeguarding the health and safety of the workers and under aged workers, provision for compulsory maternity leave for pregnant mothers and lactating mothers. Furthermore, the establishment of National Institute of Occupational Health (NIOH) and the National Safety Council of India (NSCI) had a positive impact on promoting and preventing the health and safety of workers from various occupational accidents and injuries. The National Institute of Occupational Hazards works closely with the Ministry of Labour, Ministry of Health and Family Welfare and helps the government to develop appropriate policy for health and safety

to reduce and minimize the work related occupational accidents and injuries whereas the National Safety Council of India was established with an aim to promote awareness and education on safety of occupational hazards to reduce accidents and injuries at workplace, three area where the National Safety Council of India operated are; road transport safety, construction safety, health and environment from small to large enterprises (Saha, 2018). Among the various laws and act formulated the Epidemic Diseases Act 1897 now known as The Epidemic Diseases (Amendment) Ordinance, 2020 The amendment of this act aim that healthcare worker are treated with more respect and dignity on their services and reducing the amount of issues that healthcare workers encountered at their workplace, the act protect and prevent the healthcare workers from any forms of violence, violence against the healthcare workers will be punish by imposing non-bail able offence and seven years imprisonment and a fine of not less than 1,000 (P. V. & Varma, 2020). Systematic occupational prevention program recommended by the International Commission on Occupational Health is to aware, educate and train the healthcare workers to minimize the risk and prevent from different hazards that exist in the hospitals. Proper use of protective equipment and the addressing the quality of care for the healthcare workers at the administrative level plays an integral part of this recommendation. This recommendation tries to involve the authority more on supervising the health of their employees (McDiarmid, 2014). Standard precautions are designed to protect and prevent the healthcare workers from all kinds of infection and prevent from passing on to their patients, standard precautions includes uses of personal protective equipment (gloves, goggles, mask, apron etc...), proper handling of needle (needle safety), safety handling of medical and contaminated equipment, safety disposal of hospital waste and hand hygiene (Punia et al., 2014). In spite of the detailed guidelines provided for the safety of the healthcare workers, the standard precautions are not appropriately practiced both in developed and developing countries. Doctors and nurses have appropriately made use of the safety precautions while multipurpose health workers do not have correct information and awareness on the safety precautions, hand gloves, masks, caps, gowns and aprons are not properly utilized for their safety and the patients (Chawla et al., 2017).

1.4 STATEMENT OF THE PROBLEM

Healthcare settings is regarded as one of the most hazardous places for work and occupational related hazards among the healthcare workers are increasing year by year (Nordqvist, 2013). Several studies have shown that occupational health hazards encountered or experienced by the healthcare workers are affecting the physical, psychosocial, biological and reproductive health. Occupational health hazards have affected the healthcare workers in many areas of their lives and hampered their efficiency and development. Occupational hazard is prevalent increasingly among the workers all over the world. The WHO 2004 on 'Comparative Quantification of Health Risks', reported 6 major occupational risk factors as back pain (37%), hearing loss (16%), (13%) of chronic obstructive pulmonary disease, 11% of asthma, 9% of lung cancer, 8% of injuries and 2% of leukaemia and the National Institute of Occupational Health, Ahmedabad, identified major occupational diseases which are occupational injuries, occupational lung diseases, occupational cancers, occupational dermatomes, occupational Infections, occupational toxicology and occupational mental disorders (Saha, 2018).

There are few studies available on occupational hazards in India and those are mainly on the chemical, biological, physical and psychological related hazards. Similarly, limited research on occupational hazard has been conducted in the North-Eastern region of India. There is no specific research available on gender and occupational hazard and or a study primarily focused on specific professions apart from reports of laboratories and technical settings. Thus, there is little information related to occupational health of the women in India and no research based evidence found on occupational hazards of women healthcare workers in the state of Mizoram. In spite of the fact, the presence of occupational hazards is observed and encountered among women healthcare workers in Mizoram as shown by preliminary survey conducted by the researcher. Therefore, the present study attempted to explore and assess the occupational hazards faced by women healthcare workers, coping mechanisms adopted by women healthcare Workers, workplace health and safety measures implemented for the healthcare workers and the available institutional support to women working in healthcare settings in Aizawl district, Mizoram.

