

**GENERALIZED ANXIETY DISORDER: CO-MORBIDITY
AMONG ADULTS**

**A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF DOCTOR OF
PHILOSOPHY**

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**DEPARTMENT OF NURSING
SCHOOL OF MEDICAL AND PARAMEDICAL SCIENCES
DECEMBER, 2025**

**GENERALIZED ANXIETY DISORDER : CO-MORBIDITY AMONG
ADULTS**

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CERTIFICATE

This is to certify that the present research work titled, “**Generalized Anxiety Disorder: Co-morbidity among Adults**” is the original research work carried out by Ms. V.L. Biaknungi under my supervision. The work done is being submitted for the award of the degree of Doctor of Philosophy in Nursing from Mizoram University.

This is to further certify that the research conducted by Ms. V.L. Biaknungi has not been submitted in support of an application to this or any other University or an Institute of Learning.

Dated: DECEMBER, 2025

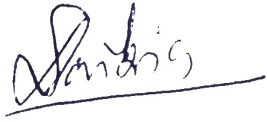
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DECLARATION
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I **V.L. BIAKNUNGI**, hereby declare that the subject matter of this thesis is the record of the work done by me, that the contents of this thesis did not form basis of the award of any previous degree to me or to do the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any research degree at any other University/Institute.

This is being submitted to the Mizoram University for the **Degree of Doctor of Philosophy in Nursing**.

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Aizawl: July, 2025

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CHAPTER – I
INTRODUCTION

Background of the study

Anxiety has been faced by individual's everyday throughout the ages. Anxiety is an emotional response (e.g., apprehension, tension, uneasiness) to the anticipation of danger, in which the source is largely unknown or unrecognized. Individuals face anxiety daily. Sometimes, anxiety is a vital force for survival as it motivates achievement. But anxiety may be regarded as abnormal or pathological if it is excessive for the circumstances creating it and when the anxiety interferes with social, occupational, or other important areas of functioning (Shahrokh & Hales, 2003).

Anxiety is often used synonymously with the word “stress” and “fears” however they are not equivalent. Stress or more properly a stressor is an external pressure that is brought to bear on the individual. Anxiety is the subjective emotional response to that stressor. Fear is a cognitive one. Fear involves the intellectual appraisal of a threatening stimulus; anxiety involves the emotional response of that appraisal (Townsend, 2010).

Until the 19th and 20th centuries, anxiety disorders were not clearly defined or explained as a separate entity by psychiatrists or psychologists. What we have now known as Anxiety was once identified solely by its physiological symptoms, focusing largely on the cardiovascular system (Townsend, 2010).

In 1859, Freud first introduced the term Anxiety Neurosis. Freud wrote, “I call this syndrome ‘anxiety neurosis’ because all its components can be grouped around the chief symptoms of anxiety” (Freud, 1895). It was by this notion that the physicians of internal medicine were ready to accept the psychological implications of anxiety disorders.

The most prevalent mental illness is anxiety disorders and result in considerable functional impairment and distress (Hollander & Simeon, 2008). Statistics vary widely, but most are in agreement that anxiety disorders are more common in women than in men by at least 2 to 1. Prevalence rates for anxiety disorders within the general population have been given at 4 to 6 per cent for

Generalized anxiety disorder and Panic disorder, 2 to 3 per cent for Obsessive-compulsive disorder (OCD), 8 per cent for Post-traumatic Stress Disorder (PTSD), 13 per cent for Social Anxiety Disorder and 22 per cent for Phobias (Townsend, 2010).

According to the American Psychiatric Association (APA), anxiety disorders are the most common type of psychiatric disorders. Many patients with anxiety disorders experience physical symptoms which are related to anxiety and only after that they visit their primary care providers. Despite the high prevalence rates of these anxiety disorders, they often are under-recognized and undertreated clinical problems (Bhatt, 2019).

Prior research has demonstrated that mental health symptoms and disorders, including as anxiety, sadness, sleeplessness, and posttraumatic stress disorder, are linked to infectious disease outbreaks in survivors, family members, healthcare workers (HCW), and people of impacted communities (Cénat et al., 2020b, 2020d; Keita et al., 2017; Lehmann et al., 2015; Mohammed et al., 2015; Cénat et al., 2021). On March 11, 2020, the 2019 coronavirus disease outbreak (COVID-19, commonly known as SARS-CoV-2) was formally classified as a pandemic by the World Health Organization (WHO) (World Health Organization, 2020). In order to stop the virus from spreading, this pandemic prompted previously unheard-of public health measures, including the confinement of almost half of the world's population, the closure of colleges and universities, social and physical segregation, and the proclamation of health emergencies in numerous nations (Jernigan, 2020; Prem et al., 2020; Qiu et al., 2020). This pandemic is associated with considerable deaths worldwide and studies conducted among affected populations have shown major risk factors for the mental health of affected populations (Cénat et al., 2021; Lai et al., 2020). These factors include anxiety and stress associated with the risk of being infected, death of loved ones, infection of loved ones, containment measures, social isolation and loneliness, physical and emotional fatigue of HCW, massive job loss, financial insecurity and poverty, excessive consumption of information from the media, and the vulnerability of certain groups in high-income countries (HICs) and low- and middle-income countries (LMICs) (Ahmed et al., 2020; Al-Rabiaah et al.,

2020; Bo et al., 2020; Cai et al., 2020). These risk factors contribute to mental health problems such as anxiety, depression, insomnia, somatization, social phobia, PTSD, OCD, self-harm, and suicidal ideations and behaviours (Cao et al., 2020; Cénat et al., 2021). Prior research has demonstrated that mental health symptoms and disorders, including as anxiety, sadness, sleeplessness, and posttraumatic stress disorder, are linked to infectious disease outbreaks in survivors, family members, healthcare workers (HCW), and people of impacted communities (Cénat et al., 2020).

It also showed the need for systematic reviews on the general population to develop and implement both prevention and intervention of mental health programs based on initial evidence.

A systematic review showed a relatively high rate of anxiety, posttraumatic stress disorder and psychological distress symptoms among population affected by COVID-19 in multiple countries (Xiong et al., 2020). The prevalence of anxiety was 15.15%, insomnia was 23.87%, PTSD was 21.94%, psychological distress 13.29% than others (Cénat et al., 2021).

Anxiety is a common feeling that has roots in evolutionary history. Because it can appear in a variety of anxiety disorders, anxiety disorders are important areas of study in clinical settings. Recent developments in the fields of nosology, epidemiology, and psychobiology have significantly improved our understanding of these conditions. Furthermore, developments in psychotherapy and medication offer real opportunities to improve patients' general functioning and reduce symptoms. The word "anxiety" comes from the Latin "anxietas," which describes a range of emotional, behavioural, and mental responses to perceived dangers. In moderation, anxiety is a healthy, adaptive reaction to difficult circumstances, but excessive anxiety can cause dysfunction and destabilization. Anxiety that is considered pathological appears when it is unrelated to external stresses, lasts longer than normal, causes substantial suffering, and interferes with a person's ability to perform in their social, psychological, professional, and biological domains.

The American Psychiatric Association's DSM-IV (*Diagnostic and statistical manual for the assessment of mental disorders*, 1994) defines a number of anxiety

disorders, including obsessive-compulsive disorder, panic disorder (with or without agoraphobia), agoraphobia without panic, social phobia (social anxiety disorder), specific phobia, generalized anxiety disorder (GAD), acute stress disorder, posttraumatic stress disorder, and anxiety disorder not otherwise specified. Furthermore, the DSM-IV recognizes anxiety that manifests as an adjustment disorder, a co-occurring substance addiction disorder, or a general medical condition. Finally, it admits that anxiety may occur incidentally in people who are generally functioning or may be a symptom of another mental illness, even though it does not fit the criteria for a psychiatric diagnosis.

Among the most prevalent mental illnesses, affecting up to 20% of individuals each year, is Generalized Anxiety Disorder. It shows up as a recurring sense of overwhelm, panic, and unceasing worry. An endless stream of inflated worries about everyday things like money, family, health, and possibilities for the future characterizes this disease. This concern is exaggerated, difficult to control, and frequently accompanied by a range of vague psychological and physical symptoms. Excessive obsession is still the core feature of generalized anxiety disorder (Leonard & Abramovitch, 2019; Roomruangwong et al., 2018; Grenier et al., 2019).

The Indian Journal of Psychiatry has published articles on the treatment of anxiety states and disorders since 1959. Master and Kajaria carried out the first research in India on the role of benzodiazepines in anxiety disorders (Master & Kajaria, 1974). This double-blind trial compared the effectiveness of lorazepam and diazepam in treating anxiety-related neuroses in sixty outpatients. It was established that while both Lorazepam and Diazepam are useful anxiolytics, Lorazepam produces a clinically meaningful response sooner. Singh et al. (Singh et al., 1984) examined the effects of Clobazam, a nonbenzodiazepine anxiolytic, and subsequently contrasted it with Diazepam (Channabasavanna & Pereira, 1986).

Shah et al. administered Buspirone and Diazepam to patients with generalized anxiety disorder in a randomized double-blind experiment (Shah et al., 1990). On the Hamilton Anxiety Scale, patients in both groups demonstrated improvement. But cardiovascular, somatic, autonomic, anxious, and mood symptoms

improved in the Buspirone group, while tension, anxiety, sleeplessness, cognitive symptoms, somatic, and cardiovascular symptoms improved in the Diazepam group. In the Buspirone group, patients required an average daily dosage of 36.56 mg, which was more than previously reported. Compared to the Diazepam group, more patients in the Buspirone group discontinued the experiment in the middle of the trial (Goldberg & Finnerty, 1982; Pecknold et al., 1985). Buspirone has a longer lag time before it becomes an effective anxiolytic; therefore, compliance needs to be motivated.

There are numerous medications that can be used to treat anxiety; however, side effects are a typical cause of non-adherence. To help with the symptoms, the pharmacist should stress the advantages of these drugs and strongly recommend taking them as prescribed. Additionally, the primary care physician must keep an eye out for weight gain due to medication side effects, diabetes, and hyper-lipidemia.

In general, anxiety disorders receive inadequate recognition and care. Anxiety problems frequently result in severe depression and drug and alcohol dependence when left untreated. Moreover, a significant number of these patients commit suicide. The quality of life is frequently low for individuals with long-term anxiety. Reducing the high morbidity and addiction problems with treatment drugs requires the education of the patient and family by the pharmacist, nurse, and physician working together as a team. In addition to providing a supportive environment, family members should assist in ensuring drug compliance. Regretfully, recurrence rates are significant even with the best care (Jordan et al., 2018; Dold et al., 2017; Cho et al., 2016).

Anxiety disorders

The Latin term "anxietas" (to choke, throttle, bother, and upset) is the root of the English word "anxiety," which refers to a range of behavioural, affective, and cognitive reactions to perceived risk. It's common for humans to feel anxious. Among mental illnesses, anxiety disorders are furthermost prevalent. Anxiety disorders include panic disorder and agoraphobia (which primarily affect adults 18

years of age and older), specific phobias, social anxiety disorder, and generalized anxiety disorder (which primarily affect adults and children), as well as separation anxiety and selective mutism (which primarily affect children between the ages of 4 and 18 years). The World Health Organization (WHO) ranked anxiety disorders as the ninth most common cause of disability due to their high incidence, chronicity, and comorbidity (Vos et al., 2017). Anxiety disorders have a noteworthy effect on individuals and society worldwide, representing 3.3% of the global disease burden and costing over €74 billion for thirty European nations (Gustavsson et al., 2011). The poor global usage of treatment for anxiety disorders is a problem that affects both high- and low-income nations equally. It is particularly problematic in the former (Alonso et al., 2018).

Detection and diagnostic methods

Clinicians should keep an eye out for the emergence of anxiety disorders because they are underdiagnosed in all care settings. Because patients with anxiety disorders frequently exhibit symptoms other than those of an anxiety disorder, monitoring is especially crucial. For example, patients with panic disorder may present in emergency rooms or general care settings with symptoms that seem to be related to their heart or breathing. Clinicians should be aware of anxiety disorders since they are often observed in primary care settings and can treat patients appropriately or send them to a specialist if necessary. Since there are no biomarkers for blood, DNA, or imaging, the diagnosis is based only on the history and examination of the mental state, which all primary care providers should adequately monitor. The use of validated, structured or semi-structured clinical interviews can aid in accurate diagnosis. Examples of these interviews include the structured clinical interview for DSM disorders and the composite international diagnostic interview based on ICD-11 or DSM-5. Parental or caregiver assessment is necessary for child interviews like the Kiddie-SADS. Clinician-rated continuous scales, such as the Hamilton Anxiety Scale, are used to assess the severity of anxiety disorders and track the effectiveness of treatment (Zigmond & Snaith, 1983). For pertinent dimensional aspects of anxiety disorders, validated self-report scales are available. The Beck

Anxiety Inventory, for example, is used to measure panic symptoms; the Fear Questionnaire, for phobia symptoms; the Penn State Worry Questionnaire, for generalized anxiety disorder symptoms; and the Anxiety Sensitivity Index, for general fear and arousal-related sensations. Standardized diagnostic procedures and evaluations for tracking results are components of evidence-based medicine, which may help avoid misdiagnosis and provide successful treatment. In clinical practice, these diagnoses and evaluations are still not frequently employed, nevertheless.

Certain types of anxiety disorders can be identified with sufficient sensitivity and specificity using screening instruments with a small number of items, such as the Generalized Anxiety Disorder-7 scale (Plummer et al., 2016). Nevertheless, it has not yet been established that the structural application of anxiety screeners in diverse contexts is both economical and successful.

Comorbidity and differential diagnosis

Along with anxiety disorders, numerous mental and physical illnesses are associated with pathological anxiety. A comprehensive psychiatric and somatic evaluation should be performed on any patient presenting with elevated pathological anxiety in order to determine whether the symptoms are due to substance or pharmaceutical use, underlying medical disorders, or other factors. Major depressive disorder is the most prevalent psychiatric comorbidity; between half and two-thirds of people with anxiety disorders also have this diagnosis. Anxiety disorders elevate the risk of depression by three to five times among over three million Danes. Due to hereditary pleiotropy, anxiety and depression have similar clinical symptoms and causes, as well as similar psychological, social, and neurobiological risk factors. When anxiety and depression coexist, the intensity, burden, and chronicity of the disorders are higher than when the conditions are treated separately (Penninx et al., 2011). As a result, diagnosing a patient with many comorbidities and prioritizing more intense care for them is frequently more important than making a differential diagnosis. In addition, obsessive-compulsive disorder, post-traumatic stress disorder, bipolar disorder, and substance abuse disorder co-occur; these conditions were previously classified as anxiety disorders in the ICD and DSM but are not in the

current version. Comorbidity with anxiety disorders frequently indicates severity. When treating anxiety in these people, it's important to keep in mind that other measures may be required to address the particular comorbidity.

Patients who suffer from a variety of somatic conditions, such as respiratory, musculoskeletal, or cardiovascular disorders, are more likely to experience comorbid anxiety. There is a chance of diagnostic confusion due to specific symptoms sharing similarities between somatic and anxiety diagnoses, as well as possible under or over diagnosis and improper treatment. Because there is mounting evidence that anxiety and somatic sickness are linked in both directions and because anxiety treatment is still necessary, it is unclear whether it is useful to differentiate between primary and secondary anxiety. Anxiety has been verified to have a detrimental impact on treatment costs, prognosis, adherence to treatment, and value of life in patients with cancer, heart disease, or pulmonary illness (Eisner et al., 2010). These results suggest that the identification and treatment of anxiety disorder comorbidity is also critical for individuals with physical ailments.

Typical Symptoms of Anxiety disorders

1. Cognitive symptoms: Fears include: losing control; fear of physical harm or death; fear of "going crazy"; fear of others judging you negatively; fear of frightening thoughts, images, or memories; perception of unreality or detachment; difficulty speaking; poor concentration, confusion, and distractibility; hypervigilance for threats; memory loss; and poor focus.
2. Physiological symptoms: Elevated heart rate, palpitations; dyspnea, shortness of breath, fast breathing; chest pain or pressure; choking sensation; light-headedness, dizziness; sweaty, hot flashes, chills; nausea, upset stomach, diarrhea; trembling, shaking; tingling or numbness in arms and legs; weakness, unsteadiness, faintness; tense muscles, rigidity; and dry mouth.
3. Behavioural symptoms: Avoiding dangerous situations or cues; running away; seeking protection; seeking comfort; becoming restless, agitated, or pacing; hyperventilating; freezing still; as well as trouble speaking.

4. Affective symptoms: Tense, wrapped up, anxious; scared, frightened, jittery; edgy, jumpy, jittery; impatient, frustrated.

Classification of anxiety disorders

The principal categories of anxiety disorders included in the American Psychiatric Association's DSM-IV are as follows: Anxiety disorder not otherwise specified, acute stress disorder, posttraumatic stress disorder, obsessive-compulsive disorder, panic disorder (with or without agoraphobia), agoraphobia without panic, social phobia (social anxiety disorder), particular phobia, and generalized anxiety disorder (GAD). Additionally, anxiety that is linked to substance misuse or a general medical condition or that occurs as an adjustment disorder is listed in the DSM-IV.

Lastly, anxiety that does not correspond with a mental health diagnosis may be situational in healthy individuals or a sign of a different mental health condition. The following is a definition of anxiety disorders from the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5, American Psychiatric Association, 2013):

1. Separation Anxiety Disorder: An individual suffering from separation anxiety disorder exhibits unusual levels of dread and worry for their age and stage of development when it comes to being apart from attachment figures. An extreme and ongoing worry or anxiety is experienced around the potential harm, loss, or separation from attachment figures. Physical problems, as well as nightmares, are among the symptoms. The symptoms can manifest throughout maturity, even though they first appear in childhood.
2. Selective Mutism: The hallmark of this disease is a persistent inability to communicate in social settings where it is expected of one to do so, despite the fact that the affected person is able to talk and understand spoken language in other contexts. Young children are more likely than teenagers and adults to experience the illness.

3. **Specific Phobia:** People who have specific phobias experience great fear or anxiety in response to particular objects or circumstances, which they either avoid or endure. The feelings of fear, worry, and avoidance are nearly invariably present and tend to be chronically disproportionate to the real threat that the particular object or circumstance poses. Phobias come in several forms: situational, animal, and blood- injection-related.
4. **Social Anxiety Disorder:** A notable or severe dread or anxiety about social situations where one might be the focus of attention is the hallmark of this illness. In these situations, the person worries that their evaluation will be negatively impacted. Additionally, he or she worries about upsetting, rejecting, humiliating, or offending people. These circumstances are always frightening or anxious, and they are either avoided or faced with great fear and worry.
5. **Panic Disorder:** People who suffer from this illness frequently have unplanned panic attacks and are constantly worried about getting into another panic attack. They also exhibit maladaptive behavioural changes associated with panic episodes, such as avoiding situations and activities to lessen the likelihood of having panic attacks. Panic attacks are sudden, powerful bursts of severe dread or discomfort that peak in a matter of minutes. They exhibit both cognitive and physical symptoms, such as palpitations, perspiration, shortness of breath, and fear of passing away or going insane. A panic attack may be anticipated, for example, in reaction to a scenario or object that causes fear, or it may come on suddenly with no apparent cause.
6. **Agoraphobia:** When using public transit, being in open areas, being in confined venues like stores and theaters, standing in line or among crowds, or being outside of their home alone, people with this disease experience two or more of these feelings of fear and anxiety. The person worries and stays away from these situations as they worry that they won't be able to flee or that they won't have access to aid if they experience panic attacks or other embarrassing or incapacitating symptoms (like incontinence or falling).

7. **Generalized Anxiety Disorder:** The hallmark of this disease is an inability to control one's excessive and ongoing anxiety about a variety of areas, such as one's performance at work or school. Along with these symptoms, the person may also feel agitated, tense, or on edge; they may tire easily; they may have trouble focusing or losing their thoughts; they may have tense muscles; and they may have trouble sleeping.
8. **Substance/Medication-Induced Anxiety Disorder:** Anxiety symptoms related to substance abuse, withdrawal, or medical interventions are present in this disease.
9. **Anxiety Disorder Due to Other Medical Conditions:** The physiological effects of another illness result in symptoms of anxiety. Here are a few examples: respiratory conditions like pneumonia and asthma; metabolic disturbances like porphyria or B12; neurological illnesses like neoplasms, encephalitis, and seizure disorder; endocrine diseases like hypothyroidism, hypoglycemia, and hypercortisolism; and cardiovascular disorders like congestive heart failure, arrhythmia, and pulmonary embolism (Chand et al, 2025).

Generalized Anxiety Disorder (GAD)

Generalized Anxiety Disorder (GAD) is a long-lasting psychological condition characterized by persistent, excessive, and uncontrollable worry about various domains of everyday life, such as health, finances, work, or family issues. Unlike transient anxiety, which may occur in response to specific stressors, the anxiety in GAD is pervasive, prolonged, and often disproportionate to the actual situation (American Psychiatric Association [APA], 2013). According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), the diagnostic criteria for GAD include excessive anxiety and worry occurring more days than not for at least six months, about a number of events or activities. The person struggles to manage their worry, and at least three of the six symptoms listed below are linked to anxiety: irritation, muscle tightness, sleep disturbance, problems

concentrating or losing focus, restlessness or feeling tense or tense, and being quickly exhausted (APA,2013).

When someone has generalized anxiety disorder (GAD), their anxiety or unhappiness spirals out of control. Normally, someone who experiences sadness or difficulties quickly overcomes them. His inability to control his tension causes his fear of the unexpected to start interfering with his day-to-day activities. Twice as many women as men are affected by this illness, and on rare occasions, it can last for an extremely long period of time (Tyrer & Baldwin, 2006). According to the Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV), the estimated lifetime prevalence of GAD in the United States is around 5%, as opposed to the anticipated current prevalence of between 2% and 3%. There are variations in sickness rates according to gender, colour, and social class. Just 43.2% of individuals in the US with GAD (6.6 million adults, or 3.1% of the population) are receiving therapy. It is thought that a combination of environmental, genetic, and sleep-related variables, as well as excessive social media use, are to blame for the estimated rise in anxiety disorders in the United States (Weisberg, 2009). The 2016 Indian National Mental Health Survey (NMHS), which directed to enhance mental health across the country, found that few comprehensive demographic modules had been the antecedent brain disease or brainy healthcare code and completion (Manjunatha et al., 2022). While generalized anxiety disorder is commonly seen in general practice, more thorough research has been done on the more extreme forms of anxiety disorders, like psychiatric disease and addictions (Hoehn-Saric & McLeod, 1985).

Due to the higher prevalence of physical symptoms than psychological ones, diagnosing anxiety patients can be difficult. Shortness of breath, palpitations, fatigue, headaches, dizziness, and restlessness are among the common somatic problems that most patients have when they first arrive. Additional psychological symptoms that patients may mention include excessive, generalized anxiety and worry, emotional instability, trouble focusing, and sleeplessness.

1. Female gender
2. Single
3. Poor health
4. Little education
5. Being among the stressors

These are among the variables that are frequently linked to generalized anxiety disorder. Presenters are thirty years old on average. To evaluate the diagnosis and severity, numerous scales have been created. As a diagnostic instrument and severity assessment scale, the GAD-7 has been validated.

To meet the diagnostic threshold, these symptoms must cause clinically significant distress or impairment in social, occupational, or other important areas of functioning. Furthermore, the disturbance must not be attributable to the physiological effects of a substance (e.g., a drug of abuse, medication) or another medical condition, and it should not be better explained by another mental disorder. The International Classification of Diseases (ICD-11) also outlines similar criteria, focusing on persistent apprehensive expectation and heightened arousal not confined to specific environmental circumstances (WHO, 2019).

Historical Background and Conceptual Development

The conceptual understanding of anxiety has evolved over centuries, transitioning from broad interpretations of nervousness to a more refined classification of specific anxiety disorders. Early psychiatric literature from the late 19th and early 20th centuries treated anxiety as a general feature of neurosis, lacking clear diagnostic boundaries. Sigmund Freud was among the first to distinguish anxiety from fear and to discuss its psychodynamic roots. Freud (1926) categorized anxiety neurosis as a condition driven by internal psychic conflict, which laid a theoretical foundation but lacked empirical validation.

It was not until the mid-20th century that more systematic classification efforts emerged. The DSM-I (1952) included anxiety within the broader category of “psychoneurotic disorders.” Later editions, especially DSM-III (1980), began to separate different anxiety disorders, recognizing GAD as a distinct diagnosis characterized by chronic anxiety without a specific focus. However, earlier definitions required the presence of other symptoms such as motor tension and autonomic hyperactivity, which led to criticisms regarding its overlap with other disorders (Barlow et al., 1986). DSM-IV (1994) and subsequently DSM-5 refined the criteria, reducing emphasis on physiological symptoms and focusing more on cognitive aspects like worry and apprehensive expectations.

The shift in conceptualization reflected increased understanding of GAD as a unique condition rather than a residual category. Today, GAD is recognized not only as a standalone disorder but also as one that frequently co-occurs with various psychiatric and medical conditions, significantly contributing to global disease burden and individual functional impairment (Stein & Sareen, 2015).

Etiology of Generalized Anxiety Disorder

The etiology may include:

1. Genetic factors: Severe GAD may run in families. The inclination toward excessive anxiety in parents can be passed down to their children, just as a child can inherit the brown hair, green eyes, and near sightedness of their parents. According to recent studies, there may be a genetic component to one-third of the chance of developing GAD.
2. Biological factors: Neurotransmitters are unique substances found in the brain that mediate feelings by sending messages back and forth. Important neurotransmitters like dopamine and serotonin can create anxiety and depression when they are not functioning properly. Additionally, many brain regions have been linked to anxiety and dread, according to research.

3. Temperament factors: A youngster with a timid or shy temperament or one who shies away from danger may be more susceptible than other children to generalized anxiety disorder.
4. Environmental factors: A traumatic experience, such as a divorce, a serious illness or death in the family, or significant events that take place outside the family, can also be the beginning of an anxiety disorder. Furthermore, relatives and other individuals who exhibit obvious signs of stress or anxiety in the presence of a youngster may teach their children how to be worried. A youngster may develop perfectionist tendencies themselves, for instance, if their parent does.

Risk factors and symptoms of GAD

Genetic and environmental variables both show a role in the development of GAD. GAD was linked to an increasing number of stressors and was thought to be unaffected by demographic factors (Lau et al., 2001; Brantley et al., 1999). However, this was frequently observed in people with different disorders (Kessler et al., 1994). Genetic factors play a role in GAD; a comprehensive review (Hettema et al., 2001) found a substantial connection between GAD in index cases and first-degree relatives. Polymorphic variation at the serotonin 1-A receptor gene was found to be associated with both GAD and the common clinical manifestation of concomitant severe depression in a case-control association study (Molina et al., 2011). Being a homemaker, being married, and having a job were all associated with GAD (Wittchen et al., 1994). Other risk variables, such as internalizing issues, conduction issues in childhood, low socioeconomic position, and mistreatment during childhood, were noted in a children-based study that was followed into adulthood (Moffitt et al., 2007).

Significant disability and a lower quality of life are also linked to GAD. A worldwide study on mental illness-related disability discovered that 38% of people with GAD had intermediate to severe occupational role impairment and missed an average of 6.3 days of work each month (Ormel et al., 1994). Increased worry and

the manifestation of physiological arousals, including restlessness, sleeplessness, and tense muscles, are characteristics of generalized anxiety disorder (GAD). In addition to worry, patients should experience at least three of the six physiological arousal displays indicated in the box. These symptoms must be specific to GAD and not be brought on by a physical ailment, another mental health condition, or the use of medications. For a clinical diagnosis to be made, the symptoms must also cause disability or severe discomfort. The 10th revision of the International Classification of Diseases included a new description of the symptoms of GAD. It was centered on physiological arousal, which included sweating, vertigo, palpitations, and shaking, without waiting for the manifestation of symptoms for six months. Clinical records have indicated that less than 20% of GAD patients get a complete remission of their symptoms and that most patients have symptoms for five to ten years before being recognized and receiving effective treatment (Kessler et al., 2001; Rogers et al., 1999).

Epidemiology of Generalized Anxiety Disorder

Between the ages of 13 and 18, anxiety in childhood affects around 1 in 4 youngsters at some point. Eleven years old is the median age at onset. On the other hand, children between the ages of 13 and 18 have a 6% lifetime prevalence of severe anxiety disorders. The overall frequency in children under the age of eighteen is 5.7% to 12.8%. The frequency is about twice as high in women as in men (Silva et al., 2018; Scheeringa & Burns, 2018; Ströhle et al., 2018).

The American Psychiatric Association first included the diagnosis of generalized anxiety disorder in the DSM-III twenty years ago. Before then, panic disorder and generalized anxiety disorder were thought to be the two main elements of anxiety neurosis. The DSM-III separated panic disorder from generalized anxiety disorder because it recognized that even though they frequently coexist, they are different enough to be classified as separate diseases.

According to the DSM-III criteria, generalized anxiety disorder is distinct as an uncontrollably distributed (i.e., not concentrated on a single significant life issue)

concern or worry that lasts for more than a month and is excessive or unrealistic in comparison to actual life conditions. To diagnose generalized anxiety disorder, a number of associated psychophysiological symptoms were also necessary. According to this classification, the illness rarely occurred in the absence of another concomitant anxiety or mood disorder, according to early clinical trials reviewing DSM-III.

Commentators have recommended that generalized anxiety disorder would be better understood as a prodrome, residual, or severity marker rather than as a distinct condition due to the very substantial comorbidity between the disorder and major depression. With the increasing duration of generalized anxiety disorder, there is a decrease in the rate of comorbidity with other conditions. The generalized anxiety disorder DSM-III-R committee suggested that the length needed to qualify for the disorder be extended to six months in light of this study. This modification was made to the DSM-III-R final edition. The DSM-IV also included modifications to the criteria for what constitutes excessive worry and the number of related psychophysiological symptoms that must exist.

Data on the epidemiology of generalized anxiety disorder have taken longer to accumulate as an outcome of these modifications to the diagnostic criteria. However, throughout the last ten years, such data has become accessible. The idea that generalized anxiety disorder should be understood as a prodrome, residual, or severity marker of other diseases was called into question by these new results, as will be discussed in more depth below. Rather, the statement implies that generalized anxiety disorder is a prevalent disorder that, while frequently co-occurring with other mental illnesses, does not exhibit a higher rate of comorbidity than the majority of other anxiety or mood disorders. The legitimacy of the DSM-5's threshold choices was also called into question by the new information

Global Context

GAD is one of the most prevalent anxiety disorders worldwide. According to the Global Burden of Disease Study, approximately 3.1% of the global population experiences GAD annually, with lifetime prevalence ranging between 5% and 7% in most countries (Baxter et al., 2014). The disorder often begins in early adulthood, although symptoms may emerge in adolescence or later in life. Women are nearly twice as likely as men to be diagnosed with GAD, possibly due to a combination of biological, psychological, and sociocultural factors (McLean et al., 2011).

GAD is associated with considerable morbidity, including impaired occupational functioning, disrupted social relationships, and reduced quality of life. Moreover, it often persists over time, with fluctuating symptom severity and significant recurrence rates. Studies from the World Mental Health Survey Initiative indicate that GAD is frequently underdiagnosed and undertreated, especially in low- and middle-income countries (Kessler et al., 2009). Despite its widespread prevalence, GAD often remains unrecognized in primary care settings, particularly when comorbid with depression or physical illnesses, as its symptoms can be overshadowed or misattributed.

Comorbidity with other mental disorders is the rule rather than the exception. Over 60–70% of individuals with GAD have at least one other psychiatric diagnosis, most commonly major depressive disorder, social anxiety disorder, or substance use disorders (Brown et al., 2001). This high rate of comorbidity increases the overall burden of disease, complicates treatment strategies, and adversely affects prognosis.

Indian Context

In India, the prevalence and burden of GAD are increasingly recognized but remain significantly underreported due to stigma, lack of mental health awareness, and inadequate diagnostic infrastructure. The National Mental Health Survey (2016) estimated the prevalence of anxiety disorders, including GAD, to be around 3.6%, with higher rates observed in urban metros and among females (Jayasankar et al.,

2002). However, precise data on GAD-specific prevalence are limited, largely due to inconsistent diagnostic practices and variability in community-based assessments.

Research from various Indian states has shown that GAD often coexists with chronic physical illnesses, particularly among older adults and individuals in lower socioeconomic strata (Math & Srinivasaraju, 2010). The phenomenon of “somatization”—where psychological distress is expressed through physical symptoms—is common in Indian populations, often leading to misdiagnosis or delayed treatment. For example, individuals may present with complaints such as headaches, fatigue, gastrointestinal distress, or palpitations, while the underlying anxiety disorder goes undetected (Kumar et al., 2012).

Cultural factors also shape the expression and recognition of GAD in India. Societal expectations, family roles, gender norms, and limited access to psychological services contribute to the chronic under recognition of anxiety disorders. In many cases, traditional healing systems and spiritual practices are the first line of care, which, while culturally congruent, may delay access to evidence-based treatments. Moreover, public health infrastructure often prioritizes severe mental illnesses like schizophrenia or bipolar disorder, leaving conditions like GAD with inadequate resources and attention.

Despite these challenges, the Indian government’s Mental Healthcare Act (2017) and the National Mental Health Programme aim to improve accessibility and affordability of mental health care, including for anxiety disorders. However, implementation gaps persist, and GAD continues to be a hidden yet disabling condition in many parts of the country.