METHODOLOGY

Objectives

1. To study the demographic profiles of the women healthcare workers in Aizawl district, Mizoram.
2. To explore the challenges faced by women healthcare workers in Aizawl district, Mizoram.
3. To assess the coping strategy adopted by the women healthcare workers in Aizawl district, Mizoram.
4. To identify the institutional support available to women healthcare workers in Aizawl district, Mizoram.

Sources of data collection

The primary data is collected through a quantitative method using a structured interview schedule and qualitative data is collected through Key Informants Interview. The secondary data was collected through literature survey, reports, documents, journals and open access articles, etc.

Method of sampling

A purposive sampling method was adopted to collect the data. The criteria of samples includes women healthcare workers both from private and public hospitals in Aizawl district. The unit of the study was working women in healthcare sectors including the medical and paramedical practitioners such as laboratory technicians, radiologist, nurses (GNM, ANM), and community healthcare workers, who are having a minimum working experience of more than 2 years.

The inclusion is restricted to women healthcare professionals who are currently a practitioner in any of the healthcare settings both in public and private sectors. The study was conducted among 100 working women in the hospital.

Tools for data collection

The quantitative data was collected through the administration of a structured questionnaire. The tools are designed with the help of Kobo tool box, an online open data kit website. Data was collected through android cell phones using the Kobo collect application. The qualitative information was collected through Key Informant Interviews.

Data Processing and Analysis

The quantitative data collected through structured questionnaires is processed and analysed with the help of Ms Excel and SPSS software. The data is presented in the form of tables. Results and findings of both the quantitative and qualitative methods are presented.

Field of the study

The present study had been conducted in public and private healthcare settings in Aizawl district, Mizoram. The list of public healthcare settings where the study was conducted are Civil Hospital, Aizawl, Mizoram State Cancer Referral Institute, Psychiatry hospital and Health Sub- centre. Whereas, the list of private healthcare sectors are Adventist hospital, Aizawl hospital & Research Centre, BN hospital & research centre, Care hospital, Ebenezer hospital, Greenwood hospital, LRM hospital, Nazareth hospital, Synod hospital and Trinity hospital. The pre-testing of the tools contracted was done among ten members of the respondents and the necessary changes were made and additional requirements were done.

Limitation of the study

The size of the sample is limited and the area of the study is confined to one district in Mizoram. Hence, the generality of the finding is limited to the population of Aizawl district, Mizoram.

Operational Definition

Occupational hazard: It refers to the risks, accidents or illnesses that the workers experience from work. It includes physical, biological, chemical and psychological hazards.

Women healthcare workers: It refers to the women professional healthcare degree holders such as laboratory technicians, radiologists, and nurses (GNM, ANM) who are working in both private and public hospitals in Aizawl district, Mizoram.

Healthcare sectors: It refers to public and private healthcare sectors in Aizawl district, Mizoram.

Ethical consideration

Prior informed consent was obtained from the respondents

Tentative Chapterization

Chapter I – Introduction

Chapter II –Review of Literature

Chapter III – Methodology

Chapter IV - Result and Discussion

Chapter V – Conclusion and Suggestions

CONCLUSION

The study examines the occupational hazards of women healthcare workers in Aizawl District, Mizoram. The present study adopted a mixed method approach i.e. quantitative and qualitative. The source of data is both from primary and secondary sources. The quantitative data was collected using a structured interview schedule and qualitative information was gathered through Key Informant Interview. This chapter attempts to sum up the results of the analysis and the information collected and discussions on it.

The study then further explored the occupational hazards, issues, adopted coping strategies, use of safety measures and the institutional support available for the women healthcare workers. Further, suggestions and recommendations for social work intervention are evolved out of the study.