Pathophysiology of Generalized Anxiety Disorder

There is some uncertainty regarding the precise mechanism. In children, anxiety might be a typical occurrence. Anxiety about strangers starts between the ages of seven and nine months. The noradrenergic, serotonergic, and other neurotransmitter systems appear to have an impact on the body's reaction to stress.

Anxiety is commonly associated with both the noradrenergic and serotonin systems. Many think that it developed as a result of high noradrenergic system activity and low serotonin system activity. Consequently, the first-line treatment for it involves the use of serotonin-norepinephrine reuptake inhibitors (SNRI) and selective serotonin reuptake inhibitors (SSRI).

Behavioural or somatic issues are addressed first in the first assessment process. Check for developmental problems, psychosocial stress, and psychosocial challenges. Examine past medical history, considering any trauma, mental health issues, and drug use (Rosellini et al., 2018).

To rule out organic reasons, the examination listed below can be obtained:

1. Tests for thyroid function
2. Toxicology screen
3. Electrocardiography
4. Blood glucose level

A screening instrument for generalized anxiety disorder that can also be used to keep an eye on people with the condition is the Generalized Anxiety Disorder 7-Item (GAD-7) Questionnaire.

Concept of Comorbidity

Comorbidity refers to the presence of one or more additional medical or psychiatric conditions occurring concurrently with a primary disorder. In the context of mental health, comorbidity is common and has significant implications for diagnosis, treatment, and prognosis. Generalized Anxiety Disorder (GAD), in particular, is frequently comorbid with other psychiatric conditions such as depression, panic disorder, substance use disorders, and various physical illnesses including cardiovascular disease.

The concept of comorbidity has evolved over time. Feinstein (1970) initially defined it in the medical field to describe additional conditions occurring in a patient with a primary disease. In psychiatry, comorbidity has become increasingly relevant with the introduction of categorical diagnostic systems like the DSM and ICD, which allow for multiple concurrent diagnoses (Maj, 2005). While these systems enhance diagnostic specificity, they also reveal the complex interplay between disorders, raising que.

There are several theoretical models explaining psychiatric comorbidity. The first is the ****shared risk factor model****, which posits that common genetic, neurobiological, or environmental factors contribute to multiple disorders. For example, both GAD and depression may share dysregulations in the hypothalamic-pituitary-adrenal (HPA) axis or serotonin pathways. The second is the ****causal model****, where one disorder may rise the danger of developing another.

Understanding comorbidity is crucial for effective clinical management. Individuals with comorbid GAD often experience more severe symptoms, lower treatment response, and increased risk of chronicity (Kessler et al., 2005). From a nursing perspective, this calls for integrated care approaches that assess and address both psychological and physical dimensions of health. Moreover, comorbidity complicates research as it challenges the validity of single-diagnosis studies and necessitates multifactorial.

In conclusion, comorbidity is not merely a co-occurrence of disorders but a reflection of the complexity of human health. Recognizing, diagnosing, and managing comorbidity in individuals with GAD is essential for improving clinical outcomes, reducing disability, and promoting holistic well-being.

GAD and Psychiatric Comorbidities

Generalized Anxiety Disorder (GAD) frequently co-occurs with other psychiatric disorders, leading to complex clinical presentations and significant challenges in diagnosis and treatment. Psychiatric comorbidities are more the norm

than the exception in individuals with GAD, with studies indicating that up to 90% of individuals with GAD have at least one additional psychiatric disorder (Kessler et al., 2005). The most common comorbidities include Major Depressive Disorder (MDD), Panic Disorder, Post-Traumatic Stress Disorder (PTSD), and Substance Use Disorders (SUDs). These co-occurrences not only complicate clinical management but also contribute to a more chronic and debilitating course of illness.

1. Major Depressive Disorder (MDD)

GAD and MDD often coexist, sharing similar symptoms such as fatigue, concentration difficulties, and sleep disturbances. This overlap complicates diagnostic clarity and may lead to underdiagnosis or misdiagnosis. Research suggests that individuals with comorbid GAD and MDD experience more severe symptoms, a greater risk of suicide, and poorer treatment outcomes than those with either disorder alone (Melchior et al., 2007). The shared etiology may involve common genetic vulnerabilities, cognitive styles (e.g., rumination and pessimism), and neurobiological mechanisms such as dysregulation in the serotonin and cortisol systems.

2. Panic Disorder and Other Anxiety Disorders

GAD frequently co-occurs with Panic Disorder, Social Anxiety Disorder, and Specific Phobias. Although these disorders are distinct in their symptomatology, they may share underlying vulnerabilities such as heightened anxiety sensitivity and cognitive distortions. The comorbidity of GAD and other anxiety disorders often results in increased functional impairment and chronicity, warranting tailored treatment approaches (Brown et al., 2001).

3. Post-Traumatic Stress Disorder (PTSD)

Individuals with a history of trauma may develop both PTSD and GAD. While PTSD is characterized by re-experiencing traumatic events and avoidance behaviours, GAD presents as generalized worry. However, the two can interact and exacerbate one another. Comorbidity with PTSD is associated with heightened

arousal, reduced coping skills, and poorer psychosocial functioning (Berenz & Coffey, 2012). Moreover, the presence of both disorders may diminish the effectiveness of conventional treatments, necessitating integrated therapeutic interventions.

4. Substance Use Disorders (SUDs)

GAD is also associated with increased risk of substance use, often as a maladaptive coping mechanism to alleviate anxiety symptoms. Substances such as alcohol, cannabis, and benzodiazepines may provide temporary relief but ultimately worsen anxiety over time and increase dependency risks. This comorbidity complicates treatment, as substance use can both mask and exacerbate anxiety symptoms. Integrated treatment approaches addressing both conditions simultaneously are critical for improving outcomes (Buckner et al., 2008).

The high rate of comorbid mental health conditions among individuals with GAD underscores the need for comprehensive assessment strategies in clinical and community settings. For nursing professionals, this implies a need for enhanced training in mental health assessment, risk screening, and referral systems. Early identification and a multidisciplinary treatment model can significantly improve prognosis and reduce the burden of psychiatric comorbidities.

Understanding the interplay between GAD and psychiatric disorders is essential for devising effective interventions. It requires a shift from disorder-specific treatment to a more holistic, patient-centered approach that recognizes the complexity of coexisting psychological conditions.

GAD and Physical Health Comorbidities

Generalized Anxiety Disorder (GAD) not only co-occurs with other psychiatric conditions but also shows a strong and clinically significant association with various physical health disorders. This bidirectional relationship suggests that GAD can both arise from and contribute to the development and worsening of physical illnesses. The chronic and pervasive worry characteristic of GAD is

believed to contribute to physiological changes—such as increased inflammation, dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis, and autonomic nervous system imbalance—that may negatively affect multiple organ systems (Martino et al., 2015). Simultaneously, the burden of managing chronic physical conditions can heighten psychological distress, thereby precipitating or aggravating GAD symptoms.

1. Cardiovascular Diseases:

One of the most extensively studied physical comorbidities of GAD is cardiovascular disease (CVD). Individuals with GAD exhibit elevated risks for hypertension, coronary artery disease, and arrhythmias. The persistent autonomic arousal associated with anxiety—characterized by increased heart rate and blood pressure—can contribute to the development of cardiovascular complications over time (Ginty et al., 2016). Additionally, people with GAD are more likely to engage in maladaptive health behaviours such as smoking, physical inactivity, and poor diet, further exacerbating cardiac risk.

Patients with existing CVD who also suffer from GAD often experience worse clinical outcomes, including increased rates of hospitalization, lower adherence to treatment regimens, and higher mortality (Player & Peterson, 2011). These findings emphasize the importance of screening for anxiety symptoms in patients with cardiac conditions and implementing integrated management strategies that address both physical and psychological health.

2. Gastrointestinal Disorders

GAD is also commonly comorbid with gastrointestinal (GI) disorders, especially functional disorders such as irritable bowel syndrome (IBS), peptic ulcer disease, and gastroesophageal reflux disease (GERD). The gut-brain axis—a bidirectional communication system between the central nervous system and the enteric nervous system—plays a significant role in mediating this comorbidity (Mayer et al., 2015). Chronic worry and anxiety may alter gut motility, secretion, and sensitivity,

contributing to gastrointestinal symptoms. Conversely, persistent digestive issues may cause considerable distress and contribute to the development of anxiety.

3. Chronic Pain and Musculoskeletal Disorders

GAD is frequently associated with chronic pain conditions such as fibromyalgia, lower back pain, arthritis, and temporomandibular joint dysfunction. Individuals with GAD often report lower pain thresholds and heightened pain perception, potentially due to central sensitization and exaggerated cognitive focus on physical discomfort (McWilliams et al., 2004). The presence of GAD in chronic pain patients is associated with increased disability, higher opioid use, and poorer quality of life. Addressing anxiety symptoms in this population is critical for improving overall functional outcomes.

4. Respiratory Disorders

There is a strong relationship between GAD and respiratory diseases, especially asthma and chronic obstructive pulmonary disease (COPD). Anxiety can trigger hyperventilation and bronchospasm, worsening respiratory symptoms. Moreover, patients with respiratory disorders may develop anxiety as a result of fear of breathlessness or suffocation. A study by Di Marco et al. (2010) found that anxiety disorders were present in up to 40% of COPD patients and significantly impacted treatment adherence and disease prognosis.

5. Endocrine and Metabolic Disorders

GAD has also been linked with metabolic disorders such as diabetes mellitus and thyroid dysfunction. In individuals with diabetes, anxiety may impair glycemic control through both physiological and behavioural mechanisms—e.g., increased cortisol levels, reduced adherence to dietary and medication regimens, and sleep disturbances. Additionally, hyperthyroidism and hypothyroidism can mimic or worsen anxiety symptoms due to hormonal imbalances affecting neurotransmitter regulation (Grigsby et al., 2002).

6. Oncology and Cancer Care

Patients undergoing cancer diagnosis and treatment frequently experience elevated levels of anxiety. Although anxiety is a normal psychological response to life-threatening illness, a significant subset of cancer patients meets the criteria for GAD. The presence of GAD in cancer patients is associated with worse pain perception, greater fatigue, impaired immune functioning, and diminished quality of life (Pitman et al., 2018). Despite its prevalence, anxiety often goes untreated in oncology settings due to focus on somatic symptoms.

From a healthcare and nursing perspective, the high rate of comorbidity between GAD and physical health conditions necessitates a biopsychosocial approach to care. Nurses are often in a strategic position to recognize symptoms of anxiety in patients with chronic illnesses, provide psychological first aid, offer psychoeducation, and coordinate referrals to mental health professionals. Routine screening tools such as GAD-7 can be easily incorporated into physical health assessments to identify at-risk individuals early.

The presence of GAD in patients with chronic medical illnesses has critical implications for healthcare utilization, cost, and outcomes. An integrated model of care that simultaneously addresses mental and physical health can reduce hospital admissions, improve treatment compliance, and enhance patient satisfaction.

Socio-Demographic and Cultural Factors

The experience, expression, and treatment of Generalized Anxiety Disorder (GAD) are significantly influenced by socio-demographic and cultural variables. Factors such as age, gender, education, occupation, cultural beliefs, stigma, and geographic location (urban vs. rural) shape how individuals perceive anxiety, seek help, and respond to treatment. These influences are particularly relevant in the context of comorbidity, where complex social and cultural determinants may affect both mental and physical health outcomes.

Age: Age is a critical determinant in the onset, course, and manifestation of GAD. While GAD can occur at any stage of life, its prevalence tends to peak in adulthood, particularly between the ages of 30 and 50 years (Kessler et al., 2005). In older adults, GAD is often underdiagnosed due to overlapping symptoms with physical illnesses, age-related cognitive decline, and misattribution of anxiety symptoms to aging or somatic conditions (Wolitzky-Taylor et al., 2010). Furthermore, the impact of comorbid conditions—such as hypertension, arthritis, or cardiovascular disease—is more pronounced in older individuals, compounding the severity and prognosis of GAD.

In younger populations, GAD often coexists with academic pressures, substance abuse, and developmental transitions. Age also influences coping mechanisms and willingness to engage in therapy, with older adults showing higher levels of stigma toward mental health services compared to younger generations.

Gender: Gender differences are well-documented in the prevalence and presentation of GAD. Women are nearly twice as likely to be diagnosed with GAD as men, a trend attributed to biological, psychological, and sociocultural factors (Remes et al., 2016). Hormonal fluctuations, such as those occurring during menstrual cycles, pregnancy, and menopause, may contribute to heightened vulnerability to anxiety in women. Social roles and gender expectations may also place disproportionate stress on women, particularly in cultures where caregiving, family responsibility, and limited autonomy are norms.

Men with GAD are more likely to underreport symptoms and delay treatment due to masculine norms discouraging emotional expression. They may also manifest anxiety through irritability, substance abuse, or physical complaints rather than overt worry or fear. These gender-specific patterns are essential considerations for diagnosis and treatment, especially when comorbidities like depression or substance use disorders are present.

Education: Educational attainment significantly influences awareness, perception, and management of GAD. Individuals with lower levels of education

often have limited access to mental health information, which can hinder recognition of anxiety symptoms and delay help-seeking (Patel et al., 2010). Additionally, educational level is linked with health literacy, impacting the ability to comprehend treatment plans, adhere to medications, and engage in preventive strategies.

Conversely, those with higher education may experience performance-related stress and professional burnout, which are potential triggers for GAD. Educational status also affects employment opportunities, income levels, and social status, all of which are determinants of both physical and mental health.

Occupation: Occupational stress is a well-recognized contributor to anxiety disorders. Job insecurity, high workload, poor work-life balance, and exposure to trauma (e.g., among healthcare workers, law enforcement, or military personnel) are occupational risk factors for GAD (Stansfeld & Candy, 2006). Moreover, the nature of one's occupation can influence the types of comorbidities experienced. For instance, sedentary jobs may predispose individuals to obesity and cardiovascular disease, which are common physical comorbidities with GAD.

Unemployment is another significant factor, often leading to financial instability, social exclusion, and reduced self-worth—all of which are associated with higher rates of GAD and depression. Job-related identity and routine provide structure and meaning, and their absence can exacerbate anxiety symptoms.

Cultural Beliefs and Stigma

Cultural frameworks deeply shape the understanding and expression of mental health disorders, including GAD. In many non-Western societies, psychological symptoms are often somatised, meaning emotional distress is expressed through physical complaints like headaches, fatigue, or stomach pain (Raguram et al., 2001). As a result, individuals may seek help from general physicians rather than mental health professionals, delaying appropriate diagnosis and treatment of GAD.

Stigma associated with mental illness remains a significant barrier to care across cultures. In India, for example, anxiety and depression are frequently seen as personal weaknesses or consequences of spiritual imbalance, leading individuals to rely on faith healers or traditional remedies instead of formal treatment (Lauber & Rössler, 2007). This stigma is compounded when individuals suffer from comorbid conditions, as they may be perceived as doubly "unwell" or dysfunctional, further marginalizing them.

Culturally competent care, including the integration of traditional practices with modern psychiatric approaches, is essential for improving engagement, adherence, and outcomes in populations where stigma is pervasive.

Rural and Urban Differences

Geographic location is another socio-demographic factor influencing the prevalence and management of GAD. Urban environments are associated with higher levels of stress due to noise pollution, overcrowding, competitive lifestyles, and social isolation. Consequently, urban residents may have higher rates of GAD, but also greater access to mental health services, including psychiatrists, psychologists, and community support programs (Peen et al., 2010).

In contrast, rural populations often face unique challenges. These include limited healthcare infrastructure, fewer trained mental health professionals, longer distances to healthcare facilities, and stronger cultural stigma. As a result, individuals with GAD in rural settings may go undiagnosed or receive suboptimal care. Additionally, rural patients are more likely to present with comorbid physical illnesses such as hypertension and diabetes due to lower preventive care utilization.

Tailored interventions that address rural-urban disparities are essential. Mobile health clinics, telepsychiatry, and community health workers can play a pivotal role in bridging the service gap and improving outcomes for rural populations with GAD.

Socio-demographic and cultural factors play a pivotal role in shaping the experience, expression, and management of GAD and its comorbidities. Variables such as age, gender, education, occupation, cultural beliefs, stigma, and geographic setting influence not only the prevalence of GAD but also its clinical presentation, help-seeking behaviour, and response to treatment. For healthcare providers, especially nurses working in diverse settings, it is imperative to consider these factors when assessing, diagnosing, and treating individuals with GAD. Culturally informed, demographically sensitive interventions are key to reducing the burden of GAD and improving the quality of life of affected individuals.

Generalized Anxiety Disorder (GAD) and its prevalence

The Diagnostic and Statistical Manual of Mental Disorders (DSM-III) was the first manual to identify GAD. According to the DSM-III, generalized anxiety disorder (GAD) is characterized by four weeks of continuous anxiety accompanied by symptoms from three of four categories (American Psychiatric Association, 1980). The criteria of concern were changed by DSM-III-R from normal anxiety to 24 weeks, along with six of the eighteen accompanying symptoms, in order to improve the validity of separation. As a persistent and frequently severe mental illness of the anxiety series, generalized anxiety disorder (GAD) is typified by excessive worrying, anxiety that lasts for more than 24 weeks, stress that is coupled with hypervigilance symptoms, and other physical signs of anxiety. It was claimed that 38% of people with GAD also had concomitant personality disorder, while 17% alone had GAD. The prevalence of GAD was observed to range from 1.5% to 3% among adults. It has been observed in a US study that 5% of people will get GAD at some point in their lives (Andrews et al., 1995). With an average initial manifestation age of 25–30 years, GAD typically manifests in early adulthood and late adolescence. Based on DSM-III and DSM-III-R, it was reported that the 1-year prevalence varies from 3% to 5%, and the lifespan and prevalence of GAD in the general population were predicted to range from 4% to 7%. In Christchurch, New Zealand, and Northern Ireland, respectively, a 1-year prevalence range of 0.15–12.7% was observed by another study. Switzerland's Basle has a lifetime prevalence

rate of 1.9% (Wacker et al., 1992). The lifetime prevalence in the study sample, according to a study from the USA, was 5.7%; similar rates have been observed in other nations. According to reports, the lifetime frequency for both genders was 0.8%.

In younger people, the incidence of GAD is higher and affects women twice as often as it does males. Those in the 45–59% age group had a higher prevalence of 7.7%, with females experiencing a higher incidence (7%) compared to males (4%) (Wittchen et al., 1994).

GAD diagnosis, assessment tools, and co-morbidities

In addition to being linked to excessive use of general health care resources, GAD patients were shown to commonly use primary health care rather than sensible health specialist settings (Maier et al., 2000; Roy-Byrne & Katon, 1997; Wittchen et al., 2000). In general care, anxiety may occasionally be misdiagnosed as depression, leading to incorrect diagnoses of GAD (Hoge et al., 2012). A study conducted revealed that 66% of primary care physicians misdiagnosed generalized anxiety disorder (GAD). Similarly, another investigation revealed that 27% of patients who received a false positive diagnosis of depression actually had an anxiety condition (Nisenson et al., 1998). GAD patients frequently appear physically, and it can be challenging to distinguish between symptoms due to anxiety and those associated with medical conditions (Ballenger et al., 2001). To rule out other medical causes of worry, clinicians must take a patient's medical history and perform a physical examination before diagnosing GAD. The clinical symptoms must serve as the basis for laboratory research (Fricchione, 2004). When assessing generalized anxiety disorder (GAD), it is necessary to consider a patient's medical history (pulmonary, neurologic, cardiac, or endocrine disorders), use of stimulants like cocaine or prescription and over-the-counter medications (corticosteroids and herbal remedies), and drug withdrawal (quitting alcohol, opiates, or benzodiazepines) (Pollack et al., 1998; Goldberg & Posner, 2000). Research revealed that comorbid diagnoses, including depression, dysthymia, bipolar disorder, substance addiction somatization, and other anxiety disorders, were present in 90% of those with generalized anxiety

disorder (GAD) (Stein, 2001). It was discovered that 29%–62% of GAD patients reported having serious depression, indicating a high prevalence of mental comorbidity. Among the co-morbidities of GAD, alcohol addiction accounted for 38% and social anxiety disorder for 34% (Olfson et al., 1997). GAD complaints were evaluated in relation to the development of major depression. Results from extensive prospective studies including adults and adolescents showed that GAD increased the likelihood that depression would escalate to a 4.5-fold increase in just four years (Bittner et al., 2004). Individuals who have more than one psychiatric condition are more impaired and less likely to respond well to treatment than those who only have GAD.

Complications of Generalized Anxiety Disorder (GAD)

Other mental and physical disorders can also be brought on by or made worse by generalized anxiety disorder complications.

1. Depression (often presents concomitantly with an anxiety disorder)
2. Insomnia
3. Drug or alcohol use disorder
4. Gastrointestinal problems
5. Social isolation
6. Issues functioning at work/school
7. Impaired quality of life
8. Suicide potential

Generalized Anxiety Disorder (GAD) treatment

Medication and cognitive behavioural therapy are the two main therapies for generalized anxiety disorder. The best results for patients can come from a combination of the two. Finding the most effective therapies may require some trial and error (Latas et al., 2018; Driot et al., 2017; Roberge et al., 2015).

1. Cognitive Behavioural Therapy: Psychoeducation, altering unhelpful cognitive patterns, and exposing oneself gradually to anxiety-inducing circumstances are all examples of this.
2. Pharmacotherapy: Medication may be used as a treatment for patients who do not improve with cognitive-behavioural therapy. Both are first used to treat some people who have severe symptoms. Treatment for generalized anxiety disorder involves a variety of pharmaceuticals.
3. Antidepressants: The first-line treatments with response rates ranging from 30% to 50% are the selective serotonin reuptake inhibitor (SSRI) and serotonin-norepinephrine reuptake inhibitor (SNRI) classes. The medications in this class include paroxetine (Paxil, Pexeva), venlafaxine (Effexor XR), duloxetine (Cymbalta), and escitalopram (Lexapro). In one trial, children with anxiety disorders treated with a combination of CBT and sertraline hydrochloride showed an 81% response to the treatment.
4. Antipsychotics: Some individuals may benefit from it as well, particularly those who also have related behavioural issues.
5. Benzodiazepines: Two examples of long-acting agents include clonazepam and diazepam. These medications are prescribed when a temporary cure is required or when there is a desire for an instant symptom decrease. In general, benzodiazepines seem to work better on cooperative, compliant individuals who understand that their symptoms are psychological in nature. Patients with a history of drug or alcohol abuse are not suitable candidates for this treatment since misuse and dependence are concerns.
6. Buspirone: A non-benzodiazepine that doesn't lead to dependence is buspirone. In addition, tolerance does not develop at therapeutic dosages, and it is less sedative than benzodiazepines. The use of this medication is limited due to its two- to three-week therapeutic lag in efficacy.

To find out if any medications are effective, they should all be started gently and taken for at least four weeks. The drugs must be taken for at least 12 months once

symptoms are under control before being gradually tapered off. Patients need to be closely watched because all medications have side effects, such as weight gain, hyper-lipidemia, and diabetes.

Medication and psychotherapy are used together; this combination has been shown to be successful. Patient education is essential since it might reduce anxiety. Reducing stress, alcohol, caffeine, and nicotine intake, as well as enhancing sleep quality, are effective ways to minimize anxiety causes.

Although there are a lot of complementary and alternative treatments accessible, there isn't much data to support their effectiveness. Additionally, certain substances, such as kava, might harm the liver. Some substances, such as hydroxytryptophan and St. John's wort, have the potential to interact with SSRIs and cause serotonin syndrome.

Enhancing Healthcare Team Outcomes

The signs and symptoms of anxiety disorders can manifest in a variety of ways and are quite prevalent. An interdisciplinary team comprising a primary care physician, mental health nurse, pharmacist, psychologist, psychiatrist, and other medical professionals is ideally suited to handle the illness due to its extremely high morbidity and fatality rate. Many patients have symptoms that range from moderate to severe, which lowers their quality of life. The majority are unaware that there is treatment for the illness. Patient education is therefore essential to achieving better results. It is recommended that the patient give up alcohol, cigarettes, and caffeinated beverages, as advised by the pharmacist, nurse practitioner, and primary care physician. It's also important to relieve tension; therefore, a recommendation for cognitive behaviour therapy can be beneficial.

There are numerous medications that can be used to treat anxiety; however, side effects are a typical cause of non-adherence. To help with the symptoms, the pharmacist should stress the advantages of these drugs and strongly recommend

taking them as prescribed. Additionally, the primary care physician must keep an eye out for weight gain due to medication side effects, diabetes, and hyper-lipedema.

Both the diagnosis and treatment of anxiety disorders are generally lacking. Severe depression and substance misuse are common outcomes of untreated anxiety disorders. In addition, a high number of these patients commit suicide. There is a high rate of poor life quality among people with chronic anxiety. A key strategy to lower the high morbidity and addiction issues associated with treatment drugs is team education by the pharmacist, nurse, and provider for the patient and family. The enabling environment and medication compliance should be ensured by family members. Relapse rates are very high even with the best of care.

Generalized Anxiety Disorder and Burden of illness

In 2004, an estimated 41 billion euros or more were spent in the European Union on anxiety disorders. The additional expenses linked to anxiety disorders in 2004 ranged from €500 to €1600 per case, according to the results of a German survey (Andlin-Sobocki & Wittchen, 2005). When compared to typical somatic disorders like diabetes, many anxiety disorders have higher work-loss days. Alonso et al. (2004) A significant amount of the total disease burden in the European Union is attributable to anxiety disorders. The number of years lost owing to illness, disability, or early death is known as disability-adjusted life years lost, or DALY for short. DALY is a global indicator of disease burden. A DALY of 383/783 was calculated to be related to panic disorder. This is greater than the DALY for multiple sclerosis, epilepsy, and Parkinson's disease but less than the DALY for depression, dementia, and alcohol misuse, which are the main causes of the burden of disease.

The crippling mental disease known as generalized anxiety disorder (GAD) is typified by persistent worry that lasts for at least six months without a clear explanation. The number 69 GAD is frequently a chronic illness that is linked to poor psychosocial functioning and health-related quality of life (HRQoL), low levels of overall life satisfaction, and difficulties carrying out social and role-fulfilling activities. GAD is twice as prevalent in women as in men, and it frequently coexists

with other medical diseases and/or psychiatric disorders. The 12-month prevalence of GAD is estimated to be around 2% of the adult population in Europe overall, with higher rates (5.3%) reported for patients receiving treatment in the primary care setting. However, there has been significant variability in prevalence observed between European countries (Munk-Jørgensen et al., 2006).

Significant regional heterogeneity was observed in YLDs, with East Asia consistently having lower rates of YLDs for both males (155/100,000 population) and females (292/100,000 population). We discovered that high-income regions (Southern Latin America, Australasia, and North America High Income) generally had greater YLD rates. Sixty-five percent of disability-adjusted life years (DALYs) due to anxiety disorders were in females. Although the burden of anxiety disorders has historically been underappreciated, it can be explained by factors such as high prevalence, early age of onset, prolonged illness duration, and the debilitating nature of income (Baxter et al., 2014).

Gender Differences in Generalized Anxiety Disorder (GAD)

The most prevalent category of mental illnesses, anxiety disorders, impact around 1 in 5 adult Americans (Kessler et al., 2005). Anxiety disorders are considerably more common in women than in men during their lifetimes (Angst & Dobler-Mikola, 1985), according to one of the most extensively studied findings in mental epidemiology. 30.5% of women and 19.2% of men had any anxiety condition in their lives, according to the National Comorbidity Survey (NCS), which was carried out between 1990 and 1992. In addition, women had higher prevalence rates than men for all of the anxiety disorders that were looked at: posttraumatic stress disorder (PTSD; 10.4% vs. 5.0%), generalized anxiety disorder (GAD; 6.6% vs. 3.6%), specific phobia (15.7% vs. 6.7%), agoraphobia (AG; 7.0% vs. 3.5%), panic disorder (PD; 5.0% vs. 2.0%), and generalized anxiety disorder (SAD; 15.5% vs. 11.1%). According to the Epidemiological Catchment Area study, lifetime prevalence estimates for obsessive-compulsive disorder (OCD) were greater in women than in men (3.1% vs. 2.0%) (Breslau et al., 2000), despite the fact that OCD prevalence estimates were not included in the NCS data.

Research done during the pandemic has revealed that stressors are experienced similarly by men and women (Cao et al., 2020). Gender disparities have not been detected in studies conducted in China using both large and small sample sizes (Cao et al., 2020; Chen et al., 2020; Huang and Zhao, 2020). Nonetheless, research from the West and the Middle East has demonstrated that women are more likely than men to experience mental health issues during COVID-19 (Mazza et al., 2020; Moccia et al., 2020b; Moghanibashi-Mansourieh, 2020). Numerous studies have shown that women are more prone than men to experience anxiety disorders, with lifetime and past-year rates of anxiety disorders 1.5–2 times greater in women than in men (McLean et al., 2011). While sex differences in general anxiety levels appear before the age of four, by the age of six, girls' anxiety levels are around twice as high as boys' (McLean et al., 2011). Sex differences in specific anxiety disorders do not appear at the same time.

Following their emergence, they often do not change in frequency among age groups spanning from 18 to 60 years or older (Kessler et al., 2003). Women with GAD experience the worst outcomes from the disorder (Rubio & López-Ibor, 2007), have an earlier age of onset (Yonkers et al., 2003), and have greater somatic symptoms (Steiner et al., 2005). For males and women, respectively, the lifetime prevalence rates of GAD were 2.8% and 5.3%, respectively. The prevalence of anxiety disorders such as panic disorder (PD), agoraphobia (AG), specific phobias (SP), generalized anxiety disorder (GAD), and separation anxiety (SA) has been found to be higher in clinical and community studies. Additionally, females are more likely than males to experience acute and posttraumatic stress disorder (PTSD) and social anxiety disorder (SAD), but these differences are less pronounced and not always significant for obsessive-compulsive disorder (OCD) and social anxiety disorder (Bekker & van Mens-Verhulst, 2007).

According to the DSM-IV-TR, GAD lifetime and 12-month male-to-female prevalence ratios were 1:1.9 and 1:2.2, respectively. Nicotine dependence, antisocial personality disorder, and concomitant alcohol and drug use disorders were substantially more common in men with GAD. The incidence of co-occurring

anxiety disorders (except for social anxiety disorder) and mood disorders (apart from bipolar disorder) was considerably higher in women with GAD. Men with GAD reported using alcohol and over-the-counter drugs more frequently to treat their symptoms. A higher family history of depression was linked to GAD in women. Women were more disabled than men when it came to GAD. Men were more likely than women to seek treatment for DSM-IV GAD, with low rates observed in both groups.

Significance of the Study

Generalized Anxiety Disorder (GAD) is a prevalent and debilitating mental health condition that often remains underrecognized, particularly when accompanied by comorbid mental and physical health conditions. Its chronic nature and impact on daily functioning make it a significant public health concern. The significance of this study lies in its comprehensive exploration of GAD and its comorbidities among adults, aiming to address gaps in existing knowledge and clinical practices.

Understanding the patterns of comorbidity in GAD is essential because individuals with comorbid conditions often experience more severe symptoms, higher healthcare utilization, and poorer treatment outcomes compared to those with GAD alone (Brown et al., 2001; Stein & Sareen, 2015). For instance, the coexistence of GAD with depression or cardiovascular disorders exacerbates the clinical course, complicates diagnosis, and increases functional impairment. Identifying and addressing these comorbidities through targeted interventions can lead to more effective treatment strategies and improved quality of life for patients.

In the Indian context, where mental health resources are scarce and stigma is prevalent, this study is particularly relevant. The findings can inform culturally appropriate diagnostic tools, enhance awareness among healthcare professionals, and guide policymakers in strengthening mental health services and integrating them into primary care systems. Furthermore, the study highlights the role of nurses and allied health professionals in early detection, psychoeducation, and holistic care, thereby reinforcing the multidisciplinary approach required to manage GAD effectively.

This study also contributes to the scientific literature by examining GAD within a diverse adult population, incorporating sociodemographic variables such as age, gender, socioeconomic status, and urban-rural residency. Such a perspective can reveal specific risk factors and vulnerabilities, which are essential for tailoring interventions and promoting mental health equity.

Ultimately, the study aims to bridge the gap between clinical research and real-world practice by providing evidence-based insights into the diagnosis, management, and prevention of GAD and its comorbidities. It advocates for the integration of mental health care into general health services and underscores the importance of community-based strategies to reduce the overall burden of anxiety disorders in adults.

Clinical and Nursing Implications

Generalized Anxiety Disorder (GAD), with its high prevalence and frequent comorbidities, presents a multifaceted challenge in both clinical and nursing contexts. Nurses, who often serve as the first point of contact in healthcare settings, play a crucial role in screening, diagnosing, managing, and referring patients with GAD. The clinical and nursing implications of GAD extend across various healthcare domains, from primary care to specialty mental health services. Addressing these implications is vital for early detection, integrated care, and improved patient outcomes.

Challenges in Nursing Care and Screening

One of the primary challenges in nursing care related to GAD is the recognition of symptoms, which are often vague, overlapping, or masked by physical complaints. Patients with GAD commonly present with somatic symptoms such as headaches, muscle tension, gastrointestinal distress, or insomnia, leading nurses to focus on treating the physical manifestations while overlooking the underlying psychological disorder (Andrews et al., 2010).