A purposive sampling was utilized for identifying the respondents. Overall respondents are 100 women healthcare workers in Aizawl District, Mizoram. The inclusion criteria for the selection of respondents include women healthcare workers between the age of 20 to 50 years who have a minimum working experience of 2 years and above working both in the private and public sector. Thus, the respondents are from 14 hospitals i.e. 5 public hospitals and 9 private hospitals in Aizawl district, Mizoram.

The objectives of the study is to examine the demographic profiles of the women healthcare workers, to identify the challenges faced by the women healthcare workers, to assess the coping strategy adopted by the women healthcare, and to identify the institutional support available to women healthcare workers in Aizawl district, Mizoram. Therefore, the study explores and examines the occupational hazards of women healthcare workers in Aizawl District, Mizoram.

Major Findings of the Study

The major findings of the research study by using both quantitative and qualitative methods are presented. The results of the analysis of the data are presented in 4 sections. The first section of the study comprises the demographic profile and the professional characteristics of the respondents. The second section is addressing the findings on the issues and the signs and symptoms encountered by the respondents due to occupational hazards. The third section presents the coping strategy adopted by the respondents and finally, the fourth and section present the available institutional support for the women healthcare workers and the safety measures implemented by

the employing institutions to the women healthcare workers in Aizawl district, Mizoram.

Firstly, the structural basis of the study consisted of the demographic profile of the respondents and the professional characteristics of the respondents. The demographic characteristics of the respondents comprise the age group, marital status, type of family and the educational qualification. The analysis of the data shows that the maximum of nearly more than half of the respondents (49%) falls under the age group of 25-29 years and minimum of 3.0% are belonging to the age group of 45-50 years. In terms of marital condition of the respondents that a maximum of more than half (82%) of the respondents are unmarried and a minimum of less than one-fifth (18%) of the respondents are married. The study enquiry on the type of family of the respondents includes nuclear family, joint family, and extended family and single parent family. Nearly half (46%) of the respondents are belonging to the nuclear family and a minimum of 9% of the respondents are belonging to an extended family. The educational qualification of the respondents shows that a maximum of nearly half (47%) of the respondents have completed graduation degree and a minimum of 2% each have completed higher school leaving certificate and higher secondary school leaving certificate.

The professional characteristics of the respondents comprises the profession, name of the healthcare settings and years of working experience of the respondents. The analysis shows that a maximum of more than three-third (76%) of the respondents are medical workers and the other 24% of the respondents are Paramedical workers. The data shows that the maximum of nearly two-third (62%) of the respondents are working in the private sector and more than one-third (38%) of the respondents are working in the public sector. Further, a maximum of more than half (55%) of the respondents are having a working experience between 2 and 4 years and the minimum of one-tenth (10%) of the respondents are having an working experience of 8 years and above. Further, exploration on the common occupational issues is another relevant factor that is determining occupational hazards among the respondents. The study found that nearly two-third (63%) of the respondents' are having an issue of balancing between the work and their own family responsibilities that is followed by more than half (61%) of the respondents constantly standing for long hours at work. Furthermore, more than one-fifth (20%) of the respondents had had reported that they

are facing emotional abuse and verbal abuse, and 6% of the respondents are facing physical abuse and 3% of the respondents encountered sexual abuse at workplace.