Further complicating the situation is the presence of comorbid physical or psychiatric conditions. In patients with diabetes, cardiovascular disease, or depression, GAD may be underrecognized or attributed to their primary diagnosis. Nurses may also face difficulties differentiating between GAD and normal stress reactions, particularly in culturally diverse populations where expressions of distress vary widely.

Another significant barrier is limited mental health training among general nurses. Many nursing curricula offer minimal education in psychiatric assessment, particularly regarding anxiety disorders and their comorbidities. As a result, nurses may lack the confidence or competence to administer validated screening tools such as the GAD-7 or to interpret their findings effectively.

Additionally, time constraints, lack of privacy, and the stigma associated with mental health can hinder screening in busy clinical environments. In some cases, patients themselves may resist disclosing anxiety symptoms due to fear of judgment, especially in conservative or rural settings.

Integrated Treatment Models

Effective management of GAD and its comorbidities requires interdisciplinary collaboration and integrated treatment models that address both mental and physical health needs simultaneously. Nurses, particularly those in primary care, are ideally positioned to facilitate this integration.

One widely supported approach is the Collaborative Care Model (CCM), in which nurses, primary care providers, and mental health professionals work together to assess, monitor, and manage patients with GAD. In this model, the nurse often serves as a care manager, coordinating communication between the patient and healthcare team, monitoring treatment adherence, and providing psychoeducation (Archer et al., 2012).

The Biopsychosocial Model also supports integrated care, emphasizing the interconnectedness of biological, psychological, and social influences on health. For individuals with comorbid GAD and chronic illnesses, such as hypertension or diabetes, this model encourages the treatment of both conditions in tandem, avoiding the siloed approaches often seen in conventional healthcare.

Additionally, telehealth and digital interventions are becoming increasingly relevant in anxiety treatment. Nurses trained in telepsychiatry can support GAD

management through remote monitoring, counseling, and patient education, especially in underserved areas.

From a nursing perspective, pharmacological management of GAD often involves medications such as SSRIs, SNRIs, or benzodiazepines. Nurses must be vigilant in assessing for side effects, adherence, and potential drug interactions, particularly when patients are also taking medications for comorbid conditions. Equally important is non-pharmacological support, including Cognitive Behavioural Therapy (CBT), mindfulness practices, and lifestyle interventions, which nurses can reinforce during patient interactions.

Role of Nurses in Early Identification and Referral

Nurses are uniquely positioned to detect early signs of GAD and its comorbidities due to their continuous interaction with patients across different settings. This proximity enables nurses to observe behavioural cues, physical symptoms, and psychosocial stressors that may otherwise go unnoticed.

Early identification begins with systematic screening. Tools such as the GAD-7, the Hospital Anxiety and Depression Scale (HADS), and DSM-5 criteria can be employed by trained nurses to screen patients presenting with vague or unexplained symptoms. Integrating mental health screening into routine assessments can greatly improve detection rates.

Beyond screening, nurses play a critical role in psychoeducation—explaining the nature of anxiety and its comorbid conditions in simple, non-stigmatizing language. This not only reduces patient fear and resistance but also fosters treatment adherence. Educating families is equally important, as family dynamics and support systems often influence patient outcomes.

Timely referral to mental health professionals is another key nursing responsibility. Nurses should maintain updated knowledge of referral pathways and collaborate with psychiatrists, psychologists, and counselors as needed. In resource-

limited settings, nurses may even function as the primary mental health provider, making accurate identification and triage skills essential.

In community and public health contexts, nurses can advocate for preventive mental health strategies, such as stress management workshops, resilience-building programs, and stigma reduction campaigns. These initiatives are especially valuable in rural and underserved areas where professional mental health services may be scarce.

Finally, nurses serve as patient advocates, ensuring that individuals with GAD are not dismissed or mischaracterized. Advocacy includes safeguarding patients from unnecessary medical investigations, ensuring their voices are heard in treatment planning, and promoting equitable access to care.

Implications for Nursing Education and Policy

Given the increasing burden of GAD and its comorbidities, there is a pressing need to strengthen mental health education in nursing curricula. Nursing programs should incorporate training in psychological assessment, communication skills, crisis intervention, and collaborative care models. Continuing education programs and workshops can further equip practicing nurses to manage anxiety disorders effectively.

At the policy level, healthcare systems must recognize the role of nurses in mental health and invest in task-sharing models, especially in areas with psychiatrist shortages. Policies should also support routine screening for anxiety in chronic disease management programs and promote integrated electronic health records for improved care coordination.

The clinical and nursing implications of GAD, particularly in the context of comorbidities, are extensive and multifactorial. Nurses face challenges in recognizing anxiety symptoms, especially when masked by physical complaints or complicated by cultural stigma. However, they are also uniquely equipped to provide early screening, holistic care, and interdisciplinary coordination. Embracing

integrated care models and investing in nurse education are essential steps in addressing the growing burden of GAD. As frontline providers, nurses must be empowered and supported to ensure timely, compassionate, and comprehensive care for individuals experiencing this complex disorder.

Research Gap and Justification

Despite the growing recognition of Generalized Anxiety Disorder (GAD) as a prevalent and debilitating mental health condition, several critical research gaps remain, particularly concerning adult populations in India. GAD is known to exert a profound effect on an individual's psychological, physiological, and social functioning, and its frequent co-occurrence with both psychiatric and physical illnesses compounds its burden. However, much of the present literature has either focused on Western populations or examined GAD in isolation, failing to capture the complexity of comorbid presentations in diverse contexts.

The current study addresses these limitations by exploring the comorbidity patterns of GAD among Indian adults, aiming to provide region-specific insights that can guide clinical practice, mental health policy, and integrated care delivery. This section delineates key areas where knowledge is lacking and justifies the need for the present investigation.

Lack of Region-Specific Data (e.g., Indian Adults)

One of the greatest significant gaps in the literature is the scarcity of empirical data on GAD among Indian adults. Most large-scale studies on GAD have been conducted in Western countries, such as the United States, Canada, and parts of Europe, where sociocultural contexts, health systems, and help-seeking behaviours differ vastly from those in South Asia (Kessler et al., 2005). As a result, findings from such studies may not be directly applicable to Indian populations, who face unique challenges related to stigma, access to care, traditional beliefs, and family dynamics (Lauber & Rössler, 2007).

The National Mental Health Survey of India (2016) reported an anxiety disorder prevalence rate of around 3.5%, with significant regional and gender disparities (Gururaj et al., 2016). However, the data on GAD specifically, and its comorbid conditions among adults, remains limited and fragmented. Studies focusing on Indian adolescents or elderly populations exist in modest numbers, but comprehensive analyses among adults aged 30–50 years—a high-risk group—are minimal. Moreover, most existing Indian studies use small, non-representative samples and do not explore comorbidities in depth.

Given the cultural variations in how anxiety is expressed and perceived, it is essential to generate indigenous data that reflects the lived experiences of Indian adults. The absence of such data hinders the development of culturally sensitive diagnostic tools, intervention strategies, and public health policies. This research seeks to fill this void by systematically examining the prevalence and patterns of comorbidities associated with GAD in an Indian context.

Limited Studies on Physical and Psychological Comorbidities

Another major gap lies in the limited focus on the dual burden of physical and psychiatric comorbidities in individuals with GAD. While it is well-established that GAD frequently co-occurs with depression, substance use, and panic disorder, as well as physical illnesses like cardiovascular disease, diabetes, and gastrointestinal disorders (Roy-Byrne et al., 2008), these associations are rarely studied in an integrated manner—especially in low- and middle-income countries like India.

Most existing research tends to examine either the psychological or the physical aspects of comorbidity in isolation. For instance, studies on depression and anxiety often exclude physical illnesses as confounding variables, while clinical studies on chronic diseases pay limited attention to the emotional well-being of patients. This dichotomy overlooks the bidirectional nature of comorbidities, where psychological distress can worsen physical symptoms, and vice versa (Martino et al., 2015).

In the Indian healthcare system, where fragmentation between mental and physical health services is common, this lack of integration is especially problematic. A patient with GAD and hypertension, for example, may receive treatment for the latter without any psychological assessment. This not only delays the diagnosis of GAD but also diminishes the overall effectiveness of care.

There is an urgent need for studies that adopt a holistic and interdisciplinary lens, exploring how GAD interacts with both psychiatric and somatic conditions. The present study aims to fill this void by examining comorbidities across six distinct groups, offering a nuanced understanding of how GAD presents in combination with physical and psychological health challenges.

Need for Holistic Care Approaches

The third major research gap is the lack of evidence supporting holistic and integrative models of care for individuals with GAD and comorbidities. In practice, mental health and physical health services are often delivered separately, leading to missed opportunities for early detection and coordinated intervention. This problem is particularly acute in primary care and nursing settings, where GAD symptoms may be overlooked or misattributed to physical illnesses.

Holistic care approaches emphasize the biopsychosocial model, which recognizes that health outcomes are the result of interactions between biological, psychological, and social factors. Such models are well-suited to the management of GAD, which often manifests through somatic complaints and interacts dynamically with physical illnesses and social stressors (Engel, 1977). However, there is a lack of region-specific data evaluating how holistic care models can be adapted and implemented in Indian settings, particularly among adults.

Moreover, while collaborative care models have been successful in the West, their cultural appropriateness, feasibility, and impact in Indian populations remain underexplored. For example, the role of family members in decision-making, the preference for traditional healers, and the shortage of mental health professionals all

pose unique challenges that must be accounted for in designing effective interventions (Saxena et al., 2007).

The current study justifies its focus on GAD comorbidity among adults as a way to inform culturally appropriate, evidence-based interventions that promote integrative care. Nurses and primary care providers will be key stakeholders in this transformation, and findings from the study could be used to train healthcare workers in screening, early referral, and coordinated management strategies.

In summary, there is a pressing need for research that addresses the specific characteristics of GAD comorbidities in Indian adults. Current literature is marked by several significant gaps, including a lack of region-specific data, limited exploration of combined psychiatric and physical comorbidities, and insufficient evaluation of holistic care approaches. These gaps not only hinder our understanding of the disorder but also impair our ability to develop effective interventions.

By focusing on a culturally and demographically relevant population, and by employing an interdisciplinary framework that captures both physical and psychological dimensions of health, the current study seeks to generate meaningful data that can bridge these gaps. The findings will not only contribute to academic knowledge but also have direct implications for clinical practice, mental health policy, and the training of nursing professionals in India.

CHAPTER-2

REVIEW OF LITERATURE

Generalized Anxiety Disorder (GAD) is a chronic mental health condition characterized by excessive and persistent worry that interferes with daily functioning. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), GAD includes symptoms such as restlessness, fatigue, difficulty concentrating, irritability, muscle tension, and sleep disturbances lasting for at least six months (American Psychiatric Association, 2013). GAD is among the most prevalent anxiety disorders, with lifetime prevalence rates estimated between 3% and 6% globally (Bandelow & Michaelis, 2015). Despite its classification as an anxiety disorder, GAD frequently co-occurs with other mental and physical health conditions, compounding its impact on individuals and healthcare systems.

Generalized Anxiety Disorder (GAD) is one of the most common anxiety disorders globally, with its prevalence varying across populations, regions, and methodologies used in research. Below is a detailed discussion of its prevalence. Globally, lifetime prevalence rates for GAD range between 3% and 6% (Bandelow & Michaelis, 2015). In the United States, the National Comorbidity Survey Replication (NCS-R) found a lifetime prevalence of approximately 5.7% (Kessler et al., 2005). Lifetime prevalence represents the proportion of individuals who experience GAD at some point in their lives. The global 12-month prevalence of GAD is estimated at 1% to 3% (Somers et al., 2006). In the United States, the 12-month prevalence is slightly higher, at approximately 3.1%, according to the NCS-R (Kessler et al., 2005). This measure captures individuals actively experiencing GAD symptoms over the past year.

Studies consistently show that women are twice as likely as men to be diagnosed with GAD. The lifetime prevalence among women is approximately 4.6%, compared to 2.7% in men (McLean et al., 2011). Biological, hormonal, and sociocultural factors contribute to this disparity. The gender disparity in the prevalence of GAD has been a topic of considerable interest in psychological and epidemiological research. Women are consistently found to be at a greater risk for developing GAD compared to men. This disparity can be attributed to a complex interplay of biological, psychological, and sociocultural factors. Hormonal

fluctuations, particularly during reproductive events such as menstruation, pregnancy, and menopause, may increase vulnerability to anxiety disorders in women (Kornstein et al., 2013). Additionally, differences in brain structure and function, such as heightened activity in the amygdala and prefrontal cortex, may contribute to gender differences in anxiety regulation (McLean & Anderson, 2009). Women are more likely to engage in rumination, a cognitive style characterized by repetitive focus on negative thoughts and emotions. Rumination has been strongly associated with the development and maintenance of anxiety disorders (Nolen-Hoeksema, 2012).

Gender-specific socialization practices often place greater emphasis on emotional sensitivity and caregiving roles for women, which may increase susceptibility to anxiety. Furthermore, societal stressors such as gender discrimination, domestic responsibilities, and caregiving burdens disproportionately affect women, exacerbating the risk of GAD (McLean et al., 2011). Women are more likely than men to seek help for emotional distress, which may partially explain the higher reported prevalence of GAD among women (Addis & Mahalik, 2003). However, this does not account for the entirety of the observed gender disparity, as prevalence remains higher even in studies that adjust for help-seeking behaviours. Women from marginalized groups, including racial and ethnic minorities and those with lower socioeconomic status, face additional stressors that can compound their risk for GAD. The intersection of gender with other social identities requires further exploration to fully understand disparities in GAD prevalence and outcomes (Williams & Mohammed, 2009).

Research indicates that comorbidity is the rule rather than the exception for individuals with GAD. Studies show that more than 50% of individuals with GAD have at least one additional psychiatric disorder, such as major depressive disorder (MDD), panic disorder, or post-traumatic stress disorder (PTSD) (Kessler et al., 2005). The National Comorbidity Survey-Replication (NCS-R) found that 67% of individuals diagnosed with GAD also met criteria for another psychiatric disorder, with depression being the most common comorbid condition (Ruscio et al., 2007).

GAD frequently co-occurs with other anxiety disorders and mood disorders. Major depressive disorder (MDD) is the most prevalent comorbid condition, with rates ranging from 30% to 60% (Hirschfeld, 2001). Shared neurobiological mechanisms, such as dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis and serotonergic systems, may explain the frequent co-occurrence of GAD and MDD (Stein et al., 2004). Additionally, GAD is commonly comorbid with panic disorder, obsessive-compulsive disorder (OCD), and social anxiety disorder, which further complicates diagnosis and treatment. Individuals with GAD are at a higher risk of developing chronic physical health conditions, including cardiovascular disease, gastrointestinal disorders, and chronic pain syndromes (Roy-Byrne et al., 2008). The chronic stress associated with GAD may exacerbate physical health conditions through mechanisms such as inflammation and autonomic nervous system dysregulation (Kibler et al., 2007). Comorbid physical illnesses can worsen the severity of GAD symptoms and negatively impact treatment outcomes, underscoring the importance of integrated care.

Comorbidity significantly impairs quality of life in individuals with GAD. Studies have shown that comorbid conditions increase symptom severity, prolong the duration of illness, and reduce functional outcomes (Olatunji et al., 2007). For example, individuals with both GAD and depression are more likely to experience higher levels of distress, greater disability, and poorer social functioning than those with GAD alone (Beard et al., 2011). This highlights the need for comprehensive assessment and targeted interventions to address both GAD and its comorbidities.

The presence of comorbid conditions complicates the treatment of GAD. While cognitive-behavioural therapy (CBT) and pharmacological interventions, such as selective serotonin reuptake inhibitors (SSRIs), are effective for GAD, their efficacy may be reduced in individuals with comorbid disorders (Bruce et al., 2005). Emerging treatments, including mindfulness-based interventions and transdiagnostic approaches, show promise in addressing comorbid conditions alongside GAD (Norton, 2012). Tailored treatment plans that consider the unique challenges of comorbidities are essential for optimizing outcomes.

The high prevalence of comorbidity in individuals with GAD underscores the complexity of this disorder. Psychological and physical comorbidities not only increase the burden of illness but also complicate diagnosis and treatment. Future research should focus on understanding the underlying mechanisms of comorbidity and developing integrated treatment models. Additionally, longitudinal studies are needed to explore the trajectory of GAD and its comorbid conditions over time. By addressing the challenges posed by comorbidity, clinicians and researchers can improve outcomes for individuals with GAD and enhance their overall quality of life.

Gender Differences in Generalized Anxiety Disorder

Hinshelwood & Skelton, 2002 report that the difference in gender may be tied to varying attitudes toward therapy and stigma surrounding mental health, which can be more pronounced in men (Hinshelwood & Skelton, 2002).

Steiner et al. 2003 highlights that Hormonal fluctuations, particularly those associated with the menstrual cycle, pregnancy, and menopause, further complicate the anxiety landscape for women and that hormonal fluctuations, particularly during reproductive transitions, can exacerbate anxiety symptoms in women (Steiner et al., 2003). Mahalik et al. (2003) noted that stigma surrounding mental health issues may impact help-seeking behaviours differently across genders, with men often being less likely to seek psychological help due to social norms (Mahalik et al., 2003).

According to Kessler et al. (2005), the lifetime prevalence of Generalized Anxiety Disorder (GAD) in the U.S. general population aged 13 and older is approximately 5.7% in women and 3.0% in men. This gender disparity prompts further investigation into the biological, psychological, and social factors that may contribute to the higher prevalence among females. Studies also indicate that men and women may present with differing symptom profiles of GAD.

Van Ameringen et al. (2008) and McLean et al. (2011) indicate that specific risk factors for Generalized Anxiety Disorder (GAD) differ by gender. Both studies utilized cross-sectional survey designs to examine the prevalence and gender-specific

correlates of anxiety disorders. The research was conducted in clinical and community-based settings, with populations drawn from North American samples representative of adolescents and adults. Findings from McLean et al. (2011) highlight that women are generally more vulnerable to developing anxiety disorders due to factors such as exposure to trauma, caregiving roles, and internalized societal expectations. Similarly, Van Ameringen et al. (2008) identified gender-specific vulnerability patterns, with women reporting higher symptom severity and functional impairment. In conclusion, both studies underscore the need for gender-sensitive prevention and treatment approaches, as the underlying risk factors and symptom presentations of GAD vary meaningfully between men and women.

Generalized Anxiety Disorder (GAD) is characterized by persistent and excessive worry about various aspects of life such as health, finances, and daily activities. Research indicates that GAD presents differently across genders, influencing prevalence, symptomatology, and treatment efficacy. This review synthesizes existing literature on gender differences in GAD to better understand the complexities surrounding the diagnosis and treatment of this disorder. Epidemiological studies consistently demonstrate that GAD has a higher prevalence in females compared to males. According to Bunevicius et al. (2010), gender differences in symptom presentation are notable in individuals with Generalized Anxiety Disorder (GAD). Their study, which employed a cross-sectional design in a clinical setting involving adult psychiatric outpatients in Lithuania, found that men were more likely to display externalizing behaviours such as irritability, hostility, impatience, and difficulty concentrating. In contrast, women more frequently reported internalizing symptoms like restlessness, muscle tension, and fatigue. These findings suggest that clinical manifestations of GAD may vary significantly between sexes, influencing both diagnosis and management.

Similarly, McLean et al. (2011) conducted a population-based epidemiological study using data from the National Comorbidity Survey Replication (NCS-R) in the United States, encompassing adolescents and adults aged 13 years and older. The study reported that women tend to experience greater emotional

intensity in anxiety symptoms, whereas men may exhibit more behavioural and cognitive disturbances. In conclusion, these gender-based variations in symptom expression have important implications for clinical assessment, diagnosis, and personalized treatment planning, emphasizing the need for gender-sensitive approaches in the management of GAD.

Epidemiological studies indicate a significant gender disparity in the prevalence of GAD. Thus, the American Psychiatric Association (2013) noted that the consistently higher rates of Generalized Anxiety Disorder (GAD) among women across different populations may be influenced by a combination of biological, psychological, and sociocultural factors. (American Psychiatric Association, 2013).

Barlow et al. (2018) highlight that gender differences in Generalized Anxiety Disorder (GAD) extend to the risk factors associated with the condition. Their findings are based on clinical and epidemiological research conducted across diverse adult populations in the United States, examining patterns of comorbidity and etiological influences. The study used a comparative and integrative design to analyze gender-specific risk profiles. Results indicate that women are more likely to develop GAD following traumatic experiences, such as abuse or interpersonal violence, whereas men more frequently exhibit comorbid substance use disorders alongside anxiety symptoms. In conclusion, the research emphasizes that understanding the differential pathways leading to GAD in men and women is essential for developing tailored prevention and intervention strategies, particularly in addressing co-occurring disorders and trauma-related vulnerabilities. (Barlow et al., 2018).

Also, Barlow et al. (2018) suggest that men are more prone to using maladaptive coping mechanisms, such as substance abuse, which can obscure the presence of underlying anxiety symptoms (Barlow et al., 2018).

Studies have indicated that gender can influence treatment outcomes for GAD. A meta-analysis by Cuijpers et al. (2020) revealed that women respond more

favorably to cognitive-behavioural therapy (CBT) than men, who may benefit more from pharmacological interventions.

Research indicates that gender can influence treatment outcomes for GAD. A meta-analysis by Cuijpers et al. (2020) found that women often respond better to cognitive-behavioural therapy (CBT), which targets maladaptive thought patterns, while men may have a more favorable response to pharmacotherapy.

Understanding gender differences in GAD is crucial for enhancing diagnostic accuracy and tailoring effective treatment strategies. Future research should focus on elucidating the underlying biological and sociocultural factors contributing to these differences, as well as examining how these disparities evolve across different life stages. Comprehensive approaches that consider gender-specific experiences will likely improve outcomes for individuals suffering from GAD.

Generalized Anxiety Disorder (GAD) and Post-Traumatic Stress Disorder (PTSD)

Zlotnick et al. (2005) conducted a prospective longitudinal study to examine the progression of posttraumatic stress disorder (PTSD) in individuals with comorbid anxiety disorders. The study followed 54 adult patients in a clinical setting over a five-year period. Findings revealed that the probability of achieving full remission from chronic PTSD was only 18%, suggesting a persistent and treatment-resistant nature in many cases. Notably, a longer duration to remission was significantly associated with a history of alcohol abuse and childhood trauma, highlighting the compounding impact of early and ongoing adversity on recovery outcomes. These findings are consistent with broader clinical observations that a substantial portion of individuals with PTSD do not fully recover even after extended periods. In a related study, Ginzburg et al. (2010) employed a three-wave longitudinal design to assess Israeli civilians exposed to war-related trauma, evaluating symptoms of PTSD, depression, and generalized anxiety disorder (GAD) over time. The study population consisted of individuals from conflict-affected civilian areas, and assessments spanned several months following the traumatic exposure. Results showed that GAD

symptoms followed a similar trajectory to PTSD and depression, with a strong temporal co-occurrence among the three disorders. Importantly, perceived social support emerged as a protective factor, buffering against the severity and persistence of comorbid symptoms. In conclusion, both studies underscore the chronicity and complexity of PTSD and its comorbidity with GAD and depression. They also emphasize the need for integrated, trauma-informed interventions, with particular attention to social support systems and co-occurring risk factors such as substance use and early-life trauma.

The study by Beck et al. (2011) investigated the co-occurrence of posttraumatic stress disorder (PTSD) and generalized anxiety disorder (GAD) by examining the role of negative post-trauma cognitions—specifically beliefs about the self, the world, and self-blame—as potential maintaining mechanisms. Utilizing a comparative, cross-sectional design, the researchers assessed two distinct help-seeking populations: individuals exposed to a single-incident trauma (motor vehicle accident; $n = 301$) and women who experienced chronic interpersonal trauma (intimate partner violence; $n = 157$). Data were collected from clinical and community mental health settings. In both groups, negative beliefs about the self were significantly associated with both PTSD and GAD, suggesting a shared cognitive vulnerability. Among the motor vehicle accident (MVA) group, GAD was additionally associated with negative beliefs about the world, while PTSD was linked to self-blame and negative worldviews. In contrast, for the intimate partner violence (IPV) group, only self-related negative cognitions were significantly correlated with PTSD symptoms, highlighting the nuanced cognitive differences based on trauma type and chronicity. In conclusion, the study emphasizes the importance of addressing transdiagnostic cognitive processes in therapeutic interventions for individuals with comorbid PTSD and GAD. Targeting maladaptive self-beliefs and global negative thinking patterns may enhance treatment outcomes across trauma-exposed populations.

Marshall et al. (2015) conducted a confirmatory factor analysis of PTSD symptoms among 1,266 Ohio National Guard soldiers, employing both the PTSD Checklist (PCL) and the GAD 7. Their results demonstrated that the PTSD dysphoria factor—which encompasses persistent negative mood, irritability, sleep disturbance, difficulty concentrating, and emotional numbing—exhibited a significantly stronger correlation with generalized anxiety disorder symptoms than did other PTSD dimensions such as re-experiencing, avoidance, or hyperarousal. These findings underscore the shared distress component between PTSD and GAD, reinforcing the conceptualization of dysphoria as a transdiagnostic, nonspecific distress factor—and raising important questions about diagnostic specificity and comorbidity within DSM 5 frameworks.

Mason et al. (2018) examined the relationship between PTSD and health-related behaviours, considering the impact of comorbid depression and generalized anxiety. Using an online cross-sectional design with 246 trauma-exposed participants, the study employed multivariate multilevel modelling to assess various health behaviours, including sedentary activity, sleep quality, physical activity, eating habits, alcohol, and substance use. Findings showed that PTSD was specifically linked to sedentary behaviour and poor sleep quality, while depression was associated with low physical activity, poor sleep, and unhealthy eating. Generalized anxiety was connected to increased alcohol and substance use. The study emphasizes the importance of evaluating health behaviours in relation to distinct psychological symptoms within PTSD and its comorbid conditions.

According to Watkins et al. (2018) Cognitive-behavioural therapy (CBT) remains a cornerstone treatment for both GAD and PTSD, with adaptations tailored to address disorder-specific symptoms. For example, exposure therapy is frequently utilized in PTSD treatment to reduce trauma-related avoidance, whereas cognitive restructuring in GAD focuses on challenging pervasive worries (Watkins et al., 2018). Stein et al. (2021) Pharmacological interventions, such as selective serotonin reuptake inhibitors (SSRIs), have demonstrated efficacy in treating both disorders, although the response rates and side effects may differ (Stein et al., 2021). The high

comorbidity rates between GAD and PTSD necessitate integrated treatment approaches. Simon et al. (2022) found that trauma-focused therapies, when combined with anxiety management techniques, yielded better outcomes for individuals with both disorders. Gross et al. (2020), mentions that transdiagnostic approaches, such as mindfulness-based interventions and emotion regulation training, show promise in addressing shared symptomatology (Gross et al., 2020).

However, a study investigated by Price et al. (2019) explore the existence of symptom clusters—groups of closely linked symptoms—within the network of certain mental health disorders, as well as central symptoms that bridge these clusters. The research used cross-sectional data from a community sample of 1,184 adults who had experienced trauma. Through network analysis, five distinct clusters were identified: one comprising all symptoms of depression and generalized anxiety disorder (GAD), and four others specific to post-traumatic stress disorder (PTSD). The PTSD clusters were associated with intrusion and avoidance, hyperarousal, dysphoria, and negative affect. These PTSD-related clusters varied in how strongly they connected with the depression and GAD cluster. Notably, the GAD symptom of being unable to relax and the PTSD symptom of reduced positive emotions emerged as key bridging symptoms in the overall network. The findings indicate a strong connection between depression and GAD symptoms and highlight the complex nature of PTSD. The overlap in negative affect among these disorders is believed to contribute to their frequent co-occurrence (Price et al., 2019).

Rytwinski et al. (2019) examined the relationship between comorbid posttraumatic stress disorder (PTSD) and generalized anxiety disorder (GAD), emphasizing the clinical impact of co-occurrence. Their research, based on a meta-analytic review of multiple clinical and community-based studies, highlighted that individuals with comorbid PTSD and GAD tend to experience higher chronicity and reduced treatment responsiveness compared to those with a single diagnosis. They reported that comorbidity rates between PTSD and GAD can vary from 10% to 30%, depending on the sample characteristics and study setting, including military, civilian, and outpatient psychiatric populations. The findings underscore the

significant clinical burden and complexity presented by comorbid anxiety disorders, particularly in trauma-exposed individuals.

In a related study, Hettema et al. (2019) explored the etiological underpinnings of GAD, emphasizing the role of genetic vulnerability and early-life stress exposure in the disorder's development. Their research, which drew on genetic, epidemiological, and neurobiological evidence, supported the notion that GAD often arises from heritable predispositions that interact with environmental stressors, particularly childhood adversity. In conclusion, both studies highlight the importance of recognizing GAD not only as a frequently comorbid condition but also as one shaped by biological and developmental vulnerabilities. Addressing these factors is critical for improving diagnostic accuracy and developing more targeted, effective treatment strategies for individuals with GAD, especially those with comorbid PTSD.

Furthermore, Brewin et al. (2020) highlights that the hypothalamic-pituitary-adrenal (HPA) axis is dysregulated in both GAD and PTSD, and the activity of the amygdala is altered. But there are significant differences in their etiological routes. While PTSD usually arises from exposure to certain traumatic events, such as battle, sexual assault, or natural disasters (Brewin et al., 2020), Smoller (2020) suggests that overlapping mechanisms may contribute to the development of Generalized Anxiety Disorder (GAD), as indicated by shared risk factors such as neuroticism and early-life adversity (Smoller, 2020).

Research in Philip et al. (2020) mentions novel treatments, including neuromodulation techniques like transcranial magnetic stimulation (TMS), are being explored for their potential to target neural circuits implicated in both disorders (Philip et al., 2020). Furthermore, Duval et al. (2021) states that recent advances in neuroscience and psychopharmacology offer new insights into the shared and distinct mechanisms underlying GAD and PTSD. Functional neuroimaging studies have revealed overlapping patterns of hyperactivation in the amygdala and hypoactivation in the prefrontal cortex among individuals with these disorders (Duval et al., 2021).

It is essential to comprehend how various illnesses overlap and differ in order to improve therapeutic approaches and diagnostic clarity. A number of symptoms, such as increased anxiety, sleep issues, and trouble concentrating, are shared by PTSD and GAD and can make differential diagnosis more challenging. According to Hoge et al. (2021), people who have both PTSD and GAD frequently have more severe functional impairment than people who just have one of the disorders, underscoring the necessity for accurate diagnostic techniques.

Meanwhile, Hoge et al. (2021) mentions increased anxiety, intrusive memories, and trouble controlling emotions are among the most severe symptoms that patients with comorbid PTSD and GAD frequently experience (Hoge et al., 2021). Two well-known anxiety-related conditions that are marked by widespread suffering are generalized anxiety disorder (GAD) and post-traumatic stress disorder (PTSD). However, American Psychiatric Association, 2022 states their causes, symptoms, and approaches to therapy are different. While PTSD develops in response to traumatic events and manifests as intrusive memories, hyperarousal, and avoidance behaviours, Generalized Anxiety Disorder (GAD) is characterized by persistent, excessive anxiety about a variety of aspects of life (American Psychiatric Association, 2022). Simon et al. (2022) note that individuals with comorbid PTSD may experience intrusive memories of traumatic events and an increased tendency to anticipate future threats, which can intensify the chronic and excessive worry characteristic of Generalized Anxiety Disorder (GAD) (Simon et al., 2022). These results highlight how crucial it is to screen for PTSD in patients who exhibit symptoms of GAD and modify therapies appropriately.

In another study by Lui et al. (2025) it employed that morphometric similarity network (MSN) analysis to compare structural brain alterations across GAD, PTSD, and social anxiety disorder in a clinical cohort. They discovered that both GAD and PTSD exhibited increased connectivity between the superior temporal cortex (bankssts/BA22) and the precentral gyrus, along with reduced connectivity between the precentral gyrus and cuneus, and between the rostral middle frontal cortex and superior temporal cortex. These overlapping neurobiological abnormalities suggest

shared morphometric network disruptions in GAD and PTSD, reinforcing the presence of common neural substrates underlying their comorbidity (Lui et al. 2025).

Allbaugh et al. (2025) states that posttraumatic stress disorder (PTSD) often co-occurs with various mood and anxiety disorders, including generalized anxiety disorder (GAD). Although this comorbidity is common, the underlying mechanisms are not well understood. While emotion dysregulation is a known factor in both PTSD and GAD individually, it has not been thoroughly examined in their co-occurrence. In this study, MANOVA was used to assess whether aspects of emotion dysregulation (measured by the DERS) and positive emotion regulation (measured by the AEQ) could distinguish between individuals with PTSD alone and those with both PTSD and GAD. The analysis drew from pre-treatment data of 292 women with PTSD following interpersonal trauma. Results showed that five out of six emotion dysregulation domains—limited access to regulation strategies, nonacceptance of emotions, difficulties controlling impulses, and poor emotional awareness and clarity—were significantly associated with comorbid PTSD and GAD. Additionally, individuals with only PTSD reported higher levels of positive emotions, whereas those with both conditions experienced more negative emotional interference. These findings suggest that PTSD-GAD comorbidity is characterized by a broader and more severe pattern of emotion dysregulation compared to PTSD alone (Allbaugh et al., 2025).