The occupational hazards encountered by the women healthcare worker are classified into four categories such as physical hazards, psychosocial hazards, biological hazards and reproductive hazards. Firstly, the physical hazards are again classified into body aching, headache, eye problem, loss of appetite, allergy & skin irritation and bone fracture. The study found that a maximum of fourth-fifth (80%) of the respondents had encountered body aching and headache followed by eye problem and loss of appetite and a minimum of 6% of the respondents had encountered bone fracture. Secondly, the psychosocial hazards are classified into 10 items such as insomnia, anxiety, assault by patients, emotional insecurity, social withdrawal, low self-esteem, aggressiveness, poor interpersonal relationship, helplessness and depression and amongst which nearly half of the entire respondents reported anxiety. More than two-third of the respondents reported anxiety, insomnia and assaulted by patients (45%, 44% and 43%) and more than one-third of the respondents reported of emotional insecurity, social withdrawal, low self-esteem and aggressiveness (37%, 36%, 36% and 34%), low aggressiveness, poor interpersonal relationship helplessness and depression are also experienced by the respondents. Thirdly, the biological hazards encountered by the respondents are classified into 6 viz. needle syringe injury, chemical spills, hepatitis infection, tuberculosis infection, HIV infection and skin cancer. Of which more than one-third (35%) of the respondents reveal that needle syringe injury as the most common form of biological hazard among the healthcare workers. Meanwhile, 14 % of them reported the incidence of chemical spills and another 11% reported hepatitis infection, Tuberculosis infection, HIV infection and skin cancer infected through the patients. Fourthly, reproductive hazards are also classified into 5 items such as irregular menstrual cycle, still birth, low birth weight, miscarriage, cervical cancer. The maximum of more than one-third (40%) of the respondent reported irregular menstrual cycle and another 14% of the respondents had reported still birth, low birth weight, miscarriage and cervical cancer. Hence, similar research findings are given by Gonzalez, (2011), DiBenedetto, (1995), Pornpimol Kongtip *et al.*, (2018), Figà-Talamanca, (2000), Assadi, (2013).

The sign and symptoms of occupational hazards of the respondents are explored by using nine questions such as changes in lifestyle, relationship problem, loss of interest, impatience, and low confidence, outburst of anger, discouragement, poor performance and irregular at work by using 5 point scale as *never, rarely, sometimes, often* and *always*. The analysis has shown that the respondents have an experience of changes in lifestyle, relationship problem, loss of interest, impatience and low confidence with a mean score between 2.8 and 2.5 while, outburst of anger, discouragement, poor performance, and irregular at work are ranging a mean score between 2.4 and 1.7. Overall, a change in lifestyle has a highest mean score of 2.8 and irregular at work has a lowest mean score of 0.8. A maximum number of the respondents' revealed changes in lifestyle is highly prevalent. Secondly, the respondent reported that they often have relationship problems due to work culture and the hazards they encountered. Thirdly, with all respect to the hazards they encountered the respondents revealed that they are never irregular at work.

The coping strategy adopted by the respondents are explored by using 31 items such as sleep & relaxation, medication, consult physicians, regular physical exercise, consult psychiatrist, consult dietician, smoking, use of drug, use of alcohol, prayer and meditation, flexible and mindfulness, deviation from negative environment, ventilate negative feelings, exploring new hobbies & interest, seeking psycho-social help from friends, seeking emotional advice from relatives, pent-up emotion, social withdrawal, use of face mask, follow safety procedure, use sanitized equipment, use of gloves, goggles, apron, face shield, shoe cover, keeping away from radiation, changes with lifestyle, change of nature of work, consult gynaecologist. A maximum number of the respondents have adopted sleep and relaxation as to cope from physical hazards while for psychosocial hazards prayer & meditation is mostly adopted by the maximum of the respondents. To cope with biological hazards maximum of the respondents have followed the safety procedure lastly maximum number of the respondents reported that keeping away from radiation and consulting gynaecologist is the way of coping form reportative hazards. Hence, similar research findings are given by Xu *et al.*, 2019, Cain, 2019, Eslami Akbar *et al.*, 2015, Fonseca *et al.*, 2015.

The health safety measure available for the women healthcare workers are examined by using 10 items such as proper biomedical waste management, first aid in times of accident, placed of safety signage & warning signage at workplace, training on safety handling of equipment, orientation on safety working in the job training, use of personal protective equipment, psychosocial support to employees, employees health screening, frequent break to reduce work stress and vaccination against communicable diseases. The maximum number of the respondents reported that medical waste is properly disposed of and in times of accident and injury in the hospital immediate first aid is provided to the respondent. Vaccination against communicable diseases are provided to the respondents with a low score of 2.8 as it means that vaccination is not given compulsorily to the healthcare workers. Hence, similar research finding is given by Soliman *et al.*, 2019, Wilburn & Eijkemans, 2004.