The interaction between PTSD and GAD highlights the intricacy of anxiety disorders and the demand for sophisticated diagnostic and therapeutic strategies. Researchers and clinicians can improve therapy outcomes and the quality of life for those who are impacted by these disorders by further clarifying their shared and distinctive features.

Generalized Anxiety Disorder (GAD) and Obsessive-Compulsive Disorder (OCD)

Abramowitz and Foa (1998) emphasized both the distinctions and overlaps between obsessions and generalized worries. In a DSM-IV field trial for Obsessive-Compulsive Disorder (OCD) involving 381 participants, individuals were divided into two groups based on SCID interview assessments: those diagnosed only with OCD and those meeting diagnostic criteria for both OCD and Generalized Anxiety Disorder (GAD). Comorbidity was observed in 20% of the sample. Although the presence of GAD did not increase the severity of obsessive or compulsive symptoms, it was associated with elevated levels of pathological responsibility and indecisiveness. Additionally, participants with comorbid OCD and GAD reported significantly more excessive worries related to everyday issues, such as health and finances (Abramowitz & Foa, 1998).

Research by Dugas et al. (2001) explored the cognitive mechanisms underlying Generalized Anxiety Disorder (GAD), particularly focusing on the role of intolerance of uncertainty. Using a clinical sample of adults diagnosed with GAD, the study employed a cross-sectional design within a psychological treatment setting. Findings suggest that chronic worry in individuals with GAD serves as a maladaptive coping strategy to manage uncertainty and perceived threats. This mechanism parallels the compulsive behaviours observed in obsessive-compulsive disorder (OCD), where repetitive actions are used to reduce anxiety associated with intrusive thoughts.

The shared cognitive features between GAD and OCD—such as overestimation of threat, difficulty tolerating ambiguity, and the need for control—can complicate both diagnosis and treatment planning. These overlaps often result in diagnostic confusion and may hinder the development of disorder-specific therapeutic approaches. In conclusion, Dugas et al. (2001) highlight the importance of targeting intolerance of uncertainty and maladaptive worry processes in cognitive-behavioural interventions. Their findings also support the need for clinicians to

carefully differentiate between GAD and OCD to ensure effective and personalized treatment strategies.

Goodwin (2002) explains that anxiety disorders—including generalized anxiety disorder, specific phobia, social phobia, agoraphobia, and panic disorder—not only have distinct symptoms but also share common features such as general anxiety and dysphoria. These overlapping experiences may contribute to the frequent use of similar pharmacological treatments across disorders. Such similarities are believed to stem from shared underlying factors, including general distress or negative affectivity, genetic vulnerability, and common neurobiological mechanisms. While genetic links are primarily supported by twin studies, shared neurobiology can be more directly examined through assessments of emotional and cognitive biases, using behavioural methods or brain imaging. These intermediate traits can help inform the development of targeted medications and psychological interventions. Baer (2003) noted that individuals with both disorders tend to experience heightened anxiety and greater functional impairment compared to those with only one condition. This comorbidity can intensify symptom severity and hinder treatment effectiveness.

Comer et al. (2004) explored the challenges in differentiating between obsessive-compulsive disorder (OCD) and generalized anxiety disorder (GAD) in children, noting that symptom presentations often overlap. After outlining the phenomenology, prevalence, and treatment approaches for both disorders in youth, the authors examined factors contributing to their close clinical relationship. The review focused on comparing obsessions and worry in terms of their process, structure, content, and underlying metacognitive beliefs, as well as the role of pathological worry and covert compulsions. Although adult research on these topics is more established, the study emphasized the lack of developmental research in youth populations and called for further investigation to clarify distinctions and overlaps between these disorders in children.

Wells (2005) points out that individuals with Generalized Anxiety Disorder (GAD) frequently exhibit cognitive distortions similar to those seen in Obsessive-Compulsive Disorder (OCD), such as catastrophizing and overestimating threats. Although GAD and OCD are both classified as anxiety-related conditions and share overlapping features, they remain distinct in their clinical presentation. Recognizing the relationship between these disorders is crucial for accurate diagnosis and effective treatment.

This literature review examines current findings on the comorbidity, symptom patterns, and treatment implications of GAD and OCD. Research consistently demonstrates a notable overlap, with individuals diagnosed with one disorder showing a heightened risk of developing the other. For instance, Kessler et al. (2005) reported that approximately 35% of individuals with OCD also met the diagnostic criteria for GAD at some point, presenting challenges for both diagnosis and treatment strategies.

Research by Hinton et al. (2006) underscores the potential benefits of integrated treatment approaches for individuals with comorbid Generalized Anxiety Disorder (GAD) and Obsessive-Compulsive Disorder (OCD). The study, conducted in a clinical outpatient setting, utilized a combined cognitive-behavioural therapy (CBT) intervention targeting the shared and distinct features of both disorders. The sample included adult patients diagnosed with co-occurring GAD and OCD. Results demonstrated significant reductions in anxiety symptoms and improvements in overall psychosocial functioning, suggesting that dual-targeted interventions may be particularly effective for comorbid cases.

The research highlights the complex interplay between GAD and OCD, characterized by high comorbidity rates, overlapping cognitive patterns (e.g., intolerance of uncertainty, intrusive thoughts), and similar avoidance-based behaviours. These shared features complicate differential diagnosis and often require tailored, comprehensive treatment plans that address the full spectrum of symptoms. In conclusion, understanding the nuanced relationship between GAD and OCD is crucial for clinicians in developing personalized, evidence-based interventions. The

findings from Hinton et al. (2006) support the efficacy of integrated CBT models, and emphasize the need for continued research into the underlying cognitive and neurobiological mechanisms linking these disorders. Future studies should focus on refining such treatment modalities to optimize long-term outcomes for individuals affected by this complex comorbidity.

While GAD is primarily defined by pervasive and excessive worry across multiple life domains (American Psychiatric Association, 2013), OCD is characterized by the presence of obsessions—unwanted, intrusive thoughts—and compulsions, which are repetitive behaviours or mental rituals performed to alleviate anxiety.

Goodwin (2015) reports that approximately 30–35% of individuals with obsessive-compulsive disorder (OCD) experience lifetime comorbidity with generalized anxiety disorder (GAD), a pattern attributed to shared genetic vulnerabilities and elevated negative affectivity. He further notes that these conditions exhibit common cognitive biases—such as threat overestimation—and similar neurobiological features, reinforcing their etiological overlap.

Citkowska-Kisielewska and colleagues (2020) conducted a retrospective study comparing obsessive-compulsive symptoms in patients diagnosed with OCD and generalized anxiety disorder (GAD). Using the Symptom Questionnaire "O" derived from the SCL-90-R, they assessed 76 OCD and 186 GAD patients. While obsessive-compulsive symptoms were more pronounced in the OCD group, 94% of GAD patients also reported such symptoms. Notably, GAD patients showed a significant correlation between the severity of obsessions and compulsions, which was not observed in the OCD group. Higher levels of these symptoms were linked to increased anxiety in both groups, particularly with obsessions. The findings suggest that compulsions may be more specific to OCD, whereas GAD may involve a different symptom structure. These results highlight the importance of assessing obsessive-compulsive features in GAD, which are often overlooked in clinical settings.

Sharma and colleagues (2021) found that 33.6% (n = 291) of these patients also met the diagnostic criteria for generalized anxiety disorder (GAD). Individuals with comorbid GAD exhibited more pronounced avoidant behaviours, higher levels of anxiety severity, and increased prevalence of other comorbidities, including panic disorder without agoraphobia, social and specific phobias, and bipolar II disorder. These findings suggest that the presence of GAD in individuals with OCD is associated with greater clinical complexity and symptom burden, underscoring the necessity of incorporating GAD assessment into OCD treatment planning.

Khalkhali and colleagues (2023) employed a cross-sectional design to assess treatment outcomes using the Global Assessment of Functioning (GAF) scale and found significant functional improvement with treatment but no statistically significant differences in treatment gains between the two groups. The results highlight the high comorbidity between GAD and OCD. Sharma and colleagues (2021) emphasize the increased clinical severity and broader psychopathological profile in comorbid patients which supported the importance of routine comorbidity screening and individualized treatment planning, rather than assuming poorer prognosis based solely on diagnostic overlap.

The treatment approaches for GAD and OCD often differ, with cognitive-behavioural therapy (CBT) being the first-line treatment for both conditions. However, the specific techniques employed may vary. For instance, exposure and response prevention (ERP) is commonly used for OCD, while cognitive restructuring and anxiety management strategies are emphasized in GAD.

Generalized Anxiety Disorder (GAD) and Insomnia

Generalized Anxiety Disorder (GAD) and insomnia are commonly co-occurring conditions that significantly impact the quality of life for many individuals. While the relationship between GAD and insomnia is complex, a growing body of research has shed light on their bidirectional connection and the implications for treatment. Generalized Anxiety Disorder (GAD) and insomnia are two highly prevalent mental health conditions that often co-occur and have a profound impact

on individuals' overall well-being and functioning. GAD is characterized by excessive and uncontrollable worry about various aspects of daily life, while insomnia involves persistent difficulty initiating or maintaining sleep, or experiencing non-restorative sleep, despite adequate opportunity. The comorbidity of GAD and insomnia is not only common but also clinically significant, as each condition can exacerbate the symptoms of the other, leading to greater severity, chronicity, and resistance to treatment.

Harvey states that Anxiety and insomnia disorders are associated with heightened physiological arousal, cognitive hyperactivity, and difficulties in emotion regulation, which may serve as shared underlying mechanisms (Harvey, 2002). Research consistently indicates that insomnia is prevalent among individuals with GAD. Furthermore, the cognitive model of insomnia (Harvey, 2002) posits that individuals with GAD may engage in maladaptive thinking patterns that perpetuate sleep disturbances. For example, individuals with GAD may catastrophize their sleep difficulties, leading to increased anxiety about not being able to fall asleep, which in turn worsens the insomnia.

According to Harvey (2002), approximately 90% of individuals with GAD report some form of sleep disturbance, with insomnia being the most common symptom. Neurobiological findings have also indicated dysregulation in the hypothalamic-pituitary-adrenal (HPA) axis and alterations in prefrontal-limbic circuitry in individuals with both conditions, suggesting a common neurophysiological pathway. Belanger et al. (2004) conducted a study involving 44 clinical patients undergoing cognitive-behavioural therapy (CBT) for excessive worry related to Generalized Anxiety Disorder (GAD). The findings revealed that a substantial portion of participants experienced sleep disturbances: 47.7% had difficulty falling asleep, 63.6% struggled with maintaining sleep, and 56.8% reported early morning awakenings. Interestingly, the severity of insomnia did not show a direct correlation with the severity of GAD symptoms. However, following CBT focused solely on worry, there was a notable reduction in insomnia severity. Post-treatment scores on the Insomnia Severity Index (ISI) neared the non-clinical range,

even though sleep issues were not directly addressed. This study highlights the broader therapeutic effects of GAD-targeted CBT, suggesting that treating core anxiety symptoms can also lead to meaningful improvements in sleep (Belanger et al., 2004).

Johnson et al. (2006) present emerging evidence supporting a bidirectional relationship between Generalized Anxiety Disorder (GAD) and insomnia. Using data from a longitudinal population-based study conducted in the United States, the researchers examined the temporal associations between anxiety symptoms and sleep disturbances across various age groups. Their findings indicate that individuals with GAD frequently report persistent sleep problems, such as difficulty initiating or maintaining sleep, which contribute to overall functional impairment. Conversely, chronic insomnia has been identified as a predictive risk factor for the subsequent development of anxiety symptoms, including GAD. This bidirectional relationship suggests a cyclical interaction, where anxiety fuels sleep disturbances and sleep deprivation, in turn, intensifies anxiety symptoms. These patterns complicate symptom management and underscore the need for integrated treatment approaches that address both anxiety and sleep dysfunction simultaneously. In conclusion, Johnson et al. (2006) emphasize the clinical relevance of screening for insomnia in patients with GAD, and vice versa. Their research advocates for a dual-focused intervention strategy, as treating one condition in isolation may lead to incomplete symptom resolution and heightened risk of relapse.

The co-occurrence of Generalized Anxiety Disorder (GAD) and insomnia presents significant challenges for treatment and recovery. According to Manber et al. (2008), individuals experiencing both conditions are less likely to respond effectively to standard anxiety treatments, such as cognitive-behavioural therapy (CBT).

Similarly, a study by Leahy (2008) further supports the bidirectional relationship between Generalized Anxiety Disorder (GAD) and insomnia, emphasizing that sleep disturbances not only emerge as a symptom of anxiety but also intensify the severity and persistence of anxiety symptoms over time. Drawing

from a clinical observational framework based on psychotherapeutic case analysis and literature synthesis, Leahy highlighted how insomnia can exacerbate worry, cognitive hyperarousal, and emotional dysregulation, which are core features of GAD.

The study proposes that insomnia functions dually—both as a consequence of ongoing anxiety and as a maintaining factor that worsens symptom severity and complicates recovery. Disrupted sleep patterns may impair emotional processing, lower resilience to stress, and increase vulnerability to future anxiety episodes. In conclusion, Leahy (2008) emphasizes the importance of targeting insomnia as a critical treatment component in managing GAD. Addressing sleep disturbances in parallel with anxiety symptoms may lead to more comprehensive and sustained therapeutic outcomes, supporting a holistic, integrative approach to intervention.

Wetherell et al. (2008) conducted a cross-sectional study involving older adults diagnosed with Generalized Anxiety Disorder (GAD), both with and without comorbid depression, and compared them to non-clinical peers. The study revealed that 90% of participants with GAD reported dissatisfaction with their sleep. Moreover, the severity of insomnia among these individuals was significantly higher than in the control group and, in many cases, comparable to levels observed in those with primary insomnia. These findings underscore that sleep disturbances are not only common but also clinically significant in older adults with GAD, highlighting the importance of assessing and addressing insomnia as part of comprehensive care for this population.

The co-occurrence of GAD and insomnia can further complicate treatment and recovery. Manber et al. (2008) found that individuals experiencing both conditions tend to respond less effectively to standard anxiety treatments, such as cognitive-behavioural therapy (CBT), underscoring the need for integrated treatment approaches that address both anxiety and sleep-related issues.

Van Mill et al. (2009) emphasize that the co-occurrence of Generalized Anxiety Disorder (GAD) and insomnia presents additional challenges in both diagnosis and treatment. Individuals with comorbid GAD and insomnia typically face greater functional impairment in daily life, higher rates of healthcare utilization, and a diminished response to standard therapeutic interventions when compared to those experiencing only one of the conditions (van Mill et al., 2009). Despite these implications, comorbidity is often underrecognized in clinical practice, leading to suboptimal treatment outcomes. Cognitive Behavioural Therapy (CBT), a first-line intervention for both disorders, may require adaptation when both GAD and insomnia symptoms are present to effectively address overlapping cognitive and behavioural patterns. Given the public health burden posed by these conditions and their frequent co-occurrence, it is essential to better understand the nature, prevalence, and shared mechanisms of GAD and insomnia. This study aims to explore the comorbidity between GAD and insomnia, examine symptom severity and functional impairment in individuals with both conditions, and identify potential predictive or mediating factors that may inform integrated treatment approaches.

Brenes et al. (2009) conducted a cross-sectional study to assess the frequency and severity of insomnia symptoms in older adults diagnosed with Generalized Anxiety Disorder (GAD). The study involved 110 participants recruited through primary care clinics, advertisements, and mailings, categorized into four groups: those with GAD, GAD with comorbid depression, the “worried well,” and individuals with no psychiatric diagnosis. Results showed that older adults with GAD—regardless of comorbid depression—experienced significantly greater sleep disturbances than those without psychiatric conditions. No significant differences in insomnia severity were observed between those with GAD alone and those with comorbid depression. Additionally, older adults with GAD reported more severe insomnia symptoms than younger and middle-aged individuals with the same disorder, and their sleep complaints were comparable to those formally diagnosed with insomnia. The study concluded that insomnia is a highly prevalent and severe issue in late-life GAD, emphasizing the need for routine sleep assessment and targeted interventions in this population.

A study by Belleville et al. (2011) investigated the effectiveness of cognitive-behavioural therapy (CBT) in treating individuals with comorbid generalized anxiety disorder (GAD) and insomnia through two sequential treatment approaches. Ten women with chronic insomnia and GAD were randomly assigned to receive CBT for GAD followed by CBT for insomnia, or the reverse order. Assessments included diagnostic interviews, daily sleep diaries, and self-report measures. Results showed that initiating treatment with CBT for GAD led to greater improvements in anxiety, worry, and sleep. When CBT for insomnia was introduced afterward, further gains were noted in sleep quality and, to a lesser extent, in anxiety and worry. These findings suggest that, for comorbid GAD and insomnia, addressing anxiety symptoms first may enhance overall treatment outcomes, with insomnia-focused therapy offering additional benefits.

Integrated treatments targeting both conditions simultaneously have shown promise. For instance, CBT for insomnia (CBT-I) has been adapted to treat patients with GAD, with encouraging results. Vgontzas and colleagues (2013) found that combining CBT-I with CBT for GAD significantly improved both sleep and anxiety symptoms, suggesting that treating both conditions concurrently may lead to better outcomes. The relationship between Generalized Anxiety Disorder and insomnia is well-documented and multifaceted. Research highlights the bidirectional nature of this connection, where insomnia exacerbates anxiety symptoms, and vice versa. Physiologically, hyperarousal and maladaptive cognitive patterns are believed to underlie the co-occurrence of these conditions. Given the challenges in treating both disorders, integrated treatment approaches that address both anxiety and sleep disturbances simultaneously may offer the most effective means of improving patient outcomes. Future research should continue to explore the mechanisms of this relationship and evaluate the efficacy of combined therapeutic interventions.

Nadorff and colleagues (2013) stated that excessive worry, a core characteristic of GAD often results in intrusive thoughts and rumination, which disrupt the ability to initiate and maintain sleep. The physiological connections between Generalized Anxiety Disorder (GAD) and insomnia have been examined in

numerous studies. Riemann and colleagues (2015) highlighted that individuals with GAD often experience hyperarousal—a state marked by increased physiological activity such as elevated heart rate and cortisol levels—which can disrupt sleep initiation and maintenance, contributing to insomnia.

Héloïse and colleagues (2016) investigated the effects of cognitive-behavioural therapy (CBT) for panic disorder with agoraphobia (PDA) and generalized anxiety disorder (GAD) on co-occurring insomnia, an area previously underexplored despite high comorbidity rates. They found that CBT significantly reduced insomnia symptoms ($\eta^2 = 0.58$). However, among participants who had insomnia at baseline (67%), a considerable portion continued to experience sleep difficulties—33% retained an insomnia diagnosis, and 63% had clinically significant residual symptoms after treatment. These findings suggest that while CBT for anxiety can alleviate insomnia to some extent, insomnia often persists and may require direct therapeutic attention. The authors emphasize the importance of integrating insomnia-specific interventions into CBT for anxiety disorders.

Morgenthaler and colleagues (2017) underscore the critical impact of untreated insomnia on the overall effectiveness of anxiety disorder interventions, including those for Generalized Anxiety Disorder (GAD). Conducted as part of a clinical guideline development process by the American Academy of Sleep Medicine, their review synthesized findings from a wide range of empirical studies involving individuals diagnosed with chronic insomnia and co-occurring psychiatric conditions. The authors emphasized that persistent sleep disturbances can impair cognitive functioning, including attention, memory, and emotional regulation—factors essential for active participation in therapy.

This cognitive impairment may reduce an individual's capacity to engage in psychotherapeutic processes such as cognitive restructuring and exposure-based interventions, ultimately diminishing treatment efficacy. As a result, untreated insomnia may not only prolong the course of anxiety disorders but also interfere with the therapeutic gains typically expected from evidence-based treatments. In conclusion, Morgenthaler and colleagues (2017) advocate for the routine assessment

and treatment of insomnia within anxiety disorder care protocols. Their findings highlight the necessity of integrating sleep-focused interventions, such as Cognitive Behavioural Therapy for Insomnia (CBT-I), into treatment plans for GAD to enhance therapeutic engagement and improve overall outcomes.

Neurobiological mechanisms demonstrated the underlying comorbidity of insomnia and Generalized Anxiety Disorder (Huang et al., 2019). Patients with GAD without insomnia exhibited significantly reduced suppression of the P25 component, indicating heightened cortical excitability in the right parietal cortex. In contrast, patients with both GAD and insomnia showed SEP patterns similar to healthy controls, suggesting that insomnia may regulate or normalize cortical excitability in GAD. These results provide new evidence for the neurobiological interaction between insomnia and anxiety, with potential implications for tailoring treatment approaches for comorbid conditions.

Generalized Anxiety Disorder (GAD) and Depression

Gorman (1997) examined the complex and often debated relationship between depression and anxiety disorders, highlighting how their overlapping symptoms complicate diagnosis, research, and treatment. Evidence from genetic and neurobiological studies suggests that depressive and anxiety disorders share underlying mechanisms. Comorbidity between these conditions is highly prevalent—about 85% of individuals with depression also experience notable anxiety symptoms, while up to 90% of those with anxiety disorders report depressive symptoms. This high level of comorbidity is associated with poorer treatment outcomes, longer illness duration, and reduced therapeutic responsiveness. Early identification of co-occurring conditions is essential for effective intervention. Pharmacological treatments, particularly antidepressants such as SSRIs, tricyclics, and MAOIs, have been found effective in managing both disorders. Gorman emphasizes the need for targeted clinical trials focused on comorbid populations to improve treatment strategies and outcomes (Gorman, 1997). According to Mineka, Watson, and Clark (1998), Generalized Anxiety Disorder (GAD) and Major Depressive Disorder

(MDD) are among the most commonly diagnosed mental health conditions, frequently occurring together.

Kaufman and Charney (2000) reviewed the prevalence and comorbidity of several anxiety disorders—including panic disorder, social phobia, generalized anxiety disorder (GAD), and posttraumatic stress disorder (PTSD)—with major depressive disorder (MDD). Their findings highlight that comorbidity between anxiety disorders and MDD is common, with 50–60% of individuals diagnosed with MDD reporting a lifetime history of at least one anxiety disorder. Moreover, anxiety disorders themselves often overlap, and around 25–50% of individuals with anxiety disorders also have a lifetime history of alcohol or substance use disorders. These conditions rarely appear in isolation, as over 90% of those diagnosed with an anxiety disorder also have a history of other psychiatric conditions. The authors emphasize the importance of using both categorical and dimensional approaches in future research, particularly in genetic, neurobiological, and treatment studies. Clinically, they note that selective serotonin reuptake inhibitors (SSRIs) remain the first-line pharmacological option, while newer serotonin-norepinephrine reuptake inhibitors (SNRIs) are promising, especially in treating comorbid cases. Comorbidity between anxiety and depression is linked to more severe symptoms and higher rates of suicidality, underscoring the need for greater public awareness and improved access to effective treatments (Kaufman & Charney, 2000).

Hirschfeld (2001) pointed out that Generalized Anxiety Disorder (GAD) and Major Depressive Disorder (MDD) share several overlapping symptoms—such as fatigue, difficulty concentrating, sleep disturbances, and irritability—which can make it challenging to distinguish between the two conditions during diagnosis. Brown et al. (2001) further noted that individuals with both GAD and MDD often experience more severe symptomatology, a more chronic progression of illness, and a poorer response to conventional treatments compared to those with either disorder alone. Generalized Anxiety Disorder and depression are both highly prevalent mental health conditions that often co-occur, further complicating diagnosis and treatment. Pharmacological treatments, especially selective serotonin reuptake inhibitors

(SSRIs), are commonly used for both disorders; however, Lenox-Smith et al. (2003) observed that treatment responses in individuals with comorbidity tend to be slower and more variable.

According to Stein et al. (2004), the comorbidity between Generalized Anxiety Disorder (GAD) and other psychiatric conditions, particularly mood and anxiety disorders, is associated with significant functional impairment. Drawing from data collected in the National Comorbidity Survey Replication (NCS-R), a large-scale, population-based epidemiological study in the United States, the authors found that individuals with comorbid disorders experienced higher rates of absenteeism, reduced workplace productivity, and an elevated risk of chronic physical health conditions. These findings suggest that the impact of comorbidity extends beyond psychological distress, affecting socioeconomic and physical health domains as well. Data of NCS-R, reported high comorbidity rates between GAD and other mental health conditions, with prevalence estimates ranging from 60% to 70% (Kessler et al., 2005). This frequent co-occurrence poses major challenges in both diagnosis and treatment, as overlapping symptoms may obscure accurate identification and complicate intervention strategies. Patients with multiple disorders often require more complex, tailored treatment plans and are at greater risk for chronicity and treatment resistance. In conclusion, both studies highlight the burdensome consequences of comorbid GAD, not only in terms of mental health but also in occupational and physical well-being. These findings underscore the need for early identification, comprehensive assessment, and integrated treatment approaches to improve long-term outcomes in individuals with comorbid anxiety and mood disorders.

According to Kessler and colleagues (2005), nearly 60% of individuals diagnosed with GAD also meet criteria for MDD, while many individuals with depression similarly report anxiety symptoms. This comorbidity is not only widespread but is also linked to more severe clinical presentations, including increased functional impairment, prolonged treatment requirements, and a greater likelihood of chronic illness (Bandelow et al., 2017). The two disorders share

multiple etiological influences. These include genetic susceptibilities, disruptions in neurobiological systems, and exposure to adverse environmental conditions. Genetic findings suggest that common hereditary factors may underlie both GAD and depression (Hettema et al., 2005). Furthermore, neuroimaging evidence points to shared abnormalities in brain areas such as the prefrontal cortex and amygdala, which are involved in emotion regulation and processing of threat (Etkin & Wager, 2007). Environmental contributors—such as early life adversity, persistent stress, and interpersonal conflict—have also been shown to elevate the risk for developing either or both disorders (Hammen, 2005).

The comorbidity of GAD and depression significantly impacts an individual's ability to function in various domains of life. Individuals with comorbid GAD and depression experience more severe symptoms than those with either disorder alone, which can lead to greater impairment in daily functioning (Brown et al., 2001). Research has shown that individuals with GAD often present with symptoms of depression. According to Kessler et al. (2005), the lifetime prevalence of GAD is approximately 5.7%, while the prevalence of MDD is around 16.6%. Notably, about 60% of individuals with GAD also meet criteria for MDD at some point in their lives, underscoring the frequent co-occurrence of these disorders (Kessler et al., 2005).

Wells and colleagues (2005) conducted a longitudinal community-based study of older adults and demonstrated that generalized anxiety disorder (GAD) frequently precedes major depressive disorder (MDD). At three-year follow-up, individuals with comorbid GAD–MDD exhibited a markedly lower remission rate (27%) compared to participants with only GAD (48%) or MDD (41%). This evidence points to a more chronic and persistent course for co-occurring GAD and MDD in later life, underscoring the importance of early detection and tailored intervention for this high-risk group.

Kendler and colleagues (2007) provide compelling evidence from twin and family studies indicating that Generalized Anxiety Disorder (GAD) and Major Depressive Disorder (MDD) may share a common genetic vulnerability. Conducted

across large-scale genetically informative samples, their research demonstrated that both disorders are strongly linked to a heritable predisposition toward negative affectivity, often conceptualized as neuroticism. This shared genetic liability suggests that GAD and MDD may not be entirely distinct entities, but rather overlapping conditions influenced by similar underlying temperamental traits and biological risk factors.

Similarly, Etkin and Wager (2007), through a meta-analysis of neuroimaging studies, reported converging abnormalities in brain regions responsible for emotion regulation and executive functioning in individuals with GAD and MDD. Specifically, functional and structural anomalies were consistently identified in the amygdala, which governs emotional reactivity, and the prefrontal cortex, which modulates cognitive control and emotional regulation. These findings were based on a synthesis of functional magnetic resonance imaging (fMRI) studies involving clinical populations diagnosed with either or both disorders. In conclusion, both studies highlight a significant neurobiological and genetic overlap between GAD and MDD. These findings reinforce the conceptualization of these disorders as part of a broader internalizing spectrum and underscore the importance of integrated diagnostic frameworks and treatment models that address shared vulnerability factors, rather than treating each disorder in isolation.

Using longitudinal data from the National Comorbidity Survey (NCS) and its follow-up conducted between 1990–1992 and 2001–2003, Moffitt et al. (2007) explored the bidirectional relationship between Generalized Anxiety Disorder (GAD) and Major Depressive Episode (MDE). The study analyzed whether one disorder could predict the onset or continuation of the other over time. Involving a sample of 5,001 participants, the researchers also examined various risk factors, including childhood adversity, family history of mental illness, and personality characteristics. Findings revealed that baseline MDE was associated with an increased risk of developing GAD in the future, but did not predict its persistence. In contrast, baseline GAD was a significant predictor of both the onset and chronicity of MDE. While shared risk factors contributed to the emergence of both disorders, they did not

fully explain the strong reciprocal associations observed. According to Moffitt et al. (2007), these results argue against the idea that GAD and MDE are merely different manifestations of a single internalizing disorder and instead support the view that they are distinct but overlapping conditions with separate developmental pathways.

Roy-Byrne and colleagues (2008) emphasized that a multimodal treatment approach—specifically combining psychotherapy and pharmacotherapy—tends to yield the most favorable outcomes for individuals diagnosed with both Generalized Anxiety Disorder (GAD) and Major Depressive Disorder (MDD). Their conclusions are based on an extensive review of clinical trial data and treatment outcomes from diverse primary care and psychiatric outpatient settings, involving adult patients with comorbid anxiety and mood disorders.

The evidence suggests that cognitive-behavioural therapy (CBT), when paired with selective serotonin reuptake inhibitors (SSRIs) or other antidepressants, offers enhanced symptom reduction, greater functional improvement, and a lower risk of relapse compared to either treatment modality alone. The integration of therapeutic strategies addresses both the cognitive-emotional dysregulation characteristic of GAD and the negative cognitive biases associated with depression. In conclusion, Roy-Byrne and colleagues (2008) support a comprehensive, individualized treatment model for comorbid GAD and depression, highlighting the need for clinicians to combine psychological and pharmacological interventions to achieve optimal therapeutic outcomes in complex clinical presentations.

Thayer and colleagues (2012), stated that beyond these shared symptoms, both disorders may also involve common underlying mechanisms. These include cognitive biases toward negative information, ineffective emotion regulation strategies, and disruptions in neurobiological systems, particularly involving the hypothalamic-pituitary-adrenal (HPA) axis. The treatment of Generalized Anxiety Disorder (GAD) when accompanied by comorbid depression presents distinct clinical challenges. While Cognitive Behavioural Therapy (CBT) is widely recognized as effective for both disorders, adaptations may be necessary to address the complexities that arise from their co-occurrence. According to Hofmann and

colleagues (2012), integrated both cognitive and behavioural strategies, the result was more favourable outcomes for individuals experiencing both GAD and depression, compared to treatments that focus on a single disorder.

Understanding the intricate relationship between GAD and depression is essential for clinicians, as it supports the development of targeted treatment strategies that encompass the full range of symptoms. Future research should continue to investigate the neurobiological, emotional, and cognitive mechanisms underlying their co-occurrence in order to optimize therapeutic outcomes.

Conway and colleagues (2013) analyzed data from approximately 43,000 U.S. adults enrolled in the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). Their bifactor modeling revealed that generalized anxiety disorder (GAD) and major depressive disorder (MDD) both load onto a shared "internalizing" dimension, yet also maintain distinct disorder-specific factors. This finding supports the conceptualization of GAD and MDD as closely related but separable conditions within a broader internalizing spectrum.

According to Cuijpers et al. (2014), comorbidity between Generalized Anxiety Disorder (GAD) and Major Depressive Disorder (MDD) can significantly complicate treatment planning. Although both conditions typically respond to cognitive-behavioural therapy (CBT) and pharmacological interventions such as selective serotonin reuptake inhibitors (SSRIs), individuals with comorbid GAD and MDD often exhibit more persistent and severe symptoms. This highlights the importance of integrated or individualized treatment strategies that address both anxiety and depressive symptoms concurrently. Neurobiological research indicates that Generalized Anxiety Disorder (GAD) and Major Depressive Disorder (MDD) may share common underlying mechanisms. According to Strawn and colleagues (2014), dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis has been observed in both conditions.

Despite a substantial body of research examining each disorder independently, further investigation is required to better understand the mechanisms

behind their co-occurrence. This includes exploring the roles of cognitive, emotional, and neurobiological factors. The present study seeks to explore the comorbidity between GAD and depression by examining symptom severity, functional impairment, and shared predictive factors, with the goal of enhancing diagnostic precision and improving treatment outcomes for individuals experiencing co-occurring internalizing disorders.

Cognitive theories have aimed to elucidate the mechanisms underpinning the relationship between GAD and depression. Barlow and colleagues (2014) posited that maladaptive cognitive processes, such as excessive worry and negative thought patterns, are prevalent in both disorders. These cognitive vulnerabilities not only exacerbate anxiety symptoms but may also lead to depressive episodes, creating a cyclical relationship that complicates the clinical picture. Research supports this theory, demonstrating that maladaptive emotion regulation strategies are significant predictors of both GAD and depression (Mennin et al., 2005).

Effective management of comorbid GAD and depression often requires integrated treatment plans that address both conditions simultaneously. Cuijpers et al. (2016) found that individuals with co-occurring GAD and depression respond well to CBT, particularly when interventions are designed to target both anxiety and depressive symptoms. Kuehner (2017) also noted that the combined impact of anxiety and depression can significantly worsen social and interpersonal functioning, making it more difficult for affected individuals to maintain relationships and participate in social activities.

Hunt and colleagues (2019) analyzed data on Generalized Anxiety Disorder (GAD) from the Australian National Survey of Mental Health and Well-Being, which included 10,641 adults selected through a stratified multistage sampling process. Diagnoses were based on DSM-IV criteria using the computerized Composite International Diagnostic Interview, administered by trained lay interviewers. The study explored the comorbidity between GAD and Major Depressive Disorder (MDD), revealing that while depressive comorbidity influences the sociodemographic profile, functional impairment, and service usage of

individuals with GAD, it does not fully account for these outcomes. GAD alone was found to cause significant disability, reinforcing its status as a distinct and impactful mental health condition. The findings support the understanding that GAD contributes independently and substantially to the overall burden of mental illness (Hunt et al., 2019).

O'Connor and colleagues (2019) further reported that individuals diagnosed with Generalized Anxiety Disorder (GAD) often exhibit elevated cortisol levels, a biomarker also frequently observed in individuals with Major Depressive Disorder (MDD). Their findings emerged from a cross-sectional analysis of adult clinical outpatients assessed in both psychiatric and endocrinological research settings, with participants undergoing salivary cortisol testing and psychiatric diagnostic evaluation. The study identified that this hormonal dysregulation, indicative of hypothalamic-pituitary-adrenal (HPA) axis hyperactivity, may significantly contribute to the emergence and maintenance of core symptoms such as chronic anxiety, low mood, irritability, and sleep disturbances. The biological overlap observed reinforces the notion of a shared pathophysiological mechanism between GAD and MDD. In conclusion, the research by O'Connor and colleagues (2019) highlights the importance of addressing neuroendocrine factors in understanding and treating comorbid mood and anxiety disorders. The findings support the integration of biological assessments into psychiatric evaluation protocols and encourage further research into HPA axis-targeted interventions.

Goodwin & Stein (2021) review the frequent comorbidity between generalized anxiety disorder (GAD) and major depressive disorder (MDD), often described as “anxious depression.” They emphasize that SSRIs and SNRIs serve as first-line pharmacotherapy for both disorders, particularly in cases where anxiety co-occurs with depression, and that combined pharmacotherapy and psychotherapy is essential due to increased symptom severity and elevated suicide risk in anxious depression. The authors advocate for heightened recognition of anxious depression and tailored treatment approaches that address both disorders concurrently.

The comorbidity of Generalized Anxiety Disorder and depression is common and associated with significant functional impairment. Shared risk factors, including genetic, neurobiological, and environmental influences, contribute to the development of both disorders. Treatment of individuals with comorbid GAD and depression requires integrated approaches that address both conditions simultaneously, with a combination of cognitive-behavioural therapy and pharmacotherapy being the most effective approach. Future research should continue to explore the mechanisms underlying the comorbidity of GAD and depression and investigate more targeted treatment strategies.

Generalized Anxiety Disorder (GAD) and Eating Disorders

Dellava, Kendler, & Neale (2011) conducted a twin study of over 2,000 females and reported that hereditary factors explained about 31–32% of the variance in both GAD and anorexia nervosa (AN). A genetic correlation of $r = 0.20$ was also noted, suggesting that shared genetic risk partly explains their frequent comorbidity.

Touchette et al. (2011) examined subclinical EDs and their comorbidity with anxiety and mood disorders in 833 adolescent girls (mean age: 15.7 years). Their findings included prevalence rates of 3.5% for subclinical anorexia (restricting type), 13.3% for weight concerns, 3.8% for subclinical bulimia, and 10.8% for subclinical binge eating. Adolescents with subclinical anorexia or weight concerns reported elevated levels of generalized anxiety, depression, and separation anxiety. Likewise, those with subclinical bulimia or binge eating disorder were more likely to suffer from mood disorders and anxiety, emphasizing the high comorbidity between subthreshold EDs and internalizing disorders during adolescence (Touchette et al., 2011).

Swinbourne and colleagues (2012) evaluated 152 women—100 in treatment for EDs and 52 for anxiety disorders. Among those with EDs, 65% met criteria for at least one anxiety disorder, most commonly social phobia (42%), PTSD (26%), and GAD (23%). In 69% of cases, anxiety preceded the onset of ED. Conversely, among women being treated for anxiety, 13.5% had a coexisting ED, with anxiety often

occurring first (71%). These findings highlight the potential for anxiety to be a precursor to disordered eating and stress the importance of dual screening in clinical settings.

Lee and colleagues (2018) found that individuals with high anxiety sensitivity—a core feature of GAD—were more inclined to engage in restrictive eating and had heightened body image concerns. These maladaptive eating patterns may reflect attempts to manage overwhelming anxiety, indicating that anxiety serves as both a risk and maintenance factor in ED pathology. Lavender & Haynos (2018) also argued that cognitive distortions related to body image and self-worth can aggravate both anxiety and disordered eating behaviours, creating a feedback loop of emotional and behavioural dysregulation.

O'Connor and colleagues (2019) identified elevated cortisol levels among individuals with Generalized Anxiety Disorder (GAD), a neuroendocrine marker also commonly observed in Major Depressive Disorder (MDD). This dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis appears to contribute to heightened anxiety and emotional dysregulation, and has also been implicated in the pathophysiology of eating disorders (EDs).

Fairburn and colleagues (2020) conducted a cross-sectional study to examine the prevalence of comorbid psychiatric conditions among individuals with eating disorders (EDs). The research was carried out in clinical settings involving patients receiving treatment for various EDs, including anorexia nervosa, bulimia nervosa, and binge eating disorder. The study found that nearly 30% of participants also met the diagnostic criteria for Generalized Anxiety Disorder (GAD), indicating a substantial overlap between anxiety and eating pathology. Similarly, Marano et al. (2020) employed a longitudinal cohort design to investigate the temporal relationship between anxiety disorders and disordered eating behaviours. Their study followed a sample of adolescents diagnosed with GAD in community and outpatient mental health settings, tracking their psychological outcomes into young adulthood. Results demonstrated that individuals with GAD were significantly more likely to develop binge eating disorder (BED) later in life, compared to those without an anxiety

diagnosis. These findings suggest a strong comorbid and predictive association between GAD and EDs, underscoring the importance of early identification and integrated treatment approaches that address both anxiety symptoms and disordered eating behaviours. Future interventions should prioritize comprehensive mental health screening in ED populations to improve long-term outcomes.

Craske and colleagues (2020) conducted a comprehensive observational study to explore the underlying emotional mechanisms associated with Generalized Anxiety Disorder (GAD), with a particular focus on negative affectivity. The research, which included both clinical and community-based samples of adults diagnosed with GAD, was carried out across multiple outpatient mental health settings in the United States. Findings highlighted that individuals with GAD exhibited heightened emotional sensitivity, persistent negative affect, and significant difficulties in emotional regulation. These emotional vulnerabilities were found to increase the likelihood of engaging in maladaptive coping strategies, such as disordered eating behaviours, which may serve as temporary mechanisms for anxiety relief. The study concluded that negative affectivity functions as a central psychological factor in the onset and maintenance of both GAD and comorbid conditions like eating disorders. These findings underscore the importance of incorporating emotional regulation training and affect-focused interventions into treatment plans for GAD, particularly for individuals who present with or are at risk of developing disordered eating patterns.

Kaye and colleagues (2021) conducted a neurobiological review integrating findings from neuroimaging and biochemical studies to examine shared mechanisms between Generalized Anxiety Disorder (GAD) and eating disorders (EDs). Drawing on data from both clinical and neuropsychiatric research settings, the study focused on individuals diagnosed with either or both disorders, aiming to identify overlapping neurochemical profiles. The review identified consistent disruptions in serotonin and dopamine systems—neurotransmitters critically involved in mood stabilization, anxiety regulation, and appetite control. These neurobiological abnormalities were posited to contribute to the pathophysiology of both GAD and

EDs. Supporting these findings, Brown and Keel (2021) conducted a cross-sectional analysis involving a sample of individuals with comorbid GAD and EDs, revealing that core anxiety symptoms, such as chronic worry and autonomic hyperarousal, exacerbate emotional dysregulation commonly observed in ED patients. Together, these studies highlight the neurochemical and psychological intersections between the disorders, suggesting that shared biological vulnerabilities may drive the development and maintenance of both conditions. The findings emphasize the importance of integrated treatment approaches that address both neurobiological dysfunction and emotional regulation impairments in patients with comorbid GAD and EDs.

In a cross-sectional observational study, Timko and colleagues (2021) examined the psychological correlates of emotional eating (EE) in a clinical sample of 34 adult women diagnosed with Generalized Anxiety Disorder (GAD). Conducted in a mental health outpatient setting, the study aimed to assess the relationships among emotional dysregulation, worry, experiential avoidance, mindfulness, and self-compassion in relation to EE. Correlational analyses revealed that EE was positively associated with emotional dysregulation ($r = .593$, $p < .001$), worry ($r = .402$, $p = .018$), and experiential avoidance ($r = .565$, $p < .001$). Conversely, self-compassion ($r = -.590$, $p < .001$) and mindfulness ($r = -.383$, $p = .026$) demonstrated significant negative correlations with EE. Mediation analysis further indicated that self-compassion played a significant mediating role in the relationship between emotional dysregulation and EE ($ab = .043$; 95% CI [.003–.084]). These findings underscore the potential therapeutic value of cultivating self-compassion and mindfulness to mitigate maladaptive eating behaviours among women with GAD. Interventions targeting these protective psychological factors may offer a promising adjunct to conventional anxiety treatments in reducing emotional eating and improving emotional regulation.

Generalized Anxiety Disorder (GAD) and eating disorders (EDs) are two common psychological conditions that can co-occur, with emerging evidence suggesting a significant relationship between them. Both conditions involve complex

interactions of biological, psychological, and social factors, and their comorbidity can exacerbate the severity of each disorder. This literature review examines research on how GAD and eating disorders are related, how GAD may contribute to the development or exacerbation of eating disorders, and the challenges of diagnosing and treating both disorders simultaneously. GAD is characterized by excessive, uncontrollable worry about various life domains, including work, health, and social interactions. It often coexists with other mental health disorders, including mood and eating disorders (American Psychiatric Association [APA], 2022). Eating disorders, such as anorexia nervosa, bulimia nervosa, and binge eating disorder, involve abnormal eating behaviours and distorted body image perceptions. These disorders are associated with significant physical, emotional, and social impairments.

The APA (2022) reaffirmed that GAD is frequently comorbid with both mood and eating disorders, necessitating integrated treatment frameworks. Henningsen et al. (2022) recommended the use of tailored cognitive-behavioural therapy (CBT) approaches that specifically target anxiety and coping deficits to improve outcomes in individuals with comorbid GAD and EDs.

The co-occurrence of GAD and eating disorders represents a clinically significant phenomenon that challenges both diagnosis and treatment. The bidirectional nature of this relationship wherein anxiety amplifies eating disorder behaviours and vice versa, necessitates integrated and personalized treatment approaches. Cognitive-behavioural therapy remains a mainstay, but emerging research emphasizes the value of targeting emotional regulation, anxiety sensitivity, and self-compassion. Continued investigation into the neurobiological and psychological underpinnings of this comorbidity will be crucial in enhancing treatment efficacy and long-term recovery outcomes.

Generalized Anxiety Disorder (GAD) and Substance Use Disorder (SUD) as Comorbidities

The comorbidity between GAD and Substance Use Disorder (SUD) is often reciprocal in nature. According to Khantzian (1997), individuals may turn to

substance use as a method of self-medication for managing anxiety symptoms, while chronic use of such substances may further intensify or even trigger the development of anxiety symptoms. According to Khantzian (1997), many individuals with GAD resort to using alcohol or drugs as a coping mechanism for their persistent worry and tension. This self-medicating behaviour may provide short-term relief but can ultimately lead to the development or worsening of substance dependence. In a study by Johnson and colleagues (2000), it was reported that individuals with GAD who use substances like alcohol to self-medicate may initially experience reduced anxiety, but over time, this approach results in increased psychological and physical health problems.

Coffey et al. (2003) pointed out that the treatment of individuals with co-occurring GAD and SUD can be particularly complex. While cognitive-behavioural therapy (CBT) is effective for both disorders independently, its application in comorbid cases often necessitates adaptation to address the interaction between anxiety and substance use behaviours. Finkelstein and colleagues (2004) emphasized the superiority of integrated treatment approaches for comorbid GAD and SUD. Their work supports simultaneous intervention targeting both anxiety and substance use, including strategies like relapse prevention and anxiety management, rather than addressing the conditions separately.

Grant et al. (2004) states that Epidemiological evidence from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) indicates a significantly increased likelihood of alcohol or drug dependence among individuals with GAD compared to the general population. Conway and colleagues (2006) further supported this bidirectional association, demonstrating that while anxiety may lead individuals to engage in substance use, persistent substance use can in turn worsen or contribute to the development of anxiety symptoms. Grant and colleagues (2004) reported a significantly elevated risk of substance use problems among individuals with anxiety disorders, including GAD. This highlights the high comorbidity between GAD and Substance Use Disorder (SUD). Kessler and colleagues (2005) found that 12.3% of individuals diagnosed with GAD also met the

criteria for SUD, in contrast to 4.1% in the general population, indicating a strong comorbid relationship between the two conditions. As per Turner and colleagues (2006), the self-medication hypothesis offers a potential explanation for the GAD–SUD link, where individuals use substances like alcohol or benzodiazepines to reduce anxiety symptoms, unintentionally increasing their risk for developing SUD. Buckner et al. (2008) demonstrated through longitudinal research that untreated early-onset GAD significantly raises the likelihood of later substance abuse. Their findings also indicated that the risk of engaging in harmful drinking and illicit drug use increases when additional stressors, such as trauma or inadequate social support, are present.

Smith and Book (2010) explained that although substance use may temporarily alleviate anxiety, it often intensifies anxiety symptoms in the long run, establishing a vicious cycle between GAD and substance use.

Blanco and colleagues (2010), using data from the National Epidemiologic Survey on Alcohol and Related Conditions (N = 43,093), compared individuals with GAD comorbid with SUD (GAD-SUD) and those with GAD without SUD (GAD-NSUD). They found nearly equal lifetime prevalence (2.04% for GAD-SUD and 2.10% for GAD-NSUD), but GAD-SUD individuals had more externalizing disorders and greater functional impairment. Both groups had low rates of treatment-seeking and pharmacologic care, underscoring the need for better integrated strategies.

Pasche (2012) highlighted that anxiety disorders frequently co-occur with SUDs and complicate the prognosis and treatment. The review discusses cognitive pathways such as attentional bias, expectancies, and anxiety sensitivity, and debates whether substance use is a consequence of anxiety (secondary SUD) or a cause (primary SUD). Social phobia tends to precede substance use, but this pattern is less clear for other anxiety types. The study calls for further research on the benefits of integrated treatment approaches over disorder-specific interventions.

Marmorstein (2012), analysed data from the National Comorbidity Survey-Replication (N = 9,282), examined relationships between anxiety disorders (like GAD, panic disorder, and social phobia) and SUDs, along with the order of onset. While all were significantly linked to SUDs, GAD frequently developed after substance use began, unlike social phobia and panic disorder, which often appeared earlier. This suggests differing comorbidity patterns depending on the type of anxiety disorder.

According to the American Psychiatric Association (APA, 2013), Generalized Anxiety Disorder (GAD) is marked by excessive and chronic worry over various life events, frequently accompanied by symptoms such as restlessness, muscle tension, irritability, sleep difficulties, and problems with concentration. In contrast, Substance Use Disorder (SUD) involves the prolonged and harmful use of substances—including alcohol, illicit drugs, and prescription medications—that results in significant impairment or distress. Goodwin & Stein (2013) reported that those suffering from both GAD and SUD often endure more intense symptoms, more limited treatment success, and greater functional impairments than those with either disorder alone. Their findings also support the urgent need for clinicians to recognize and treat comorbid cases comprehensively.

In a comprehensive review of treatment approaches for individuals with comorbid Generalized Anxiety Disorder (GAD) and Substance Use Disorders (SUDs), Blanco et al. (2013) highlighted the therapeutic efficacy of pharmacological interventions—particularly selective serotonin reuptake inhibitors (SSRIs)—in managing symptoms of both conditions. Drawing on clinical trial data and observational studies, the authors emphasized that SSRIs, when used in conjunction with evidence-based psychotherapies such as cognitive-behavioural therapy (CBT), can yield positive treatment outcomes. However, the review also cautioned against indiscriminate pharmacological prescribing due to the potential for adverse drug interactions, especially between anti-anxiety medications (e.g., benzodiazepines) and anti-addiction pharmacotherapies (e.g., naltrexone or disulfiram). Blanco et al. (2013) advocated for a personalized, integrated treatment approach that carefully

weighs risks and benefits, particularly in complex clinical profiles involving dual diagnoses.

According to the Substance Abuse and Mental Health Services Administration (SAMHSA, 2014), comorbid GAD and SUD cases often go underrecognized and undertreated, especially in environments where clinical attention is focused primarily on substance use. This highlights a systemic gap and the pressing need for dual-focus diagnostic and treatment frameworks.

In a neurobiological investigation, Liu and colleagues (2016) examined the shared pathophysiological mechanisms underlying Generalized Anxiety Disorder (GAD) and Substance Use Disorders (SUDs). Drawing on findings from neuroimaging studies and neurochemical analyses, the authors highlighted that both disorders are associated with significant dysregulation of the brain's stress response system—particularly the hypothalamic-pituitary-adrenal (HPA) axis. The study emphasized that neurotransmitter imbalances, especially involving gamma-aminobutyric acid (GABA) and serotonin, contribute substantially to the development and persistence of both GAD and SUD. These neurochemical disruptions impair the regulation of mood, anxiety, and impulse control, thereby reinforcing maladaptive coping mechanisms such as substance use. Liu et al. concluded that understanding these shared neurobiological underpinnings is essential for designing integrated treatment protocols targeting both emotional regulation and addictive behaviours in patients with dual diagnoses.

Prior and colleagues (2016) utilized the 2007 Australian National Survey of Mental Health and Wellbeing to analyze how mood and anxiety disorders intersect with SUDs. Among individuals with a 12-month SUD (5.1% prevalence), 35% had at least one comorbid mood or anxiety condition, with GAD being prominent in those with dual comorbidity. These individuals reported more impairment, days of reduced role functioning, and use of healthcare services. They were also 18 times more likely to experience suicidal ideation compared to individuals with only SUDs, emphasizing the severe impact of combined disorders.

López and colleagues (2017), in a comprehensive review of clinical and epidemiological literature, emphasized the complex and often detrimental cycle linking Generalized Anxiety Disorder (GAD) with Substance Use Disorders (SUDs). The analysis, which drew from outpatient psychiatric settings and population-based data, highlighted that individuals with GAD may resort to substances such as alcohol, benzodiazepines, or illicit drugs as a form of self-medication to alleviate chronic worry and physiological arousal. However, this temporary relief often precipitates a rebound effect, whereby anxiety symptoms intensify with continued or withdrawn substance use, perpetuating dependence. This maladaptive feedback loop contributes to diagnostic and therapeutic challenges, especially when patients express resistance to ceasing substance use due to fear of worsening anxiety. The authors noted that comorbidity between GAD and SUD is both prevalent and clinically significant, necessitating careful assessment and targeted intervention. The tendency toward self-medication is a well-established risk factor for initiating and maintaining substance misuse among individuals with high anxiety sensitivity. Furthermore, prolonged substance use may lead to neurochemical and behavioural alterations that exacerbate anxiety symptoms, reinforcing the cycle of dependence and emotional distress.

López and colleagues concluded that integrated treatment approaches—incorporating cognitive-behavioural strategies, pharmacotherapy, and relapse prevention—are essential in addressing the dual pathology effectively. These multimodal interventions are increasingly recognized as best practice in reducing symptom severity, improving functional outcomes, and preventing recurrence. Future research is urged to further elucidate the biopsychosocial mechanisms underpinning this comorbidity and to refine evidence-based treatment models tailored to individuals coping with both GAD and SUD.

CHAPTER – 3

STATEMENT OF THE PROBLEM

Generalized Anxiety Disorder (GAD) is a persistent and debilitating condition characterized by excessive anxiety and worry across various life domains, such as finances, relationships, health, and daily routines. It frequently occurs alongside other mental health disorders, making effective treatment more complex. Globally, anxiety disorders affect about 4% of the population—roughly 301 million people—with women being disproportionately affected. The COVID 19 pandemic has triggered a surge in anxiety and depression, increasing global prevalence by an estimated 25%.

In India, approximately 3.5% of the population experiences anxiety or stress disorders at some stage, with nearly 15% needing clinical intervention. Urban areas and younger women are particularly vulnerable. Regional data from Mizoram show a 16% prevalence of anxiety-related disorders among mental health service users; substance use and mood disorders also demonstrate high local impact. Comorbidity is the norm rather than the exception in GAD—nearly 60% of individuals also contend with conditions such as depression, PTSD, insomnia, or substance use disorders. This overlap intensifies symptoms, disrupts daily functioning, and worsens treatment outcomes, underscoring the urgent need for integrated therapeutic approaches to improve both clinical efficacy and overall quality of life.

In the present era of rising mental health concerns, the need to thoroughly investigate the comorbidity of Generalized Anxiety Disorder (GAD) with other major psychiatric disorders in adult populations has become not only scientifically relevant but also a pressing public health imperative. The increasing prevalence of GAD and its overlapping symptomatology with a range of psychiatric conditions, including but not limited to Post-Traumatic Stress Disorder (PTSD), Obsessive-Compulsive Disorder (OCD), Insomnia, Major Depressive Disorder (MDD), Eating Disorders, and Substance Use Disorders (SUDs), has created a complex and multidimensional clinical landscape that demands a deeper, context-specific understanding. This is especially vital in adult populations, where the cumulative effects of untreated anxiety and associated psychiatric comorbidities can lead to

chronicity, functional disability, emotional suffering, economic burden, and deterioration of overall quality of life.

Generalized Anxiety Disorder (GAD) and Post-Traumatic Stress Disorder (PTSD)

Generalized Anxiety Disorder (GAD) and Post-Traumatic Stress Disorder (PTSD) are two of the most prevalent and debilitating psychiatric disorders affecting adult populations globally. GAD is characterized by persistent, excessive, and uncontrollable worry about a range of everyday life circumstances, often accompanied by physical symptoms such as restlessness, fatigue, difficulty concentrating, irritability, muscle tension, and sleep disturbances. In contrast, PTSD develops following exposure to a traumatic or life-threatening event and is marked by intrusive memories, flashbacks, nightmares, emotional numbing, hyperarousal, and avoidance of trauma-related cues. While each disorder has distinct diagnostic criteria, a growing body of clinical and epidemiological evidence indicates that GAD and PTSD frequently co-occur, resulting in a comorbid condition that is more complex, severe, and treatment-resistant than either disorder in isolation.

The co-occurrence of GAD and PTSD is of substantial clinical concern, as both disorders share overlapping cognitive and emotional mechanisms, such as heightened threat perception, negative affectivity, impaired emotion regulation, and maladaptive cognitive appraisals. Individuals with comorbid GAD and PTSD often experience amplified symptom intensity, more pronounced functional impairments, and a significantly reduced quality of life. This comorbidity is also associated with increased healthcare utilization, greater pharmacological burden, higher risk of developing additional psychiatric conditions (such as depression or substance use disorders), and elevated suicide risk. Importantly, the presence of GAD in individuals with PTSD may delay trauma recovery, while unresolved trauma in individuals with GAD may perpetuate chronic worry and anxiety symptoms. These bidirectional influences underscore the need for integrated, dual-focused assessment and treatment approaches.

Despite the clinical significance of GAD-PTSD comorbidity, current research remains limited in both scope and contextual sensitivity. Much of the existing literature treats GAD and PTSD as separate entities, with few studies exploring the unique clinical presentations, symptom interactions, and psychosocial correlates of individuals who experience both conditions concurrently. Furthermore, most studies have been conducted in Western, high-income settings, with little attention paid to how cultural, socioeconomic, gender-related, and environmental factors may influence the development, expression, and course of comorbidity between GAD and PTSD in diverse populations. The absence of such contextualized data impedes the development of culturally appropriate diagnostic tools and interventions, potentially leading to under recognition or mismanagement of comorbid presentations in certain communities.

Another critical challenge is the diagnostic ambiguity that arises due to symptom overlap. Symptoms such as sleep disturbances, irritability, poor concentration, and heightened arousal are core features of both GAD and PTSD, making it difficult for clinicians to accurately differentiate and diagnose the conditions when they coexist. This diagnostic complexity may result in partial treatment targeting only one disorder while neglecting the other, thereby limiting treatment efficacy and increasing the likelihood of symptom relapse. Furthermore, individuals with comorbid GAD and PTSD may experience lower responsiveness to standard therapeutic modalities, necessitating tailored, trauma-informed, and anxiety-sensitive interventions.

In view of these clinical, diagnostic, and research gaps, a focused investigation into the comorbidity of GAD and PTSD in adult populations is essential. Such research must aim to delineate the prevalence, symptom profile, psychosocial impacts, and treatment challenges associated with this comorbidity. It should also explore the roles of trauma history, chronic stress exposure, coping styles, social support systems, and demographic factors in shaping the experience and outcomes of individuals with both disorders. A deeper understanding of these dynamics can inform more precise diagnostic frameworks, guide the development of

integrated treatment protocols, and contribute to the refinement of public mental health strategies targeting complex anxiety-trauma comorbidity in adults.

By addressing this critical yet underexplored area, the present study seeks to contribute to a more comprehensive understanding of how GAD and PTSD intersect, how their interaction impacts the lived experiences of affected individuals, and how mental health systems can evolve to better meet the needs of this clinically vulnerable population.

Generalized Anxiety Disorder (GAD) and Obsessive-Compulsive Disorder (OCD)

Generalized Anxiety Disorder (GAD) and Obsessive-Compulsive Disorder (OCD) are two clinically distinct yet frequently overlapping psychiatric conditions that commonly emerge in adult populations. GAD is primarily characterized by excessive, persistent, and difficult-to-control worry about a wide array of everyday life events and responsibilities, often accompanied by physical symptoms such as muscle tension, fatigue, irritability, restlessness, and sleep disturbances. In contrast, OCD is defined by the presence of intrusive, unwanted thoughts (obsessions) and repetitive, ritualistic behaviours or mental acts (compulsions) performed in response to those obsessions. While these disorders are categorized separately in diagnostic manuals, clinical research has increasingly highlighted the significant degree of comorbidity between GAD and OCD, with many individuals simultaneously meeting diagnostic criteria for both conditions.

The co-occurrence of GAD and OCD presents a particularly complex clinical picture. Both disorders involve heightened levels of anxiety and cognitive distress, yet their manifestations differ in focus and structure. Individuals with GAD often experience diffuse and generalized worry that is difficult to control, whereas those with OCD struggle with specific intrusive thoughts and compulsive behaviours designed to neutralize or prevent feared outcomes. When these disorders occur together, the result can be a magnified and multifaceted form of anxiety that interferes severely with occupational, social, and emotional functioning. The

interaction between chronic worry and compulsive behaviour may result in a cycle of escalating anxiety, reinforcing avoidance behaviours, mental rigidity, and impaired decision-making capacity.

Comorbidity between GAD and OCD is associated with increased symptom severity, greater psychological distress, and poorer prognosis when compared to individuals diagnosed with only one of the disorders. Individuals with both GAD and OCD are more likely to exhibit treatment resistance, require longer durations of therapy, and experience higher levels of functional impairment in multiple life domains. Furthermore, the dual presence of generalized anxiety and obsessive-compulsive symptomatology may complicate the diagnostic process, particularly due to overlapping symptoms such as excessive rumination, indecisiveness, restlessness, and difficulty concentrating. These shared features often blur diagnostic boundaries, leading to challenges in differential diagnosis and treatment planning.

Despite the growing clinical recognition of GAD-OCD comorbidity, research examining the nature, extent, and implications of this co-occurrence remains relatively sparse. Much of the existing literature focuses on either disorder in isolation, and only a limited number of studies have explored their interaction from an integrative, empirical, and person-centred perspective. There is a particular need for contextually grounded research that investigates how factors such as cultural norms, stress exposure, trauma history, personality traits, and coping mechanisms influence the manifestation and course of comorbid GAD and OCD in adult populations. Additionally, sociodemographic characteristics such as gender, age, education level, and socioeconomic status may moderate the presentation and severity of symptoms, yet these variables are often underexplored in current research paradigms.

Another critical concern is the impact of GAD-OCD comorbidity on treatment outcomes. Standard treatment protocols such as cognitive-behavioural therapy (CBT) and pharmacological interventions are typically designed with a singular diagnosis in mind. However, when both disorders co-exist, patients may not respond adequately to these interventions unless the therapeutic approach is tailored

to address the nuanced interplay between chronic worry and compulsive behaviour. Comorbid presentations may require the integration of multiple therapeutic strategies, including exposure and response prevention (ERP), cognitive restructuring, mindfulness-based techniques, and emotion regulation training. Therefore, developing evidence-based, flexible, and personalized treatment plans is essential for improving outcomes in this subgroup of patients.

Given the substantial clinical, diagnostic, and therapeutic challenges associated with comorbid GAD and OCD, there is an urgent need for research that systematically investigates their co-occurrence in adult populations. Such studies should aim to identify prevalence rates, symptom clusters, risk factors, and protective factors associated with this comorbidity. In addition, research should examine the longitudinal course of comorbid GAD and OCD, the differential impact on quality of life, and the effectiveness of integrated treatment modalities. By expanding the empirical knowledge base surrounding GAD-OCD comorbidity, mental health professionals will be better equipped to recognize, assess, and treat this complex clinical phenomenon in ways that are responsive to the lived experiences and treatment needs of affected individuals. Addressing the comorbidity of GAD and OCD through focused research will ultimately contribute to enhanced diagnostic clarity, improved clinical care, and the advancement of personalized and evidence-informed psychiatric practice.

Generalized Anxiety Disorder (GAD) and Insomnia

Generalized Anxiety Disorder (GAD) and Insomnia are two highly prevalent mental health conditions that often co-occur in adult populations, forming a clinically significant and mutually reinforcing comorbid relationship. GAD is characterized by excessive, uncontrollable worry and apprehensive expectations that span various life domains, accompanied by somatic and cognitive symptoms such as restlessness, irritability, fatigue, difficulty concentrating, and notably, disturbances in sleep. Insomnia, meanwhile, is a sleep-wake disorder defined by persistent difficulties in initiating sleep, maintaining sleep, or achieving restorative sleep, resulting in significant daytime impairment and distress. Although each condition is

diagnostically distinct, a growing body of evidence suggests that the bidirectional comorbidity between GAD and Insomnia is both common and complex, contributing to exacerbated symptomatology, increased functional impairment, and treatment resistance.

The comorbidity between GAD and Insomnia is of particular concern given their overlapping etiological mechanisms, such as heightened physiological arousal, dysfunctional cognitive processing, maladaptive emotion regulation, and chronic activation of the stress response system. Individuals with GAD frequently report difficulties falling asleep due to racing thoughts, rumination, or anticipatory anxiety about the day ahead. Conversely, those with primary insomnia may develop chronic worry and anxiety in response to persistent sleep difficulties, thereby meeting criteria for GAD over time. This reciprocal relationship creates a self-perpetuating cycle in which anxiety exacerbates sleep disturbances, and sleep deprivation intensifies anxiety symptoms, leading to a deteriorating mental health trajectory.

Research consistently shows that adults with comorbid GAD and Insomnia report more severe anxiety symptoms, poorer cognitive functioning, reduced work productivity, impaired social relationships, and a lower overall quality of life compared to those diagnosed with either condition alone. Furthermore, this comorbid presentation is associated with an increased risk of developing additional psychiatric disorders, such as depression or substance use, as well as heightened suicide risk. The presence of both GAD and Insomnia is also linked to increased healthcare utilization, including frequent consultations, polypharmacy, and a reliance on emergency services for psychological crises, thus contributing to a greater economic burden on health systems.

Despite the significant impact of GAD-Insomnia comorbidity, it remains under-recognized in clinical practice. A major contributing factor is the symptom overlap—particularly the shared experience of restlessness, irritability, fatigue, and concentration difficulties—which can obscure diagnostic clarity. As a result, clinicians may prioritize the treatment of one condition while overlooking the other, leading to partial or suboptimal therapeutic outcomes. This fragmented approach

fails to address the interdependent nature of anxiety and sleep disturbance and often results in recurrent symptoms and chronic impairment. Standard treatments for GAD, such as cognitive-behavioural therapy (CBT) and selective serotonin reuptake inhibitors (SSRIs), may not adequately alleviate insomnia symptoms unless specifically adapted. Similarly, pharmacological interventions for insomnia, such as sedative-hypnotics, may provide short-term relief but do not address the underlying cognitive and emotional drivers of anxiety, highlighting the need for integrated treatment models.