The institutional support available for the women healthcare workers are explored by using 9 items such as medical reimbursement, relieving women from night shift duty, additional pay for night duty, maternity leave, avail of regular salary during maternity leave, avail of casual leave, number of day for casual leave, paid of full salary when not attending work due to personal problems, provide meals/ food the employees. Medical reimbursements for the respondents are provided with a maximum number of the respondents with a score of 0.7 and the average medical reimbursement amount is 30% from their expenses. The maximum number of the respondents are not relieved from night shift duty and there is no extra pay for night duty for the respondents. Hence, similar research finding is given by Muriuki *et al.*, 2018, Aluko *et al.*, 2016.

The qualitative information reflects that the respondents are having difficulty in balancing between work responsibilities and family responsibilities and issues like needle syringe injuries, headache, eye problem, and shortage of supply of personal protective equipment (PPE) are encountered by the respondents.

The common coping mechanisms adopted by the respondents are seeking for social support from co-workers, frequent break in between the work to reduce stress, consultation of doctors, keeping away self from radiation and following safety procedures. Hence, in conclusion, the integration of the findings of the quantitative method and qualitative method firstly reflects on difficulty in striking balance between work responsibilities and family responsibilities, lack of proper sleep and hectic schedule that is evidenced by a maximum of nearly two-third (63%) of the respondents

who have reported difficulty in striking balance between work responsibilities and family responsibilities, and more than half (56%) of the respondents reported work over time and lack of proper sleep and similar research finding is given by Shivakumar & Pujar, 2018, Stimpfel et al., 2012 and Stanojevic et al., 2016. Secondly, irregular menstrual cycle and needle syringe injury are common among the respondents that two-fifth (40%) of the respondents are having irregular menstrual cycle and more than one-third (35%) of them experienced needle syringe injury and similar research findings are given by Hatch et al., 1999, Kebede & Gerensea, 2018, Sriram, 2019. Thirdly, eye irritation, blur vision and headache are common and that a maximum of nearly fourth-fifth (79%) of the respondents are having headache and more than half of the respondents (59%) are having eye problems. Hence, a similar research finding is given by Onwuekwe et al., 2014 and Hughes et al., 2013. In regard to the coping mechanism used by the respondents the qualitative exploration reveals that consultation of doctors, keeping self away from radiation and following of safety procedure are the most commonly adopted coping mechanisms and following of safety procedure with a mean score of 4.5 and keeping self away from radiation with a mean score of 3.9 and consultation of doctor with a mean score of 2.5. Hence, similar research findings are given by Trinkoff et al., 2008 and Kim, 2018.

Suggestions and recommendations

From the light of the findings, the study proposed the following suggestions and recommendation for intervention on occupational hazards of women healthcare workers. The proposed suggestions, recommendation and social work intervention are classified into policy related, institutional related, research level and social work intervention.

Policy Related

- The study suggested that the implementation of ‘work- friendly policies’ at the workplace are necessary for better improvement of workers health and for the promotion of better well-being.
- The implementation of universal safety precautions for the healthcare workers is necessary to minimize occupational injuries. Therefore, it is important to have a regulating body in the institutions to ensure universal safety precautions for the healthcare workers.

Institutional Related

- The institution must fully ensure that the employees' rights launched by the labour law such as Maternity Benefit Act 1961 as there are few workers who claim that they are unable to avail maternity leave.
- Monitoring and evaluation of workers health and safety at the workplace, the regular availability and use of PPE is necessary for the institution to minimize occupational injuries among the workers.
- The study suggested that the institution must arrange a counselling cell to provide psychosocial support and emotional support to their workers to minimize the mental and emotional strain that is affecting the workers.

Research level

- National-wide study could be conducted among different professions in public and private sectors on the occupational health hazards.
- Gender wise comparison study on issues and challenges, coping strategies of healthcare workers.

Social work intervention

- Provide an awareness on various issues that healthcare workers can encounter in their day to day activities.
- Sensitizing the healthcare workers on occupational health & safety.
- Educate the healthcare workers on various laws and policies that protect the health & safety of the healthcare workers.

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