Although some research has begun to explore the interplay between GAD and Insomnia, most studies remain limited in scope, focusing on either disorder in isolation or examining sleep disturbances as a secondary symptom rather than a co-primary clinical concern. There is a pressing need for more rigorous, longitudinal, and contextually grounded investigations that examine the nature, prevalence, and impact of this comorbidity in adult populations. In particular, studies should explore how demographic factors—such as age, gender, socioeconomic status, occupational stress, trauma history, and lifestyle behaviours—influence the onset, course, and treatment responsiveness of comorbid GAD and Insomnia. Moreover, cultural beliefs about sleep, stigma around mental illness, and barriers to mental health services may moderate help-seeking behaviour and treatment adherence, yet these dimensions are underrepresented in current literature.

By examining the GAD-Insomnia comorbidity through an integrative lens, future research can inform the development of holistic, multimodal, and patient-centred interventions. These may include combined cognitive-behavioural therapies for anxiety and insomnia (CBT-I), mindfulness-based stress reduction, psychoeducation, sleep hygiene training, and the integration of digital health tools to monitor symptoms and provide accessible support. Such efforts are crucial not only for alleviating individual suffering but also for reducing the broader societal burden associated with untreated or inadequately managed anxiety-sleep comorbidity. In light of the considerable prevalence, complexity, and clinical consequences of comorbid GAD and Insomnia in adults, this area warrants dedicated research

attention. A nuanced understanding of their interrelationship will support the advancement of diagnostic precision, the optimization of treatment outcomes, and the promotion of mental health and well-being across diverse adult populations.

Generalized Anxiety Disorder (GAD) and Major Depressive Disorder (MDD)

Generalized Anxiety Disorder (GAD) and Major Depressive Disorder (MDD), two of the most prevalent and burdensome psychiatric conditions globally, frequently co-occur in adult populations, forming a complex and often debilitating comorbid presentation. GAD is characterized by pervasive and excessive worry across various domains of life, accompanied by physiological symptoms such as restlessness, fatigue, concentration difficulties, muscle tension, and sleep disturbances. MDD, on the other hand, is defined by persistent low mood, loss of interest or pleasure in previously enjoyed activities, feelings of worthlessness or hopelessness, changes in appetite or sleep patterns, psychomotor agitation or retardation, and recurrent thoughts of death or suicide. Though diagnostically distinct, these disorders share significant symptomatic and pathophysiological overlap, and their co-occurrence often results in compounded psychological distress and reduced quality of life.

The high rate of comorbidity between GAD and MDD has been consistently documented in both clinical and epidemiological research. It is estimated that up to 60% of individuals diagnosed with GAD also meet the criteria for MDD at some point in their lives, and vice versa. This comorbidity is not merely additive in nature; rather, it is synergistic, intensifying the severity, chronicity, and functional impairment associated with each disorder. Adults experiencing both GAD and MDD often report a broader range of symptoms, greater emotional dysregulation, more severe psychosocial impairment, and a higher risk for suicidality compared to those with either disorder alone. Moreover, this comorbidity is linked to diminished responsiveness to standard treatments, higher rates of relapse, and increased healthcare utilization, thereby posing significant challenges for both clinical management and mental health systems.

From a clinical perspective, the overlapping features of GAD and MDD—such as fatigue, poor concentration, sleep disturbances, and psychomotor changes—can create diagnostic ambiguity, increasing the risk of misdiagnosis or underdiagnosis. Additionally, individuals with comorbid anxiety and depression may struggle with more pervasive negative cognitive patterns, including catastrophic thinking, hopelessness, self-criticism, and rumination, which perpetuate both anxious and depressive symptomatology. The presence of comorbid depression can diminish motivation, reduce treatment adherence, and undermine the efficacy of cognitive-behavioural or pharmacological interventions commonly used to treat GAD. Conversely, anxiety symptoms in individuals primarily diagnosed with MDD may hinder emotional processing, limit problem-solving capacity, and increase behavioural avoidance, thereby complicating depression recovery.

Despite the significant burden associated with comorbid GAD and MDD, there remains a relative paucity of comprehensive research that systematically explores this intersection, particularly in adult populations across diverse sociocultural contexts. Much of the existing literature adopts a compartmentalized approach, treating anxiety and depression as separate constructs without adequately addressing their interactive effects. Moreover, many studies have been conducted in controlled or homogenous populations, limiting the generalizability of findings to real-world, diverse clinical settings. Factors such as gender, age, socioeconomic status, trauma exposure, chronic stress, and access to mental healthcare can all influence the expression, severity, and treatment response of comorbid anxiety and depression, yet these variables remain underexplored in the literature.

Furthermore, cultural beliefs, stigma surrounding mental illness, and systemic barriers to care can significantly impact the help-seeking behaviours and treatment pathways of individuals experiencing both GAD and MDD. In many cases, adults may normalize or minimize their emotional distress, delay seeking help, or receive care that focuses on somatic symptoms rather than underlying psychological conditions. These dynamics underscore the importance of developing culturally

sensitive screening tools, integrated treatment models, and public mental health interventions that can more effectively identify and address comorbid presentations.

Research aimed at understanding the comorbidity between GAD and MDD should therefore prioritize multidimensional and person-centered approaches. Such investigations should examine not only prevalence and symptom profiles, but also cognitive and emotional mechanisms, psychosocial stressors, and the longitudinal course of comorbid symptoms. Integrated therapeutic frameworks that combine anxiety- and depression-focused interventions, including transdiagnostic cognitive-behavioural therapies, emotion regulation training, and psychopharmacological strategies, may offer more effective treatment options for individuals experiencing both disorders.

Generalized Anxiety Disorder (GAD) and Eating Disorders (EDs)

Generalized Anxiety Disorder (GAD) and Eating Disorders (EDs) frequently co-occur in adult populations, forming a clinically complex and multifactorial comorbidity that has significant implications for diagnosis, treatment, and overall mental health outcomes. GAD is characterized by chronic, excessive, and often uncontrollable worry across various domains of life, accompanied by symptoms such as restlessness, irritability, muscle tension, fatigue, sleep disturbances, and difficulty concentrating. Eating Disorders, which encompass a range of conditions such as Anorexia Nervosa, Bulimia Nervosa, Binge Eating Disorder, and Other Specified Feeding or Eating Disorders (OSFED), involve severe disturbances in eating behaviours, preoccupation with body image, and maladaptive coping mechanisms related to food and weight control. Although these conditions are classified under different diagnostic categories, a substantial body of evidence underscores the frequent and often bidirectional comorbidity between GAD and EDs, particularly in adult women but increasingly in men and gender-diverse populations as well.

The comorbidity between GAD and Eating Disorders is of particular clinical relevance due to the interplay between anxiety-driven cognitive patterns and disordered eating behaviours. Individuals with GAD may use restrictive eating,

bingeing, purging, or excessive exercise as maladaptive strategies to manage chronic worry, emotional dysregulation, or a perceived lack of control in other areas of life. Conversely, individuals suffering from Eating Disorders often experience high levels of anticipatory anxiety, body-related worry, and perfectionism, all of which are hallmark features of GAD. This reciprocal relationship can create a reinforcing cycle where anxiety exacerbates disordered eating behaviours, and those behaviours in turn intensify anxiety and related distress, leading to a worsening of both conditions over time.

Adults with comorbid GAD and EDs tend to exhibit more severe symptom profiles, longer illness duration, greater impairment in daily functioning, and reduced quality of life compared to individuals diagnosed with only one of the disorders. The presence of comorbid GAD may increase the likelihood of treatment resistance, relapse, and chronicity in individuals with EDs. Moreover, this comorbidity is associated with elevated risks for additional psychiatric conditions, including depression, substance use disorders, and suicidality. The psychological burden carried by individuals with both disorders often manifests in low self-esteem, obsessive thoughts, emotional numbing, and feelings of shame and guilt, further complicating clinical management.

Despite the serious implications of GAD-ED comorbidity, it remains insufficiently studied and under-recognized in clinical settings. Many healthcare providers may prioritize the treatment of observable eating behaviours or physical symptoms (such as weight loss or nutritional deficiencies) without adequately addressing the underlying anxiety that may be driving or maintaining the eating disorder. This fragmented approach can lead to incomplete recovery and recurrent cycles of illness. Diagnostic challenges are further compounded by the shared symptoms between GAD and EDs, such as sleep disturbance, concentration difficulties, irritability, and fatigue, which may obscure the recognition of comorbidity.

The existing research literature on this comorbidity often lacks depth and cultural sensitivity. Much of the available data comes from Western, predominantly

female samples, leaving significant gaps in our understanding of how GAD and EDs co-occur in diverse cultural, socioeconomic, and gender contexts. Factors such as cultural norms around food and body image, societal pressures, stigma, access to mental healthcare, and early life trauma can all influence the development and presentation of comorbid GAD and EDs, yet these influences are rarely explored in an integrated and intersectional manner.

To address these gaps, there is an urgent need for comprehensive, large-scale, and context-specific studies that investigate the prevalence, symptomatology, and treatment outcomes of adults experiencing both GAD and Eating Disorders. Research should explore the underlying cognitive, emotional, and neurobiological mechanisms that contribute to this comorbidity, as well as the impact of social support systems, identity-related stress, trauma histories, and resilience factors. Understanding how demographic variables such as age, gender identity, ethnicity, education, and socioeconomic status interact with GAD-ED comorbidity will be essential for designing inclusive and effective interventions.

Clinically, the co-occurrence of GAD and EDs calls for the adoption of integrated, transdiagnostic treatment approaches. Such interventions should address both anxiety and disordered eating through modalities such as cognitive-behavioural therapy, dialectical behaviour therapy, mindfulness-based interventions, and nutritional rehabilitation, with attention to individualized treatment goals and the underlying emotional needs of each patient. Incorporating psychoeducation, family support, and relapse prevention strategies is also crucial for sustained recovery.

In conclusion, the comorbidity between Generalized Anxiety Disorder and Eating Disorders represents a significant and underappreciated challenge in adult mental health. Focused research and clinical innovation are necessary to enhance understanding, improve diagnostic accuracy, and develop holistic, person-centered treatment plans that can address the unique complexities of this dual diagnosis. Such efforts are vital to reducing the burden of illness, enhancing recovery outcomes, and promoting psychological well-being among adults affected by both chronic anxiety and disordered eating.

Generalized Anxiety Disorder (GAD) and Substance Use Disorders (SUDs)

Generalized Anxiety Disorder (GAD) and Substance Use Disorders (SUDs) frequently co-occur in adult populations, presenting a complex clinical picture that challenges diagnostic clarity, therapeutic efficacy, and long-term recovery outcomes. GAD is a chronic mental health condition marked by persistent, excessive, and uncontrollable worry that significantly impairs social, occupational, and personal functioning. It often manifests alongside physical symptoms such as muscle tension, restlessness, fatigue, sleep disturbances, and difficulty concentrating. Substance Use Disorders, characterized by the recurrent use of alcohol or other drugs despite significant adverse consequences, involve a maladaptive pattern of substance consumption that leads to clinically significant distress or impairment. The intersection of GAD and SUDs constitutes a particularly severe form of psychiatric comorbidity, with each condition potentially exacerbating the symptoms and complications of the other.

The relationship between GAD and SUDs is typically bidirectional. Individuals with GAD may turn to alcohol, sedatives, or other psychoactive substances as a form of self-medication to alleviate chronic anxiety, racing thoughts, and physiological arousal. Over time, this reliance on substances can evolve into dependency, further complicating emotional regulation and increasing psychological distress. Conversely, prolonged substance use can disrupt neurobiological pathways related to mood and anxiety regulation, thereby precipitating or intensifying generalized anxiety symptoms. This cyclical dynamic often creates a reinforcing feedback loop, making it increasingly difficult for affected individuals to disengage from substance use and manage their anxiety effectively without external intervention.

Comorbid GAD and SUDs are associated with significantly heightened risks compared to either disorder alone. These include increased likelihood of treatment non-compliance, higher rates of relapse, greater functional impairment, elevated suicide risk, and a poorer overall prognosis. Additionally, individuals experiencing this dual diagnosis may face compounding challenges such as stigma, social

isolation, legal problems, economic hardship, and co-occurring psychiatric conditions including depression, PTSD, and personality disorders. The burden on healthcare systems is also considerable, with comorbid patients more likely to require intensive and repeated interventions across emergency, inpatient, and outpatient services.

Despite the clinical urgency posed by GAD-SUD comorbidity, it remains underexplored in both research and practice. Diagnostic ambiguity is a major barrier, as overlapping symptoms—such as sleep disruption, irritability, impaired concentration, and somatic complaints—can mask the presence of either condition or lead to a misdiagnosis. Furthermore, the co-occurrence of these disorders often presents differently across individuals, with variations influenced by the type of substance used (e.g., alcohol, cannabis, opioids, stimulants), patterns of use (e.g., bingeing, daily use), and the underlying motives for substance consumption (e.g., avoidance, emotion regulation, social facilitation). Clinicians may struggle to identify the primary disorder or may focus disproportionately on substance use, thereby neglecting the underlying or co-occurring anxiety component.

Research in this area has typically focused more heavily on substance use outcomes, often relegating anxiety to a secondary or unexplored role. This has led to a dearth of empirical data on the cognitive, emotional, and neurobiological mechanisms that link GAD and SUDs. Additionally, many existing studies have been conducted in high-income, clinical settings, with limited attention paid to cultural, socioeconomic, and demographic variables that may influence both disorders. Contextual factors such as access to mental health care, trauma history, coping strategies, gender norms, and societal attitudes toward substance use are crucial for understanding and addressing comorbidity in a nuanced and effective manner.

Given these gaps, there is a pressing need for comprehensive, culturally responsive, and empirically rigorous research that examines the prevalence, etiology, clinical presentation, and treatment outcomes of adults with co-occurring GAD and SUDs. Such research should prioritize the identification of shared risk factors, including genetic predispositions, early-life stressors, maladaptive coping

mechanisms, and environmental influences. It should also explore protective factors, such as resilience, social support, and access to integrated treatment services, that may mitigate the severity and impact of this comorbidity.

Clinically, the management of comorbid GAD and SUDs necessitates the development of integrated treatment models that simultaneously address both conditions. These may include combined cognitive-behavioural therapies targeting anxiety and substance use, motivational interviewing, relapse prevention strategies, mindfulness-based interventions, pharmacological supports (e.g., SSRIs, naltrexone, buprenorphine), and psychoeducation. Emphasis should be placed on personalized care plans that are adaptable to the individual's psychological profile, substance use history, and treatment readiness. Furthermore, given the chronic and relapsing nature of both disorders, long-term monitoring, peer support, and continuity of care are essential components of a successful recovery trajectory.

In conclusion, the comorbidity of Generalized Anxiety Disorder and Substance Use Disorders represents a profound and multifaceted challenge within adult mental health. Addressing this dual diagnosis through targeted research, clinical innovation, and system-level reform can enhance diagnostic accuracy, improve treatment outcomes, and promote long-term recovery for individuals affected by both chronic anxiety and substance dependence. As mental health systems evolve to meet the growing complexity of psychiatric presentations, a deeper understanding of GAD-SUD comorbidity will be critical to the development of holistic, effective, and compassionate care.

In summary, the comorbidity of GAD and MDD represents a significant and multifaceted mental health challenge in adult populations. Addressing this comorbidity through dedicated, contextually informed research can enhance diagnostic clarity, improve clinical outcomes, and guide the development of holistic, evidence-based, and patient-centred mental healthcare services. Although the global mental health field has produced substantial insights into anxiety disorders and their correlates, many of these investigations have been conducted in controlled clinical settings, focused on singular diagnostic categories, or rooted in Western contexts that

may not fully reflect the cultural, environmental, socioeconomic, and healthcare realities of other populations. Consequently, a significant gap persists in the literature with regard to the simultaneous examination of multiple co-occurring psychiatric disorders in adults with GAD, especially in diverse and underrepresented cultural or clinical contexts. It is increasingly recognized that psychiatric comorbidities do not operate in isolation, but interact with sociocultural and environmental factors in complex ways that influence symptom expression, help-seeking behaviour, diagnostic recognition, treatment engagement, and long-term prognosis.

Understanding comorbidity within this broader ecological framework is critically important, as it allows researchers, clinicians, policymakers, and mental health practitioners to move beyond a narrow diagnostic lens and appreciate the multifaceted realities faced by individuals living with multiple co-occurring psychiatric conditions. In particular, adult populations are more likely to be managing multiple life stressors—including occupational demands, caregiving responsibilities, financial pressures, chronic physical illnesses, and complex interpersonal dynamics—which may exacerbate symptoms of anxiety and contribute to the onset or persistence of additional psychiatric disorders. Furthermore, untreated or poorly managed GAD during adulthood is associated with a heightened risk for long-term psychiatric disability, workplace absenteeism, interpersonal conflict, substance misuse, suicidal ideation, and increased healthcare expenditure, all of which underscore the urgency of early detection and comprehensive intervention.

Moreover, the prevalence of psychiatric comorbidities such as PTSD, OCD, insomnia, depression, eating disorders, and substance use disorders appears to be increasing in recent years, particularly in the wake of global stressors such as the COVID-19 pandemic, economic uncertainty, social isolation, political instability, and environmental crises—all of which have disproportionately impacted adult populations across various socio-economic strata. These stressors have heightened the vulnerability of adults to chronic anxiety and related disorders, often exacerbating existing psychiatric conditions or triggering the emergence of new ones. In this evolving mental health landscape, it is imperative that research efforts adopt a

multidimensional, intersectional, and person-centred lens to better understand how GAD interrelates with other psychiatric disorders, and how these interactions affect the daily lives, coping strategies, and treatment outcomes of affected individuals.

The investigation of comorbidity in GAD must also consider the implications of healthcare access disparities, stigma associated with mental illness, diagnostic overshadowing, and underreporting of psychological distress—factors that are particularly pronounced in certain communities or regions. Adults with comorbid psychiatric disorders often face significant barriers to care, including long wait times, lack of integrated treatment services, financial constraints, and inadequate mental health literacy. These barriers not only delay diagnosis and treatment but also contribute to the progression and entrenchment of mental health disorders. Therefore, a thorough understanding of comorbid patterns in GAD is essential to inform the development of accessible, cost-effective, and culturally sensitive treatment protocols that can be implemented across various healthcare settings—from community clinics to specialized psychiatric institutions.

In addition, from a clinical perspective, the presence of comorbid psychiatric conditions in individuals with GAD necessitates the use of nuanced diagnostic tools, multimodal assessment frameworks, and individualized treatment plans that take into account the unique symptom interactions, functional impairments, and psychosocial challenges faced by each patient. Generic treatment approaches that fail to recognize the presence of comorbid disorders often yield suboptimal results and may even exacerbate certain symptoms. Therefore, research that aims to delineate the prevalence, patterns, and psychosocial implications of comorbid conditions in GAD holds the potential to significantly enhance clinical decision-making and therapeutic outcomes.

From a policy standpoint, there is an increasing demand for mental health systems to adopt integrated models of care that address not just singular disorders but complex comorbidity profiles that reflect real-world presentations. Findings from such research can directly inform the allocation of resources, training of mental health professionals, development of screening guidelines, and design of public

health campaigns aimed at early identification and intervention. A research effort that seeks to clarify the interrelationships among GAD, PTSD, OCD, insomnia, depression, eating disorders, and substance use disorders is well-positioned to contribute to this systemic transformation in mental healthcare.

Furthermore, this type of research carries substantial academic and theoretical significance. It enables a richer understanding of the shared and distinct etiologies of these disorders, offers insights into trans-diagnostic processes such as emotion regulation difficulties, maladaptive cognitive patterns, and behavioural avoidance, and advances the scientific understanding of how psychiatric disorders evolve, interact, and influence one another across the lifespan. By investigating these phenomena in adult populations specifically, the study recognizes the dynamic interplay between developmental trajectories, life stage stressors, and psychiatric vulnerabilities.

In light of the multifactorial, intersectional, and far-reaching impact of GAD and its comorbid psychiatric conditions in adults, this research is not only timely but essential. It is grounded in the urgent need to improve mental health outcomes, reduce the societal burden of psychiatric illness, and build more responsive, inclusive, and evidence-based mental health systems. Such a study can serve as a foundational step toward the realization of personalized, holistic, and equitable mental healthcare for adults facing the compounded challenges of anxiety and co-occurring psychiatric disorders.

Targeted Population (about Mizo):

Mizo is the inhabitant of Mizoram State of India Union, located in the North-Eastern corner of India between Bangladesh and Myanmar, with 21,087 km² (8,142 sq mi). It extends from 21°56'N to 24°31'N, and 92°16'E to 93°26'E, (Rintluanga Pachuau, 2009) and are categorized under Schedule Tribes. It has a short History in the Modernization, stemming from British colonial empire as Mizo Hills in 1895; then, North and south hills being united into Lushai Hills district in 1898 with Aizawl as its headquarters. Mizoram has become a Union Territory in 1972, and

became a federal state of India ‘Mizoram State’ on 20 February 1987 (Nunthara,1996).

Research Gaps:

Despite the widespread occurrence, the understanding of GAD’s epidemiology, clinical profile and comorbidity remains significantly concentrated towards Western population or other highly resourced populations.

The Mizo population, categorized under Scheduled Tribes in India, provides an important demographic information as to how GAD may interact with various factors in an underrepresented yet clinically relevant population. In such a community where there is historical marginalization, limited access to healthcare and sociocultural barriers that complicate treatments, the need for localized and data-driven information becomes even more crucial.

By elucidating the patterns of comorbidity among adults with GAD, this research aims to inform clinicians and policymakers about the multifaceted nature of anxiety disorders. It will highlight the necessity for integrated treatment approaches that address both anxiety and its associated conditions, ultimately improving health outcomes and quality of life for affected individuals. Furthermore, this study seeks to contribute to the broader discourse on mental health by advocating for increased awareness and resources dedicated to the management of GAD and its comorbidities, thereby fostering a more informed and supportive societal response to mental health issues.

The current study investigates the complex comorbidity patterns associated with Generalized Anxiety Disorder (GAD) among adults, particularly within the context of physical illness. GAD is a chronic psychological condition characterized by excessive and uncontrollable worry that significantly impairs daily functioning (American Psychiatric Association, 2013). Importantly, GAD often co-occurs with a variety of other psychological disorders, including post-traumatic stress disorder (PTSD), obsessive-compulsive disorder (OCD), insomnia, depression, eating

disorders, and substance abuse. Moreover, GAD is frequently comorbid with physical health conditions such as cardiovascular disease, gastrointestinal problems, and chronic pain (Hoffman et al., 2008; Sareen et al., 2006). The interaction between psychological disorders and physical illness creates a complex matrix of symptoms, which may exacerbate individual distress and burden the healthcare system.

In the Indian context, there is a paucity of region-specific data examining the co-occurrence of GAD with other psychiatric and physical health conditions. Cultural stigma surrounding mental health, limited access to care, and under-diagnosis further complicate the identification and management of comorbid psychological disorders (Kermode et al., 2009). Therefore, a comprehensive understanding of comorbidity patterns among adults with GAD, especially those who are also coping with physical illnesses, are essential to guide clinical interventions, mental health education, and integrated care practices.

This study adopts a comparative, correlational research framework involving three distinct patient groups: (i) GAD patients with physical illness (GPI), (ii) GAD patients without physical illness (GP), and (iii) patients with physical illness but without GAD (PI). The objective is to assess and compare levels of psychological comorbidities—specifically PTSD, OCD, insomnia, depression, eating disorders, and substance abuse—across these groups. These specific disorders have been selected based on evidence suggesting their high co-occurrence with GAD and their substantial impact on health-related quality of life (Kessler et al., 2005; Blanco et al., 2010).

The overarching purpose of this research is to examine the presence, severity, and interrelationships of multiple psychiatric symptoms among adults diagnosed with GAD and to explore how the presence of physical illness influences these comorbid conditions. Understanding these patterns is essential for developing targeted, culturally appropriate interventions in both primary care and mental health settings. The study also aims to contribute to the growing body of literature emphasizing the need for integrated biopsychosocial models in the treatment of anxiety disorders (Barlow, 2002).

So even though much research has been done on anxiety but the co-morbidity is underestimated, and they are not yet done in the targeted population of the study. On these counts, to meet the research gap, the present study was framed to study the following:

Objectives:

On the outcome of reviewed of literature available about the comorbidity of generalized anxiety in other population, the study was aimed to observe the following:

1. To examine levels of PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse for three groups of patients (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP), and (iii) Patients having Physical Illness without GAD (PI).
2. To examine any significant difference between i) GAD Patients with physical illness (GPI), and (ii) GAD Patients without physical illness (GP) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.
3. To determine any significant difference between i) GAD Patients with physical illness (GPI), and (ii) Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.
4. To examine any significant difference between (i) GAD Patients without physical illness (GP) and (ii) Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.
5. To study the relationship between PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse among the samples.

First objective is grounded in the understanding that both GAD and physical illnesses are independently associated with an increased risk of psychiatric

comorbidities. By comparing these three groups, the study aims to identify whether the presence of physical illness intensifies the psychological symptom burden among GAD patients.

Second objective seeks to determine whether having a physical illness contributes to a statistically significant variation in the psychological profiles of GAD patients. It is hypothesized that GAD patients with coexisting physical health conditions will show elevated scores on comorbidity scales, reflecting more complex clinical needs.

Third objective aim is to evaluate whether psychological symptoms are unique to GAD or can also be observed in individuals with chronic physical illnesses in the absence of GAD. This comparison will help to clarify whether GAD acts as a mediating or amplifying factor in the expression of other psychiatric symptoms.

Fourth Objective is to test the specificity of GAD in influencing comorbid psychiatric symptoms, independent of physical illness. It allows for further clarification of the unique role GAD plays in the manifestation of psychological distress.

Fifth Objective is to evaluate the correlation among these variables, the study seeks to understand the interplay between different forms of psychological distress in adults with or without GAD and/or physical illness. Identifying significant relationships among these comorbidities will enhance our understanding of the clustering of psychopathologies and may inform diagnostic and therapeutic approaches.

Conceptual Rationale

The selection of psychological conditions under investigation is based on theoretical and empirical associations with GAD. PTSD and OCD, for example, share symptomatology involving hyperarousal, intrusive thoughts, and avoidance behaviours, all of which are common in individuals with GAD (Brown et al., 2001). Similarly, insomnia is a well-documented symptom in anxiety disorders and may

also serve as a bidirectional contributor to psychological distress (Riemann et al., 2010). Depression, one of the most frequently co-occurring disorders with GAD, often complicates treatment outcomes and worsens functional impairment. Meanwhile, disordered eating and substance use are behavioural expressions of maladaptive coping, frequently observed in those suffering from chronic anxiety (Grilo et al., 2009; Kushner et al., 2000).

Furthermore, this study adopts a biopsychosocial framework, recognizing the interdependence of biological vulnerability, psychological patterns, and socio-environmental stressors. Comorbid conditions may arise due to shared genetic predispositions, dysregulation of the hypothalamic–pituitary–adrenal (HPA) axis, chronic stress exposure, or ineffective coping strategies. Physical illness can further exacerbate psychiatric symptoms through biological pathways (e.g., inflammation, chronic pain) and psychosocial mechanisms (e.g., disability, stigma).

Clinical and Public Health Implications

Findings from this study have the potential to inform multidisciplinary care pathways, particularly in community health and primary care settings where both physical and psychological conditions are managed. Enhanced understanding of comorbidity patterns can guide screening procedures, treatment prioritization, and the development of integrative mental health programs. For example, nurses and mental health professionals may be trained to use brief, validated tools such as the GAD-7, PTSD-8, PHQ-9, and WHO-ASSIST to identify high-risk individuals and refer them for further care.

Moreover, insights gained from the study could contribute to policy recommendations advocating for holistic mental health services that address both psychological and physical needs, particularly in resource-limited settings.

In summary, this study aims to dissect the comorbidity landscape of GAD among adults, with a particular focus on the interaction between physical illness and psychiatric symptoms. Through a combination of comparative and correlational

analyses, the study will provide valuable data on how GAD modifies the severity and presence of comorbid psychological conditions. The research is expected to bridge critical gaps in understanding, support evidence-based interventions, and ultimately improve the mental health outcomes of adults living with GAD and related disorders.

Hypothesis:

To meet the objectives framed for the present study, the following hypotheses were outlined, as follow:

1. There is a significant difference between the levels of PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse for three groups of patients (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP) (iii) Patients having Physical Illness without GAD (PI).
2. There is a significant difference between i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.
3. There is a significant difference between i) GAD Patients with physical illness (GPI), (ii) Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.
4. There is a significant difference between (i) GAD Patients without physical illness (GP) (ii) Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.
5. There is a positive relationship between PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse among the samples.

The present study to examine the comorbidity of Generalized Anxiety Disorder among Adults - the methods and procedure of the study was presented in the next chapter.

CHAPTER – IV

RESEARCH METHOD AND PROCEDURES

Methodology of research are the techniques researchers use to structure a study and to gather and analyze information relevant to the research question. (Polit and Beck 2012). This chapter describes the details of methodology adopted for the study. The methodology of research indicates the general pattern for organizing the procedures for gathering valid and reliable data for the study. It includes research approach, research design, settings of the study, study population, sample size and sampling technique, criteria for selection of sample, procedure for data collection and plan for data analysis.

The aim of present study is to find out the Comorbidity of Generalized Anxiety Disorder patient. Research methodology provides the foundational framework that guides the systematic collection, analysis, and interpretation of data. This chapter outlines the procedures and strategies adopted to investigate the comorbidity patterns of Generalized Anxiety Disorder (GAD) among adults, focusing on its association with selected psychological disorders—namely post-traumatic stress disorder (PTSD), obsessive-compulsive disorder (OCD), insomnia, depression, eating disorders, and substance abuse—and the role of physical illness in modulating these relationships.

The methodology of this study has been carefully designed to ensure the rigor, validity, and reliability of findings. The research employed a quantitative, comparative, and correlational design to examine differences and relationships among psychological comorbidities across three distinct adult groups: (i) GAD patients with physical illness, (ii) GAD patients without physical illness, and (iii) patients with physical illness but without GAD. This design was chosen to allow for meaningful comparisons and generalizations regarding comorbid patterns and their potential contributing factors.

Given the sensitive nature of psychological research, particularly in the context of mental health and physical illness, ethical considerations, appropriate sampling techniques, culturally validated tools, and a structured approach to data collection and analysis were prioritized. Standardized psychometric instruments were employed to ensure that the constructs of interest—such as anxiety, trauma,

obsessive-compulsive behaviours, sleep disturbances, mood dysregulation, eating pathology, and substance involvement—were measured with accuracy and consistency.

This chapter elaborates on the research design, population and sample, sampling technique, inclusion and exclusion criteria, tools used for data collection, procedure for data gathering, statistical techniques applied, and ethical safeguards undertaken throughout the study. By following a systematic methodological approach, the study aims to produce reliable and actionable insights into the co-occurrence of GAD and other psychological and physical health issues among adults.

Research approach

The present study adopts a quantitative research approach to explore the comorbidity of Generalized Anxiety Disorder (GAD) with selected psychological and physical health conditions among adults. Quantitative research is characterized by the objective measurement and statistical analysis of variables, allowing researchers to examine relationships, make comparisons, and test hypotheses in a systematic and empirical manner (Creswell & Creswell, 2018).

This approach was chosen due to its suitability in identifying significant patterns and associations among multiple psychological variables such as PTSD, OCD, insomnia, depression, eating disorders, and substance use. Furthermore, it allows for the comparison of symptom severity and comorbidity patterns across three predefined groups:

- i) GAD patients with physical illness (GPI),
- ii) GAD patients without physical illness (GP), and
- iii) Patients with physical illness but without GAD (PI).

By using a structured set of standardized tools and statistically testing the differences between these groups, the quantitative approach provides objective

evidence regarding the impact of GAD and physical illness on comorbid psychological conditions.

Additionally, the study follows a comparative and correlational research design within the quantitative framework. The comparative component enables the researcher to detect significant differences in comorbidity levels among the three groups, while the correlational component investigates the strength and direction of relationships among the various psychological disorders under study. This dual strategy ensures that the research captures both group-level differences and inter-variable associations.

Overall, the quantitative approach enhances the precision, generalizability, and replicability of the findings. It also supports evidence-based decision-making in clinical and mental health settings, especially for developing integrated care strategies targeting adults with GAD and related comorbidities.

Research Design

The design of the present study is a Correlational study, three groups :

- (i) GAD patients with physical illness (GPI),
- (ii) GAD patients without physical illness (GP), and
- (iii) Patients with physical illness but without GAD (PI) were compared on GAD likely high co- morbidity such as PTSD, OCD, insomnia, depression, eating pathology, and substance use.

By comparing these groups, the research aims to determine whether the presence of GAD and/or physical illness contributes significantly to the prevalence and severity of comorbid psychological symptoms.

This study employed a correlational research design to examine the relationships between generalized anxiety disorder (GAD) and various psychological and physical health comorbidities among adults. Correlational studies are non-

experimental investigations that assess the degree and direction of association between two or more variables without manipulation (Polit & Beck, 2021). This approach was deemed appropriate given the objective of the research—to determine the extent to which GAD symptoms are associated with comorbid psychological conditions (e.g., depression), physical health status, and socio-demographic variables.

A correlational design is employed to investigate the strength and direction of relationships among the psychological variables across the entire sample. This aspect of the design facilitates the understanding of how disorders such as PTSD, OCD, insomnia, depression, eating disorder and substance use may co-occur and interrelate in adults, regardless of group affiliation. This is particularly relevant for identifying clusters of symptoms and informing integrated intervention models.

The design is non-experimental in nature, as it does not involve manipulation of variables or random assignment. Instead, it relies on standardized psychometric instruments and statistical methods to observe naturally occurring differences and associations among variables. This makes it ethically appropriate and methodologically sound for studying mental health conditions in real-world clinical and community populations.

Furthermore, this design enables both cross-sectional assessment—capturing data at a single point in time—and comparative analysis across different subgroups of adults. Such a design is efficient for examining group-level differences and inter-variable associations without requiring longitudinal follow-up, which may be resource-intensive and impractical for the present study.

By integrating comparative and correlational components, this research design offers a comprehensive and robust framework for achieving the study's objectives, testing the formulated hypotheses, and contributing valuable data to the understanding of GAD comorbidities in adult populations.

The correlational design allows for the analysis of naturally occurring relationships among variables in different subgroups. In this study, three distinct comparison groups were established to investigate correlations within and across clinically defined categories. The groups were based on the presence or absence of GAD but with physical illness. The three groups included: (i) GAD patients with physical illness (GPI), (ii) GAD patients without physical illness (GP), and (iii) patients with physical illness but without GAD (PI).

Each group consisted of 120 participants, making a total sample size of 360 adults aged between 30 and 50 years. The correlational framework enabled the researcher to assess how GAD severity relates to other variables such as depression scores (PHQ-9), physical comorbidity burden (measured using the Physical Comorbidity Index), and socio-demographic characteristics (e.g., age, education, occupation).

Pearson's product-moment correlation coefficient (r) was used to assess the linear relationships between continuous variables, while Spearman's rank correlation coefficient (ρ) was employed for non-parametric data. This statistical approach helped identify both the strength and direction of associations—positive, negative, or no correlation.

This methodology aligns with previous research indicating strong positive correlations between GAD and depressive symptoms (Spitzer et al., 2006), as well as associations between GAD and chronic medical conditions (Kessler et al., 2005). The correlational study design was chosen not to infer causality but to highlight patterns of co-occurrence and mutual influence among the studied variables.

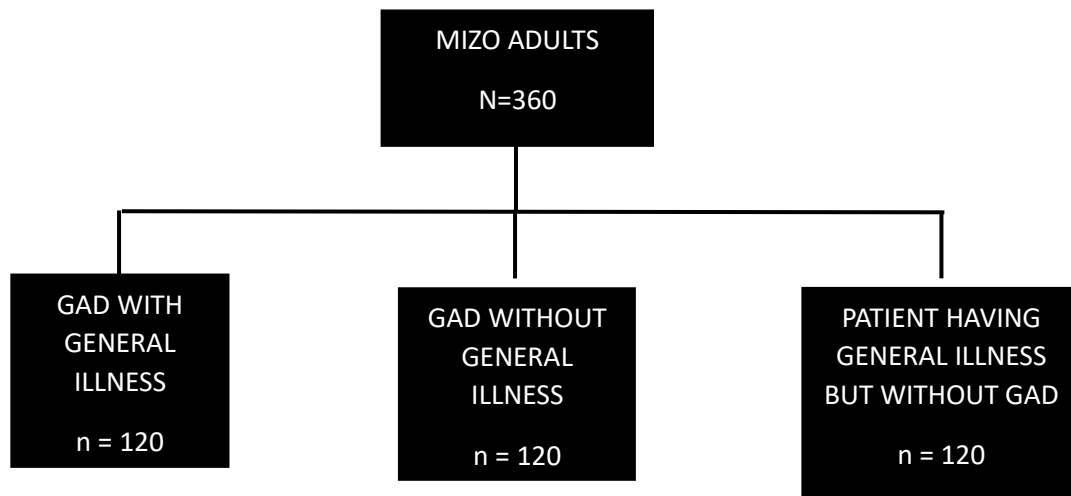


Figure 1: Diagram representing the design of the study

Setting of the study

The study was conducted in both clinical and community-based settings to ensure representation of diverse adult populations affected by Generalized Anxiety Disorder (GAD), with and without comorbid physical illnesses. These settings were selected based on their accessibility, relevance to the study objectives, and potential to yield participants from the three target groups: (i) GAD patients with physical illness (GPI), (ii) GAD patients without physical illness (GP), and (iii) patients with physical illness but without GAD (PI).

i) Clinical Settings

Participants were recruited from outpatient departments (OPDs) and inpatient wards of government and private hospitals, particularly from the psychiatry and general medicine units. These departments commonly encounter patients presenting with both psychological symptoms (such as anxiety, depression, or insomnia) and chronic physical illnesses (such as hypertension, diabetes, gastrointestinal disorders, and chronic pain conditions). Clinical settings enabled access to individuals with clinically diagnosed GAD, as well as those with physical illness and comorbid psychological distress.

Mental health professionals, including psychiatrists and clinical psychologists, assisted in identifying eligible participants based on clinical assessments and referral. This setting was particularly suitable for recruiting individuals who had received a formal diagnosis of GAD and/or other psychological conditions, ensuring diagnostic accuracy and clinical validity.

ii) Community Settings

To include individuals who may not have sought or received clinical care, the study also involved data collection from community health centres, urban and rural primary health care units, and general population outreach programs. Community-based recruitment helped identify participants who may experience subclinical symptoms of GAD, or who suffer from physical health conditions but remain undiagnosed for psychological comorbidities. These settings contributed to a more comprehensive and ecologically valid understanding of comorbidity patterns among adults in naturalistic, non-clinical environments.

Outreach efforts were coordinated with the support of community health workers, local NGOs, and primary care nurses, who facilitated participant engagement and trust, especially in rural or underserved areas. Care was taken to guarantee that individuals from both urban and rural settings were included, allowing for a more nuanced understanding of geographic and sociodemographic influences on GAD and comorbidities.

Rationale for Multi-setting Approach

Employing both clinical and community settings allowed for:

1. Greater heterogeneity of the sample, enhancing generalizability of findings.
2. Access to individuals across varying stages of illness, from undiagnosed or subclinical cases to formally diagnosed and treated individuals.
3. Cultural and socioeconomic diversity, including participants from different educational, occupational, and residential backgrounds.
4. Reduction in selection bias by including both treatment-seeking and non-treatment-seeking populations.

All settings were chosen with attention to ethical standards, participant safety, confidentiality, and logistical feasibility. Necessary permissions were obtained from institutional authorities, and data collection procedures were standardized across locations to ensure consistency and comparability.

Sampling technique

The present study employed a random sampling technique as far as possible but also utilized a purposive sampling technique to select participants who met the specific inclusion criteria related to Generalized Anxiety Disorder (GAD), physical illness, or both. Because purposive sampling, a type of probability sampling, was chosen because it allows the researcher to deliberately select individuals who are especially knowledgeable about or experienced with the phenomena under investigation (Etikan, Musa, & Alkassim, 2016). This method is appropriate for clinical and psychological research where the aim is to gain in-depth understanding of particular subgroups rather than to generalize findings to the wider population.

Rationale for Using Purposive Sampling

Given the study's focus on comorbidity patterns among adults with GAD and/or physical illnesses, it was essential to identify individuals who:

- i) Have a confirmed clinical diagnosis of GAD, with or without physical illness;
- ii) Have a physical illness without a diagnosis of GAD;
- iii) Fall within the defined age range of 30 to 50 years;
- iv) Are capable of responding to standardized psychometric tools in English or a translated local language.

These criteria could not be met through random sampling methods, as the probability of randomly identifying individuals across all three required categories (GPI, GP, and PI) would be low and impractical within the timeframe and resource constraints of the study.

Sampling Procedure

Participants were enlisted from both clinical and community settings, as outlined in the prior section. With the assistance of healthcare professionals, including psychiatrists, psychologists, physicians, and nurses, eligible participants were screened and selected based on the following:

- i) Diagnostic history or clinical presentation (for GAD and/or physical illness);
- ii) Willingness and ability to participate;
- iii) Provision of informed consent.

The purposive sampling procedure ensured balanced representation across the three groups:

Group 1 (GPI): Adults diagnosed with GAD and one or more physical illnesses;

Group 2 (GP): Adults diagnosed with GAD but without any physical illness;

Group 3 (PI): Adults diagnosed with physical illness but without GAD.

Each group consisted of both male and female participants, and efforts were made to include individuals from diverse educational, occupational, and residential backgrounds.

Limitations of the Sampling Technique

While purposive sampling is effective for studies with clearly defined populations and objectives, it does present certain limitations:

- i) It lacks randomization, which may reduce the generalizability of findings to the broader population.
- ii) There is a risk of selection bias, as participants are chosen based on the researcher's judgment and clinical referrals.
- iii) The sample may not fully represent undiagnosed individuals or those who avoid formal healthcare systems due to stigma or access barriers.

Despite these limitations, purposive sampling remains a valid and widely accepted method in clinical and psychological research, particularly when the aim is to explore specific phenomena such as comorbid disorders in adults with GAD.

Sample Size

A total of 360 participants were targeted for the main study, equally divided among the three groups (i.e., 120 participants in each group). This distribution allowed for robust group-wise comparison and statistical analysis to test the study's hypotheses.

Strengths of the Sampling Technique

- i)** Enabled the inclusion of clinically relevant subgroups for targeted comparison.
- ii)** Supported the study's goal of analyzing comorbidity patterns in specific populations.
- iii)** Ensured that participants met specific diagnostic and demographic criteria critical to the research objectives.
- iv)** Allowed for efficient use of available resources, particularly within hospital and community settings.

Sample

In this study, the main objectives were to determine the co-morbidity of Generalized Anxiety Disorders (GAD). A total of 360 samples were included, consisting of three comparison groups:

- (i) 120 sample of GAD with physical illness
- (ii) 120 of GAD without physical illness,
- (iii) 120 Patients with a physical illness but without GAD, within the age range of 30-50 years.

Each group {(i) male GAD with physical illness (60 female GAD and 60 male GAD without physical illness), (ii) GAD without physical illness (60 male and 60 female patients), and 120 patients with a physical illness but without GAD (60 male and 60 female)}. Efforts were made to control other extraneous variables as far as possible.

The study was conducted in both clinical and community-based settings to ensure representation of diverse adult populations affected by Generalized Anxiety

Disorder (GAD), with and without comorbid physical illnesses. These settings were selected based on their accessibility, relevance to the study objectives, and potential to yield participants from the three target groups: (i) GAD patients with physical illness (GPI), (ii) GAD patients without physical illness (GP), and (iii) patients with physical illness but without GAD (PI).

Criteria for Selection of Sample:

Inclusion Criteria:

1. Diagnosed with Generalized Anxiety Disorder.
2. Aged 30 years to 50 years.
3. Diagnosed with comorbid physical illnesses
4. Willing to participate in the study

Exclusion Criteria:

1. Patients with severe mental illness.
2. Individuals with severe cognitive impairment or intellectual disabilities.
3. Individuals under psychiatric medication with heavy sedation during the time of survey.
4. Individuals unwilling or unable to give informed consent.

Procedure:

To ensure the accurate measurement of psychological and physical health variables among adults with and without Generalized Anxiety Disorder (GAD), standardized and validated tools were selected based on their psychometric properties and relevance to the study objectives. The process of tool collection, adaptation, translation, and pilot testing was conducted in accordance with established research guidelines (Polit & Beck, 2021).

The researcher prepared a specific proforma for collecting demographic details of participants to be used for the present study. The identification of the sample was done following simple random sampling procedures from Kulikawn hospital for selection of person with GAD (for both 60 male and 60 female patients); whereas selection for the non- GAD patients was screened with the help of DSM-V and GAD-7, and the Socio-demographic profiles were employed for selected samples

in trying to match the person with GAD. After the identification of the samples was done, the researcher informed all about the purpose of the study, and the psychological scales to the identified samples, and then necessary permission was taken from authorities and the concerned participants. Then, the administration of the psychological scales and interview was conducted by strictly following APA research ethics (2000, 2016) and prescribed manual of the tests; all doubts were clarified, confidentiality were maintained, and checking of responses was also done and end with vote of thank from the researcher.

About the Psychological Tools Used:

The following psychological scale were used to identify the comorbidity of the Generalized Anxiety (GAD) Patients:

- i) ***The Socio Demographic Questionnaire (Biaknungi, 2021)***: This instrument was designed by the researcher to elicit demographic information of the participants and it included questions concerning the participant's gender, age, and the major health problem.
- ii) ***Informed Consent form (Biaknungi, 2021)***: The constructed by researcher to inform about the purpose of the study, responsible person, time taken, voluntary participation, free to leave at any time, etc. then, to get participants written consent for participation in the study.
- iii) ***The Semi Structured Interview Questionnaire for patient (Biaknungi, 2021)***: This instrument was designed to elicit descriptive data from the respondents with regards to the other illness that they have along with the Generalized anxiety disorders.
- iv) ***The Post-traumatic Stress Disorder Scale*** (Hansen et al., 2010): Modified form of PTSD-8 scale was used to identify patients who are having Posttraumatic Stress Disorder. The PTSD-8 is derived from the first sixteen items of the Harvard Trauma Questionnaire (HTQ), which corresponds to the DSM-IV criteria for PTSD (Hansen, Andersen, Armour, Elkit, Palic & Mackril, 2010). This scale is a Likert scale consisting of eight items which are rated on four point scale.

Severity Interpretation: 0–7: Minimal symptoms; 8–15: Mild to moderate symptoms; 16–24: Probable PTSD (clinical level symptoms)

v) ***Obsessive Compulsive Test:*** The Yale Brown OCD Scale (YBOCS; Goodman et al., 1989) was used to identify Obsessive Compulsive disorder in the patient. This is a likert scale consisting of 10 questions and if the patient have scored: 8-15 = Mild OCD; 16-23 = Moderate OCD; 24-31= Severe OCD; 32-40 = Extreme OCD.

vi) ***Insomnia Severity test:*** The Insomnia severity Index (Bastien et al., 2001) was used to test the severity of the Insomnia in the patients. This test consisted of 7 questions. The score will be evaluated as: 0–7 = No clinically significant insomnia; 8–14 = Subthreshold insomnia; 15–21 = Clinical insomnia (moderate severity); 22–28 = Clinical insomnia (severe).

vii) ***Depression Scale:*** To assess the depressive level of the patient, PHQ-9 depression questionnaire (Kroenke et al., 2001) was used. This likert scale consisted of 9 questions and it will be interpreted as follows - 0-4 none, 5-9 mild, 10-14 moderate, 15-19 moderately severe, 20-27 severe.

viii) ***Eating disorder assessment scale:*** Modified version of Eating Disorder examination questionnaire (EDE-Q 6.0; Fairburn & Beglin, 2008) was used to identify eating problems in the patients. It is a likert scale consisting of 12 questions which assessed the eating behaviour of the patient for past 28 days. ***Interpretation of Scores:*** Global Score: 0–1: Minimal or no clinical concerns; 2–3: Mild concerns, may indicate subclinical or emerging eating disorder symptoms; 4–6: Moderate to severe concerns, suggesting clinically significant eating disorder symptoms. ***Subscales:*** Scores close to 6 indicate severe issues specific to that domain (e.g., high Restraint may suggest rigid dieting behaviours).

In many studies, a global score of 4.0 or higher is used to identify individuals who may warrant further evaluation for an eating disorder.

ix) ***Substance abused disorder:*** To identify substance abused disorder and to identify the substance that they are abusing WHO-ASSIST V3.0 (WHO, 2010) questionnaire was used. Score Ranges and Interpretation - 0-3 (Alcohol) or 0-10 (Other Substances): Indicates low risk of health and other

problems from substance use. No further intervention is typically needed, but continues to monitor. 4-26 (Alcohol) or 11-26 (Other Substances): Indicates moderate risk of health and other problems from substance use. A brief intervention is recommended to help reduce substance use and prevent escalation. 27+ (All Substances): Indicates high risk and suggests a likelihood of substance use disorder. Referral for a more detailed assessment and possibly specialist treatment is recommended.

- x) **GAD-7:** To confirm the patients that they are really having Generalized Anxiety Disorder (Spitzer et al., 2006), GAD-7 will be administered. In this scale, there are 7 questions and the score were interpreted as: 0–4: minimal anxiety; 5–9: mild anxiety; 10–14: moderate anxiety; 15–21: severe anxiety.

Permission for Use

In this study titled “Generalized Anxiety Disorder: Comorbidity Among Adults,” several standardized and widely recognized assessment tools were used to evaluate comorbid psychological conditions including depression, insomnia, post-traumatic stress, obsessive-compulsive symptoms, substance use, and eating disorders. Prior to administration, each tool was reviewed for copyright status, permission requirements, and licensing for non-commercial academic research. The following section outlines the permission status for each instrument used:

1. ***Generalized Anxiety Disorder 7-Item Scale (GAD-7).*** Developed by Spitzer et al. (2006), the GAD-7 is a public domain tool used to screen and assess the severity of generalized anxiety disorder. It is available for free for non-commercial academic use and does not require formal permission for use in thesis research, provided it is cited properly.
2. ***Patient Health Questionnaire-9 (PHQ-9);*** The PHQ-9 is part of the PHQ family of tools developed by Kroenke et al. (2001). It is in the public domain and freely available for non-commercial academic and clinical use, requiring no special permission for inclusion in research studies.

3. ***PTSD-8 Scale***; The PTSD-8 (Hansen et al., 2010) is a short screening tool derived from the Harvard Trauma Questionnaire (HTQ). It has been made available for research purposes and can be used freely in academic studies. Though formal permission may not be necessary, citation of the original source and proper acknowledgment are required.
4. ***Yale-Brown Obsessive Compulsive Scale (Y-BOCS)***; The Yale-Brown Obsessive Compulsive Scale (Y-BOCS), developed by Goodman et al. (1989), is copyrighted by Yale University. While academic use is often permitted for non-commercial research, the tool typically requires formal permission or licensing from the copyright holders or their representatives. In this study, the scale was used strictly for academic purposes, and appropriate citation was provided.
5. ***Insomnia Severity Index (ISI)***; The ISI, developed by Morin (1993), is commonly used in academic and clinical research and is available without charge for non-commercial research purposes. It is published in peer-reviewed journals and available online. Permission was not required for academic use, but appropriate citation was ensured.
6. ***Eating Disorder Examination Questionnaire (EDE-Q)***; The EDE-Q is a widely used self-report version of the Eating Disorder Examination interview, developed by Fairburn & Beglin (2008). It is freely available for non-commercial research with appropriate referencing, but users are required to acknowledge its source.
7. ***WHO-ASSIST Version 3.0***; The WHO (2003) Alcohol, Smoking and Substance Involvement Screening Test (ASSIST V3.0) is published and distributed by the World Health Organization and is in the public domain for research and public health use. No licensing is required for academic use.
8. ***Socio-Demographic Data Sheet***: A structured socio-demographic data sheet was developed by the researcher (Biaknungi, 2021) specifically for this study to gather relevant background variables such as age, gender, marital status, educational qualification, occupation, income, religion, and rural/urban residence. As an original, self-constructed tool,

it does not require external permission. Content validity was ensured through review by a panel of subject experts in psychiatric nursing and psychology.

9. *Informed Consent form (Biaknungi, 2021)*: inform consent was constructed for the participant which included, the purpose of the study, what is measures, time taken, expected participation, voluntary involvement, assurance of confidentiality on personal inform of the participants, and request for written consent for participation in the study.

Validity for the scales

Validity refers to the extent to which a research tool or procedure accurately measures what it is intended to measure (Polit & Beck, 2021). In the present study, validity was ensured at multiple levels to strengthen the quality, credibility, and applicability of the findings. Given that the research investigates the comorbidity of Generalized Anxiety Disorder (GAD) with other psychological and physical health conditions, it was crucial to ensure that all instruments used were psychometrically sound and culturally appropriate for the study population.

Content Validity

Content validity was established through an extensive review of existing literature and consultation with subject matter experts in psychiatry, clinical psychology, and psychiatric nursing. Each instrument selected for this study was assessed for its ability to cover the full range of symptoms and dimensions relevant to the constructs under investigation—namely GAD, PTSD, OCD, depression, insomnia, eating disorders, and substance use.

Construct Validity

Construct validity refers to how well an instrument measures the theoretical construct it is intended to assess. All psychological tools used in this study were standardized instruments with well-established construct validity based on prior empirical studies.

Criterion Validity

Criterion validity, specifically concurrent validity, was supported by the fact that many of the participants had been clinically diagnosed by psychiatrists or general physicians prior to data collection. Their clinical diagnoses served as a benchmark for validating the screening instruments administered during the study. A strong alignment between clinical diagnosis and the participants' scores on standardized tools reinforced the criterion validity of the instruments.

Face Validity

Face validity refers to the extent to which the instruments appear to measure what they claim to, from the perspective of respondents. All tools used in the study were easy to understand and relevant to the symptoms experienced by the participants. Prior to full data collection, a **pilot study** was conducted with a small group of participants to assess the face validity of the instruments. Feedback from the pilot sample confirmed that the questions were clear, appropriate, and reflective of their mental health experiences.

Ecological Validity

Ecological validity was ensured by conducting the study in naturalistic settings, including hospital outpatient departments, community clinics, and rural health centres. This allowed the collection of data from real-world contexts, enhancing the generalizability and applicability of the findings to practical clinical and public health scenarios.

The tools used for the study, namely: (i) GAD-7 for Generalized Anxiety Disorder, (ii) PTSD-8 for Post-Traumatic Stress Disorder, (iii) Yale-Brown Obsessive Compulsive Scale (Y-BOCS) for OCD, (iv) Insomnia Severity Index (ISI) for sleep disturbances, (v) PHQ-9 for Depression, (vi) Eating Disorder Examination Questionnaire (EDE-Q), and (vii) WHO-ASSIST V3.0 for substance use have undergone extensive validation in both Western and non-Western populations and have demonstrated strong psychometric properties such as factor structure, internal consistency, and convergent validity. Where validated regional translations were

available, they were used to maintain linguistic accuracy and cultural appropriateness.

<i>Tool</i>	<i>Type of Validity Established</i>	<i>Source/Reference</i>
GAD-7	Content, Construct, Criterion	Spitzer et al. (2006)
PTSD-8	Construct, Criterion	Hansen et al. (2010)
Y-BOCS	Content, Construct	Goodman et al. (1989)
ISI	Construct, Criterion	Bastien et al. (2001)
PHQ-9	Content, Construct, Criterion	Kroenke et al. (2001)
EDE-Q	Construct, Face	Fairburn & Beglin (2008)
WHO-ASSIST V3.0	Construct, Content, Cultural Validity	WHO (2003)

Table 1: Instrument Validity Summary Table

In conclusion, multiple types of validity were addressed in the design and execution of this study. By using standardized, validated instruments and implementing expert review and pilot testing, the research ensured that the tools used were both scientifically robust and contextually appropriate for the study population. This enhances the reliability and trustworthiness of the results and contributes to the overall rigor of the study.

Reliability

Reliability refers to the consistency, stability, and repeatability of a measurement instrument over time and across different populations (Polit & Beck, 2021). A reliable tool ensures that the data collected are dependable and not influenced by random errors or inconsistencies in administration. In this study, ensuring reliability was critical to accurately assess the comorbidity of Generalized Anxiety Disorder (GAD) with psychological conditions such as PTSD, OCD, insomnia, depression, eating disorders, and substance use among adults.

Internal Consistency in the Current Study

To ensure the reliability of the tools in the current sample population, Cronbach's alpha coefficients were computed after pilot testing. The pilot study involved a subset of participants ($n = 30$) who were selected to represent the diversity of the target population. All scales demonstrated high internal consistency in this sample as well, with alpha values exceeding the minimum acceptable threshold of 0.70 (Nunnally & Bernstein, 1994). This suggests that the items within each scale measured the same underlying construct consistently across the sample.

Test Administration and Scoring Consistency

To minimize variability in data collection, all instruments were administered under standardized conditions. Trained mental health professionals and research assistants followed a uniform protocol to ensure consistency in:

- i) Instructions given to participants,
- ii) Scoring procedures, and
- iii) Interpretation of responses.

The use of self-administered and interviewer-assisted formats was carefully managed to avoid introducing bias, especially among participants with literacy challenges. Any clarifications provided were standardized across interviewers to reduce measurement error.

Pilot Testing for Instrument Reliability

As part of the preparatory phase, a pilot study was conducted to:

- i) Assess the feasibility of tool administration.
- ii) Identify potential issues in comprehension.
- iii) Confirm the reliability of the tools in the local context.
- iv) Feedback from pilot participants and preliminary analysis further validated the instruments' reliability in the cultural and linguistic context of the study setting.

Control for Bias and Error

To enhance reliability and control for possible sources of error, the following strategies were employed:

- i) Use of pre-validated instruments with established psychometric properties,
- ii) Standardized data collection protocols, including setting, timing, and instructions,
- iii) Training of data collectors to ensure uniformity in administration,
- iv) Cross-checking of responses for inconsistencies or incomplete entries,
- v) Use of objective scoring guidelines to reduce subjective interpretation.

Reliability of Standardized Tools

All the instruments used in this study are standardized, psychometrically validated scales with established reliability coefficients reported in previous research. These tools have demonstrated strong internal consistency (Cronbach's alpha), test-retest reliability, and inter-rater reliability across diverse populations and clinical settings.

Below is a summary of the reliability coefficients of each instrument:

<i>Instrument</i>	<i>Psychological Construct Measured</i>	<i>Reported Cronbach's Alpha</i>	<i>Source</i>
GAD-7	Generalized Anxiety Disorder	$\alpha = 0.89-0.92$	Spitzer et al. (2006)
PTSD-8	Post-Traumatic Stress Disorder	$\alpha = 0.82$	Hansen et al. (2010)
Y-BOCS	Obsessive-Compulsive Disorder	$\alpha = 0.87-0.90$	Goodman et al. (1989)
Insomnia Severity Index (ISI)	Insomnia	$\alpha = 0.90$	Bastien et al. (2001)
PHQ-9	Depression	$\alpha = 0.86-0.89$	Kroenke et al. (2001)
EDE-Q 6.0	Eating Disorder	$\alpha = 0.90$ (Global Score)	Fairburn & Beglin (2008)
WHO-ASSIST V3.0	Substance Abuse	$\alpha = 0.80-0.92$ (varies by substance)	WHO (2003)

Table 2: Reliability coefficients of each instrument

These reliability values fall within acceptable to excellent ranges, supporting the use of these instruments in both clinical and community settings.

The reliability of the instruments used in this study was rigorously assessed and confirmed through both literature support and pilot testing. High internal consistency, standardized administration, and appropriate training of field personnel contributed to the collection of stable and trustworthy data. This strong foundation in reliability ensures the robustness of the findings regarding GAD and its comorbid conditions in the adult population.

Pilot Study

Prior to conducting the full-scale research on Generalized Anxiety Disorder: Comorbidity Among Adults, a pilot study was undertaken to assess the feasibility, clarity, and reliability of the instruments, as well as to refine the research methodology. The pilot study aimed to identify potential challenges in tool administration, data collection, and participant understanding, particularly given the complex nature of comorbid psychological and physical health conditions.

The primary objectives of the pilot study were: (i) To evaluate the clarity, cultural appropriateness, and comprehensibility of the research instruments among Mizo adults; (ii) To assess the reliability (internal consistency) of each standardized scale within the sample population, (iii) To test the feasibility of the data collection process in both clinical and community settings; and (iv) To identify logistical challenges and ethical considerations before implementing the full study.

The pilot study adopted a quantitative, cross-sectional, and observational design, consistent with the main research. It employed a comparative and correlational approach to examine differences and relationships between psychological comorbidities across the three pre-defined adult groups.

A total of 30 adult participants (10 per group) were selected purposively for the pilot study:

- i) Group I (GPI): GAD patients with physical illness
- ii) Group II (GP): GAD patients without physical illness

- iii) Group III (PI): Patients with physical illness but without GAD

Inclusion Criteria:

- i) Adults aged 30–50 years.
- ii) Able to read and comprehend the questionnaire or respond orally.
- iii) Diagnosed with GAD and/or physical illness.
- iv) Willing to give informed consent

Exclusion Criteria:

- i) Severe cognitive impairment or psychosis.
- ii) Acute medical crises.
- iii) Non-consenting individuals

The following standardized instruments were used:

1. GAD-7 (Spitzer et al., 2006)
2. PTSD-8 (Hansen et al., 2010)
3. Yale-Brown Obsessive Compulsive Scale (Y-BOCS; Goodman et al., 1989)
4. Insomnia Severity Index (ISI; Bastien et al., 2001)
5. PHQ-9 (Kroenke et al., 2001)
6. EDE-Q 6.0 (Fairburn & Beglin, 2008).
7. WHO-ASSIST V3.0 (WHO, 2003)
8. Socio-demographic Data Sheet (Biaknungi, 2021)
9. Inform Consent form for participants (Biaknungi, 2021)

Data Collection Procedure

The pilot study was carried out over two weeks. Eligible participants were approached in clinics and communities. Data collection took 35–45 minutes per participant. Assistance was given where literacy was limited. Observations were recorded, including participant fatigue, item comprehension, and response behaviour.

Analysis of Pilot Data

Descriptive statistics and Cronbach's alpha were calculated using SPSS. All instruments had alpha values above 0.80, indicating good to excellent internal consistency within the pilot sample.

Participant Feedback and Observations

- i) Items generally well understood
- ii) Clarifications needed for PTSD-8 and WHO-ASSIST in a few cases
- iii) Participants related well to anxiety, depression, and sleep-related items
- iv) Minor fatigue noted with longer tools

Modifications Based on Pilot Findings

- 1) Clarification prompts added
- 2) Tool order adjusted to reduce fatigue
- 3) Enhanced training for data collectors
- 4) Quiet, private data collection environments ensured

Ethical Considerations in the Pilot

Confidentiality was maintained, informed consent obtained, and referrals provided for distressed participants. Participants could withdraw at any time.

Conclusion of the Pilot Study

The pilot confirmed the clarity, reliability, and appropriateness of the tools and methods. Minor adjustments were made based on feedback. The findings validated the study's readiness for full-scale implementation of the study.

Data Collection Method

The data collection method was designed to systematically gather accurate, comprehensive, and ethically sound information from adult participants regarding Generalized Anxiety Disorder (GAD) and its comorbidity with other psychological and physical health conditions. The study employed structured self-report

questionnaires and interviewer-administered surveys using standardized tools to assess symptoms of anxiety, PTSD, OCD, insomnia, depression, eating disorders, and substance use.

Phase 1: Preparatory Phase

Prior to the commencement of data collection, the following steps were undertaken:

Ethical approval was obtained from the Institutional Review Board (IRB) of Mizoram University and concerned healthcare institutions.

Permissions were secured from hospital administrators, community health centres, and other field sites.

Training sessions were conducted for research assistants and interviewers to ensure standardized administration and adherence to ethical protocols.

All instruments were reviewed for linguistic clarity and cultural sensitivity. Regional language versions were used where necessary, employing *translation and back-translation techniques* to preserve content validity.

Phase 2: Participant Recruitment

Participants were selected using purposive sampling based on predefined inclusion and exclusion criteria. Recruitment occurred in both clinical settings (psychiatry and general medicine departments of hospitals) and community settings (urban and rural health centres). Healthcare professionals, including psychiatrists, nurses, and community health workers assisted the researcher in identifying eligible participants.

Interested individuals were briefed about the study objectives, procedures, and ethical safeguards. Those who agreed to participate provided written informed consent before data collection commenced.

Phase 3: Data Collection Procedure

The actual data collection process was carried out over a six-month period. The following procedures were followed to ensure consistency and reliability:

Introduction and Rapport Building: Participants were introduced to the study in a calm and private environment. The researcher or trained assistant explained the study's purpose, the voluntary nature of participation, and reassured confidentiality.

Administration of Socio-Demographic Sheet: A researcher-designed data sheet was administered to collect background information such as age, gender, marital status, education, occupation, area of residence (urban/rural), and history of physical illness or mental health diagnosis.

Psychological Instruments Administration: Each participant completed the following tools in either written or orally administered form, depending on their literacy level:

- 1) Generalized Anxiety Disorder-7 (GAD-7; Spitzer et al., 2006)
- 2) PTSD-8 Scale (Hansen et al., 2010).
- 3) Yale-Brown Obsessive Compulsive Scale (Y-BOCS; Goodman et al., 1989)
- 4) Insomnia Severity Index (ISI; Bastien et al., 2001)
- 5) Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001)
- 6) Eating Disorder Examination Questionnaire (EDE-Q 6.0; Fairburn & Beglin, 2008)
- 7) WHO-ASSIST Version 3.0 (WHO, 2003)

The tools were administered in a fixed sequence, and each session lasted approximately ***35 to 45 minutes***. For illiterate participants or those with limited reading abilities, interviewer-assisted administration was conducted using a ***standardized script*** to prevent interviewer bias.

Observation and Monitoring: During the administration, the researcher monitored participants for signs of fatigue, emotional distress, or confusion. If any such signs

were noted, the participant was given the option to pause, discontinue, or receive psychological support.

Data Verification and Safeguarding: After collection, each questionnaire set was checked for completeness and consistency. Identifiable information was coded, and the data were stored securely with access limited to the primary researcher.

Pilot Study Integration

The full data collection process was informed and refined by the results of a ***pilot study*** conducted prior to the main research. This trial run helped establish optimal tool sequence, administration methods, and appropriate interviewer behaviour for handling sensitive topics like substance use and trauma.

Ethical Safeguards during Data Collection

Confidentiality: Personal identifiers were replaced with codes. All data were stored in password-protected devices and locked filing cabinets.

Voluntary Participation: Participants were informed that they could withdraw at any stage without any consequence to their care or relationship with the institution.

Referral Support: Participants showing signs of significant psychological distress were referred to mental health professionals with their consent.

Data Use and Reporting: All data collected were used exclusively for academic research purposes, and results were reported in aggregate form to protect individual identities.

The data collection method was methodically planned and ethically implemented to ensure high-quality, valid, and reliable data. By combining standardized psychometric assessments, professional training of research staff, and participant-centred ethical procedures, the study was able to capture complex psychological comorbidities associated with GAD among diverse adult populations.

Statistical analysis

The data collected for the present study titled “Generalized Anxiety Disorder: Comorbidity Among Adults” were statistically analyzed using the Statistical Package for the Social Sciences (SPSS) version 29.0. The analyses were conducted to address the research objectives, evaluate the hypotheses, and understand the relationships between generalized anxiety disorder (GAD) and associated physical and psychological comorbidities among adults.

1. *Data Cleaning and Preparation*

Prior to analysis, all data were screened for missing values, outliers, and errors in data entry. Descriptive statistics such as mean, standard deviation, minimum and maximum scores, and skewness and kurtosis were calculated for all continuous variables to assess the normality and distribution. Cases with missing data exceeding 10% were excluded from the final analysis, and appropriate imputation techniques (e.g., mean substitution) were used for datasets with minimal missing values.

2. *Descriptive Statistics*

Descriptive statistics were employed to summarize the socio-demographic characteristics of the participants including age, gender, education level, occupation, marital status, area of residence (rural/urban), and substance use. Measures of central tendency (mean, median) and dispersion (standard deviation, range) were computed for psychological scale scores. Frequency and percentage distributions were presented for categorical variables.

3. *Reliability Analysis*

The internal consistency reliability of the psychological instruments used in the study—including the GAD-7, PTSD-8, Yale-Brown Obsessive Compulsive Scale, Insomnia Severity Index (ISI), PHQ-9, Eating Disorder Examination Questionnaire (EDE-Q), and WHO-ASSIST V3.0—was assessed using Cronbach’s alpha coefficients. A Cronbach’s alpha of $\geq .70$ was considered acceptable for reliability (Nunnally & Bernstein, 1994).

4. *Correlational Analysis*

Pearson's Product-Moment Correlation Coefficient (r) was utilized to explore the bivariate relationships between GAD scores and other mental health measures such as depression (PHQ-9), PTSD symptoms (PTSD-8), insomnia severity (ISI), OCD symptoms (Y-BOCS), eating disorder pathology (EDE-Q), and substance use (WHO-ASSIST V3.0). This analysis helped identify the strength and direction of associations between GAD and comorbid conditions.

In cases where variables did not meet parametric assumptions (e.g., non-normal distribution), Spearman's rho was used as a non-parametric alternative.

5. *Group Comparisons*

Independent samples t-tests and one-way ANOVA were conducted to examine differences in psychological outcomes based on demographic subgroups (e.g., gender, rural vs. urban, occupation). Post-hoc analyses using Tukey's HSD were performed for significant ANOVA results to identify specific group differences.

6. *Regression Analysis*

Multiple linear regression analysis was conducted to determine the predictive value of variables such as depression, PTSD, OCD, substance use, and insomnia severity on GAD scores. Variables were entered using the stepwise method to identify the most significant predictors. Standardized beta coefficients (β), R^2 values, and significance levels (p-values) were reported.

7. *Multivariate Analysis*

To further investigate the combined effect of psychological variables and socio-demographic characteristics on GAD comorbidity, a multivariate analysis of variance (MANOVA) was considered where appropriate. This enabled an understanding of interaction effects across multiple dependent variables simultaneously.

8. *Significance Level*

For all statistical tests, a p-value of $< .05$ was considered statistically significant. Bonferroni corrections were applied when conducting multiple comparisons to control for Type I error.

Ethical Considerations

1. Ethical approval was obtained from the Institutional Human Ethics Committee, MZU.
2. Settings permission was obtained from Kulikawn Hospital.
3. Written informed consent was taken from all participants before data collection after thorough explanation during interactive session.
4. Confidentiality and anonymity of participants were strictly maintained.

Summary

This chapter describes the research methodology adopted for the study. It includes research approach, research design, settings, study population, participants /sample size and sampling technique, criteria for selection of sample, variables under study, data collection procedure, pilot study, ethical consideration and plan for data analysis.

CHAPTER – V
RESULT & DISCUSSION

The present chapter provides a comprehensive analysis and interpretation of the results obtained in this study titled “Generalized Anxiety Disorder: Comorbidity Among Adults.” The primary objective of this chapter is to integrate the statistical findings with existing literature, interpret the significance of the results, and explore their broader implications in nursing, clinical psychology, and public health. The results presented in the preceding chapter form the empirical foundation for this discussion. Through systematic examination and critical analysis, this chapter seeks to highlight the patterns, relationships, and emerging themes that offer deeper insights into the comorbid nature of Generalized Anxiety Disorder (GAD) in adult populations.

Generalized Anxiety Disorder, a chronic and debilitating mental health condition, is frequently found to coexist with a multitude of psychological and physical health issues. The current study attempted to investigate this comorbidity by evaluating the prevalence, severity, and correlation between GAD and several other conditions including depression (using PHQ-9), post-traumatic stress disorder (PTSD-8), obsessive-compulsive symptoms (Y-BOCS), insomnia (Insomnia Severity Index), eating disorders (EDE-Q), and substance use (WHO-ASSIST V3.0). Additionally, the presence or absence of physical illnesses among the participants was examined to understand how these factors contribute to or exacerbate the symptoms of GAD.

This chapter begins by revisiting the research objectives and hypotheses, thereby providing context for the discussion that follows. It then systematically presents the major findings in light of these objectives. Each result is interpreted not in isolation, but in connection with the socio-demographic profile of the participants and existing literature to offer a nuanced understanding of the patterns observed. The integration of both quantitative and qualitative dimensions adds depth to the interpretation, highlighting both the statistical significance and the practical relevance of the findings.

A salient feature of this study lies in its multidimensional approach. By employing a comprehensive battery of validated tools, the study could assess a wide range of comorbid conditions. This approach allows for a holistic understanding of the mental health status of adults living with GAD. Furthermore, the inclusion of socio-demographic variables—such as age, gender, education, occupation, and residential background (rural vs. urban)—aids in contextualizing the findings, revealing potential vulnerabilities and protective factors that may influence the onset and severity of comorbid conditions.

One of the key outcomes of this study was the affirmation of a high comorbidity rate between GAD and depressive symptoms. The PHQ-9 scores indicated that a majority of participants diagnosed with GAD also met the threshold for moderate to severe depression. This finding is consistent with a robust body of literature suggesting that anxiety and depression often co-occur, sharing common etiological and maintenance mechanisms such as maladaptive cognition, avoidance behaviour, and dysregulation in emotional processing. From a nursing perspective, this underscores the need for dual assessment and management protocols in clinical settings, as focusing on GAD alone may leave co-existing depressive symptoms untreated, thereby impeding recovery.

Another noteworthy finding was the significant association between GAD and PTSD symptoms. Participants with high GAD scores also reported elevated levels of trauma-related symptoms as measured by the PTSD-8 scale. This comorbidity highlights the role of past trauma as a potential precipitating or maintaining factor in GAD. This connection calls attention to trauma-informed care approaches in nursing and mental health practice, where patient history is carefully assessed to provide personalized and sensitive care. The overlap between GAD and PTSD symptoms also suggests that therapeutic interventions such as cognitive-behavioural therapy (CBT) and Eye Movement Desensitization and Reprocessing (EMDR) could have cross-diagnostic efficacy.

The results also demonstrated a strong correlation between GAD and symptoms of obsessive-compulsive disorder (OCD) as measured by the Yale-Brown Obsessive Compulsive Scale (Y-BOCS). Individuals with GAD frequently experience ruminative and intrusive thoughts that closely mirror obsessive phenomena. Moreover, compulsive behaviours may emerge as a maladaptive coping mechanism to reduce anxiety. The comorbidity of GAD and OCD has important implications for differential diagnosis and treatment planning. For nurses and allied health professionals, understanding this overlap ensures accurate symptom recognition and enhances the effectiveness of intervention strategies.

Insomnia was another significant comorbid condition identified in this study. The Insomnia Severity Index revealed that participants with GAD often struggled with sleep initiation and maintenance. Sleep disturbances are both a symptom and a risk factor for anxiety disorders, creating a vicious cycle that exacerbates psychological distress. The inclusion of insomnia in this study highlights the importance of holistic nursing care that addresses both mental and physical aspects of patient well-being. Behavioural interventions such as sleep hygiene education and cognitive restructuring techniques can play a critical role in breaking the anxiety-insomnia cycle.

In addition, the study revealed noteworthy associations between GAD and eating disorder symptoms, as captured by the Eating Disorder Examination Questionnaire (EDE-Q). Emotional dysregulation and poor coping mechanisms may lead individuals to adopt disordered eating patterns as a form of temporary relief from anxiety. The findings underscore the need for screening anxiety disorders in individuals presenting with symptoms of anorexia, bulimia, or binge-eating disorder. From a nursing standpoint, integrated care models that address both anxiety and nutritional health are imperative for ensuring comprehensive treatment outcomes.

Substance use also emerged as a comorbid factor, particularly in male participants. Data from the WHO-ASSIST V3.0 suggested that individuals with GAD were more likely to report usage of alcohol, tobacco, or other substances. Substance use can serve both as a trigger and a consequence of anxiety, further

complicating treatment and recovery. Nurses play a vital role in the early identification of substance misuse and in delivering health education to reduce dependence and improve coping strategies. These findings highlight the importance of incorporating substance use assessments in routine psychiatric evaluations for individuals with anxiety disorders.

The socio-demographic analysis further enriched the understanding of comorbidity patterns. It was observed that age, gender, and urban-rural background had a significant impact on the prevalence and severity of comorbidities. For instance, females reported higher levels of depression and insomnia, while males exhibited a higher prevalence of substance use. Urban participants were more likely to experience insomnia and depressive symptoms, possibly due to lifestyle stressors and reduced social support. These findings point to the necessity of culturally and demographically tailored interventions in nursing and mental health practice.

In conclusion, this introductory section of the Results and Discussion chapter establishes a strong foundation for the detailed analysis that follows. The findings provide robust evidence that GAD rarely exists in isolation, instead presenting alongside a complex web of psychological, behavioural, and physical health challenges. These results emphasize the critical need for a multidisciplinary and patient-centred approach in the identification, diagnosis, and management of GAD. The chapter continues by discussing each major result in detail, comparing the findings with existing studies, and elaborating on the theoretical, clinical, and policy-level implications for nursing and mental healthcare services.

Results and Discussions

The results were displayed with table and figure for easy and clear understanding of the findings.

1. Checking Raw Data: The raw data was checked for missing, double entry and outlier for further analysis was done. The conduction of data collection was done by the researcher with due care for such possible entry in the data, and not found any of such data. So, the data was ready for further analysis.

2. Sample Characteristics: The study was designed to examine the ‘Generalized Anxiety Disorder: Comorbidity among Adults’. Accordingly, it tries to explore GAD comorbidity by comparing (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP), (iii) Physical illness without GAD (PI); and Patients without GAD along with male and female differences in PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse. The researcher constructed the sociodemographic profiles to examine the true representation and control extraneous variables as per the objectives set forth.

The sample of the study consisted of three types of patients (120 GPI with Physical Illness, 120 GAD without Physical Illness (GP), 120 Physical Illness without GAD (PI); and all other demographic variables were controlled to have a well distributed for the three groups which included: two types of gender (180 male and 180 female), 20 to 50 years (three age groups-150 in 20-30 year, 120 in 31-40 year, 90 in 41-50 year), three levels of education (144 below Class x, 132 with XII, and 84 with Graduate or above), socio-economic status (three groups: 162 falls below Rs 10000 below family monthly income, 126 falls between 10001 to 20000, 72 fall in 20001 or above) as given below (Table-3):

Table 3: Showing the sociodemographic variable distribution (age, education, family income) for samples of the study (N=240).

1. Distribution of the three types of patients			
GAD Patients with Physical Illness	GAD Patients without Physical Illness	Patients without GAD	Total
120	120	120	360
2. Distribution of age groups			
20-30 year	31-40 year	41-50 year	Total
150	120	90	360
3. Distribution of educational qualification			
Below class x	Class XII	Graduate and above	Total
144	132	84	360
4. Socio economic status (family monthly Income			
Below Rs 10000	10001 to 20000	20001 and above	Total
162	126	72	360

3. Psychometric Property Check:

The study employed some standardized psychological scales for the collection of data which were constructed for other cultures and not for the target population of the study which required checking its applicability to the targeted population. To check the psychometric properties, the normality (Mean, SD, Kurtosis and Skewness), reliability (Cronbach Alpha, 1951) and homogeneity (Levene, 1960) were computed as showed in Table-1.

Normality: The Normality was done using descriptive statistics. Kurtosis and skewness were within the acceptable range (± 2), showing the normality prevalence.

Reliability test: The Reliability Statistics were checked using Cronbach's Alpha, which evinced that all scales have above .80, such as PTSD ($\alpha = .91$), OCD ($\alpha = .87$),

Insomnia ($\alpha = .91$), Depression ($\alpha = .89$), Eating Disorder ($\alpha = .88$), and Substance Abuse ($\alpha = .89$).

Homogeneity test: The Homogeneity test was done using the Levene statistics. The results provided the acceptable value on all scales (Levene's test; non-significant) which showed the trustworthiness of the scales.

The results confirmed the applicability of the scales for the targeted population and fulfilment of the assumptions of parametric statistics which suggested that parametric statistics may be used for further analysis.

4. Results and discussion

Objective-1: To examine levels of PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse for three groups of patients (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP) (iii) Patients having Physical Illness without GAD (PI).

To examine the level of PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse for three groups of patients (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP) (iii) Patients having Physical Illness without GAD (PI) descriptive statistics was employed, and the results was kept in *Table 4*.

Table-4: Showing the mean, SD, Kurtosis, skewness, reliability (Cronbach alpha), and Homogeneity (Levine's test) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse for (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP), and (iii) Patients having Physical illness without GAD (PI), (N=240).

Illness	Statistics	PTSD	OCD	Insomnia	Depression	Eating disorder	Substance Abuse
GAD with physical illness (GPI)	Mean	14.19	15.41	16.13	17.28	12.84	13.35
	SD	3.73	4.49	3.42	3.51	3.64	2.86
	Kurtosis	-0.80	-0.73	-0.93	-0.71	-0.97	-0.96
	Skewness	-0.78	-0.79	-0.77	-0.81	-0.82	-0.79
GAD without physical illness (GP)	Mean	12.40	11.71	13.43	13.22	9.45	10.75
	SD	3.35	3.23	3.89	3.13	2.03	2.34
	Kurtosis	-0.83	-0.84	-0.92	-0.75	-0.72	-0.96
	Skewness	-0.86	-0.90	-0.83	-0.83	-0.93	-0.89
Physical illness without GAD (PI)	Mean	6.52	7.95	8.47	8.67	8.73	8.34
	SD	2.99	2.79	2.86	2.65	2.08	2.36
	Kurtosis	-0.84	-0.73	-0.91	-0.70	-0.92	-0.75
	Skewness	-0.60	-0.58	-0.86	-0.84	-0.86	-0.60
Reliability(α alpha)		.91	.87	.91	.87	.89	.88
Homogeneity (Levene)		.09	.37	.23	.11	.32	.27

Figure 2: Showing the Mean difference between (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP), (iii) Physical illness Patients without GAD (GI) on PTSD, OCD, and Insomnia among the samples (N=360).

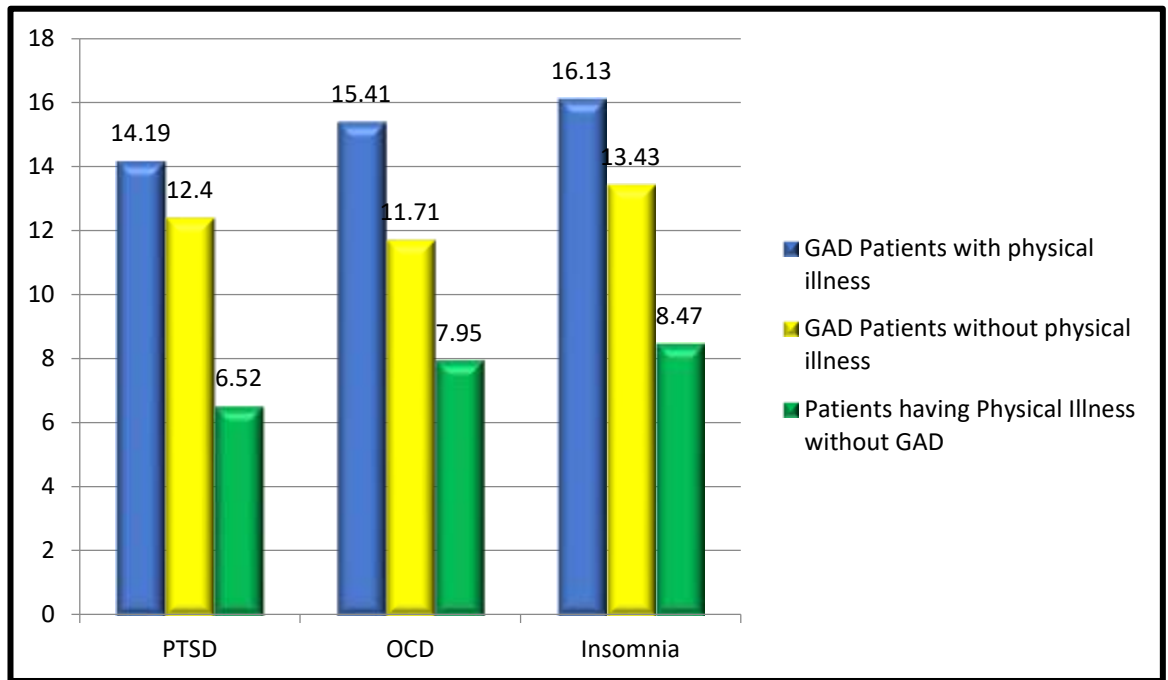
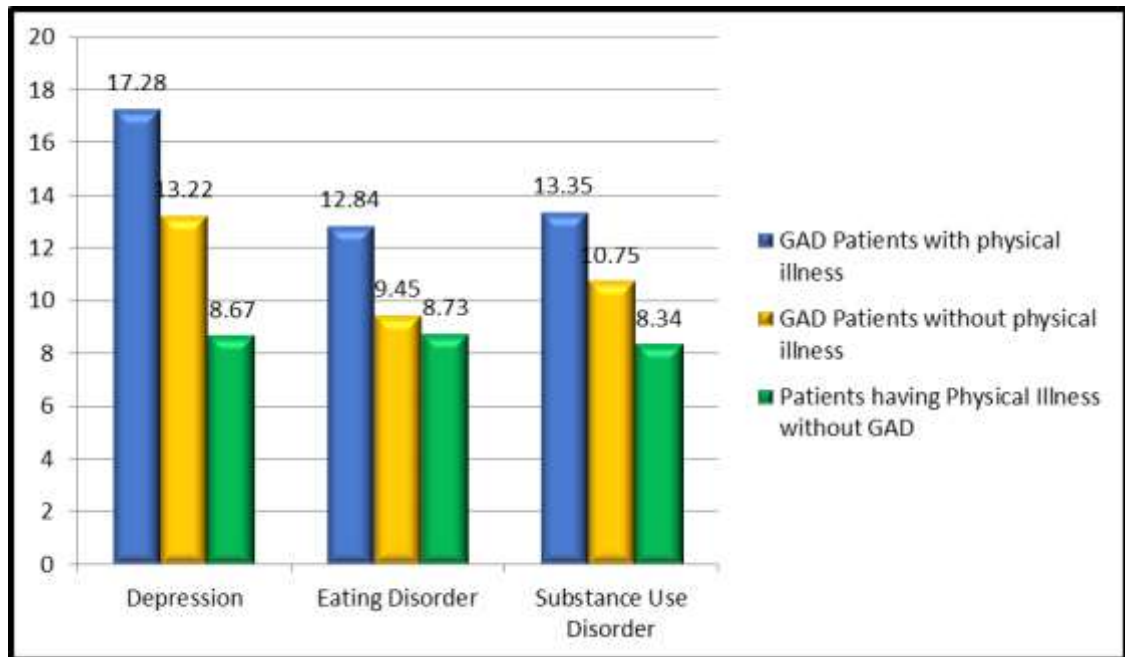


Figure 3: Showing the Mean difference between (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP), (iii) Physical illness Patients without GAD (PI) on Depression, Eating Disorder and Substance Use Disorder among the samples (N=360).



To examine the levels of PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse for three groups of patients (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP), (iii) Physical illness Patients without GAD (PI), descriptive statistics (Mean, SD, Kurtosis, Skewness) was employed which was placed in **Table-4** and displayed in **Figures 2 & 3**.

Results demonstrated the Mean difference between the groups as follows:

- i) **On PTSD:** The GAD Patients with Physical illness (GPI) group (M=14.19) showed highest PTSD symptoms followed by the GAD Patients without Physical illness (GP) group (M=14.19), then comes the Patient having Physical illness without GAD group (M=12.40).
- ii) **On OCD:** The GAD Patients with Physical illness (GPI) group (M=15.41) showed highest OCD symptoms followed by the GAD Patients without

Physical illness (GP) group (M=11.71) , then comes the Patient having Physical illness without GAD group (M=7.95)

iii) **On Insomnia:** The GAD Patients with Physical illness (GPI) group (M=16.13) showed highest Insomnia symptoms followed by the GAD Patients without Physical illness (GP) group (M=13.43), then comes the Patient having Physical illness without GAD group (M=8.47)

iv) **On Depression:** The GAD Patients with Physical illness (GPI) group (M=17.28) showed highest Depression symptoms followed by the GAD Patients without Physical illness (GP) group (M=13.22) , then comes the Patient having Physical illness without GAD group (M=8.67)

v) **On Eating disorder:** The GAD Patients with Physical illness (GPI) group (M=12.84) showed highest PTSD symptoms followed by the GAD Patients without Physical illness (GP) group (M=9.45) , then comes the Patient having Physical illness without GAD group (M=8.73)

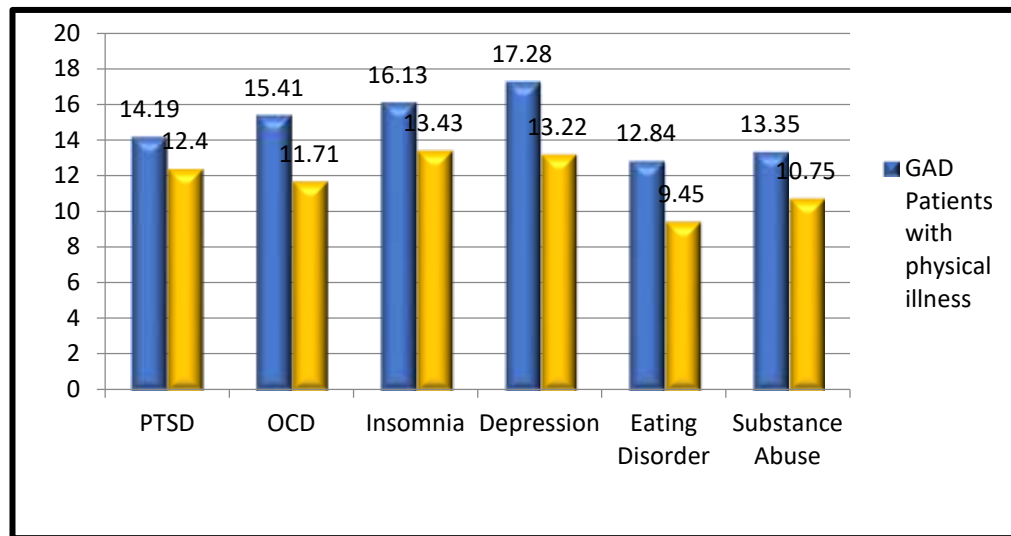
vi) **On Substance Abuse:** The GAD Patients with Physical illness (GPI) group (M=13.35) showed highest Substance Use disorder symptoms followed by the GAD Patients without Physical illness (GP) group (M=10.75), then comes the Patient having Physical illness without GAD group (M=8.34)

Objective-2: To examine any significant difference between i) GAD Patients with physical illness (GPI), and (ii) GAD Patients without physical illness (GP) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse

Table-5: Showing the significant differences (mean, SD, Kurtosis, skewness, and independent t-test) between significant difference between i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance (N=240).

<i>Illness</i>	<i>Stats</i>	<i>PTSD</i>	<i>OCD</i>	<i>Insomnia</i>	<i>Depression</i>	<i>Eating disorder</i>	<i>Substance Abuse</i>
GPI	Mean	21.350	19.188	17.413	20.125	47.275	18.838
	SD	4.863	3.729	4.489	4.420	5.511	3.641
	Kurtosis	-0.964	-0.798	-0.733	-0.932	-0.705	-0.973
	Skewness	0.787	0.784	0.787	0.765	0.805	0.823
GP	Mean	17.750	15.400	13.710	17.430	39.220	14.450
	SD	3.341	3.348	3.226	3.887	4.126	3.027
	Kurtosis	-0.960	-0.826	-0.840	-0.919	-0.751	-0.724
	Skewness	-0.892	-0.861	-0.904	-0.828	-0.834	-0.926
t=test between GPI and GP		4.31**	4.31**	4.25**	4.02**	3.98**	4.05**
**= significant at .01 levels							

Figure 4: Showing the significant differences (mean, SD, Kurtosis, skewness, and independent t-test) between significant difference between i) GAD Patients with physical illness (GPI), and (ii) GAD Patients without physical illness (GP) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance (N=240).



An independent t-test was conducted to examine any significant difference between i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse was computed, and the result was presented in **Table 5** and portrayed in **Figure 4**.

- i) **On PTSD:** The GAD Patients with Physical illness (GPI) group showed higher PTSD symptoms than the GAD Patients without Physical illness (GP) group ($M=14.19, 12.40$; $t = 4.31$; $P > .01$) and their difference was significant at .01 level, consistent with previous research which has reported that presence of chronic physical illness when combined with GAD may increase vulnerability to trauma and related symptoms (Craske et al., 2017).
- ii) **On OCD:** The GAD Patients with Physical illness (GPI) had higher OCD symptoms than the GAD Patients without Physical illness (GP) group ($M=15.41, 11.71$; $t = 4.31$; $p > .01$) and significant at .01 level, reflecting the

heightened health related obsessions and/or compulsions frequently found in medically ill anxious individuals (Garnaat et al., 2015).

- iii) **On Insomnia:** GAD Patients with Physical illness (GPI) scored higher Insomnia symptoms than GAD Patients without Physical illness (GP) group ($M=16.13, 13.43$; $t=4.25$; $p > .01$), and significant at .01 level, highlighting the impact of anxiety, mood, worry, physical discomfort as observed in previous studies linking sleep disturbances with physical illness and anxiety (Taylor et al., 2005).
- iv) **On Depression:** GAD Patients with Physical illness (GPI) evinced higher Depression symptoms than GAD Patients without Physical illness (GP) group ($M=17.28, 13.22$; $t=4.02$; $p > .01$) and significant at .01 level consistent with earlier findings that suggest comorbidity of depressive symptoms with physical illness may increase helplessness, grief, loss of functioning, uncertainty about the future and so on (Katon, 2011). Eating disorder: GAD Patients with Physical illness (GPI) evinced higher Eating Disorder symptoms than GAD Patients without Physical illness (GP) group ($M=12.84, 9.45$; $t = 3.98$; $p > .01$), and significant at .01 level suggesting that disordered eating behaviours may emerge as maladaptive coping strategies in response to increased anxiety and somatic distress.
- v) **On Substance Abuse:** GAD Patients with Physical illness (GPI) evinced higher Substance Abuse symptoms than GAD Patients without Physical illness (GP) group ($M=13.35, 10.75$; $t=4.05$; $p > .01$), and significant at .01 level. This is consistent with previous studies reporting that both physical and psychological burdens may resort to substance dependence as a form of coping (Kelly & Daley, 2013).

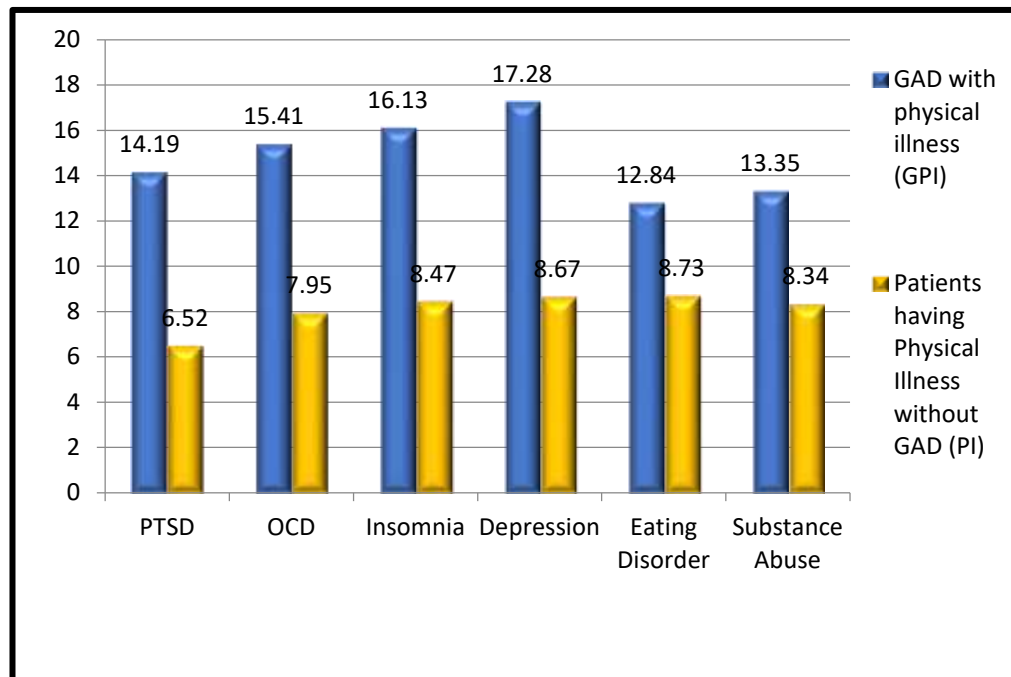
Objective -3: To determine any significant difference between i) GAD Patients with physical illness (GPI), (ii) Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.

To determine the significant difference between the two groups: GAD Patients with physical illness (GPI) and Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse an independent t-test was employed and the results was presented in Table 6 and also portrayed with diagram in figure 5.

Table 6: Showing the mean, SD, Kurtosis, skewness, and independent t-test between GAD patients with Physical Illness (GPI) and Patients having Physical Illness without GAD groups (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse (N=360).

Illness	Stats	PTSD	OCD	Insomnia	Depression	Eating disorder	Substance Abuse
GAD with physical illness (GPI)	Mean	21.35	19.19	17.41	20.13	47.28	18.84
	SD	4.86	3.73	4.49	4.42	5.51	3.64
	Kurtosis	-0.96	-0.80	-0.73	-0.93	-0.71	-0.97
	Skewness	0.79	0.78	0.79	0.77	0.81	0.82
Patient without GAD (PI)	Mean	13.34	11.52	9.95	12.47	34.67	10.73
	SD	2.36	2.99	2.79	2.86	4.65	3.08
	Kurtosis	-0.75	-0.84	-0.73	-0.91	-0.70	-0.92
	Skewness	13.34	11.52	9.95	12.47	34.67	-0.86
t=test between GPI and PI		6.28**	6.28**	6.69**	7.38**	6.69**	6.84**
**= significant at .01 levels							

Figure 5: Showing the significant differences (mean, SD, Kurtosis, skewness, and independent t-test) between significant difference between i) GAD Patients with physical illness (GPI), and (ii) Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance (N=240).



The Results in Table-6 demonstrated the significant mean differences between GAD Patients with Physical illness (GPI) and Patients having Physical Illness without GAD (PI) groups on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse:

- i) **On PTSD:** GAD Patients with Physical illness (GPI) group showed higher PTSD symptoms than Patients having Physical Illness without GAD (PI) group (M= 14.19, 6.52; $t = 6.28$; $p > .01$) which was significant at .01 level. This is supported by earlier studies showing bidirectional relationship between PTSD and GAD which report that persons with anxiety disorders have more risk to develop PTSD especially when compounded by physical illness and chronic stress (Kessler et al., 1995).

- ii) **OCD:** GAD Patients with Physical illness (GPI) had higher OCD symptoms than Patients having Physical Illness without GAD (PI) group (M=15.41, 7.95; $t= 6.28$; $p >.01$), and found significant at .01 level. Previous findings have also shown that anxiety disorders such as GAD are highly comorbid with shared features of obsessive thought patterns and worry (Ruscio et al., 2010).
- iii) **Insomnia:** GAD Patients with Physical illness (GPI) scored higher Insomnia symptoms than Patients having Physical Illness without GAD (PI) group (M=16.13, 8.47; $t=6.69$; $p >. 01$) which was significant at .01 level. Prior studies have also reported that GAD is associated with sleep difficulties and physical illness may further increase sleep disturbances due to discomfort and stress (Taylor et al., 2005).
- iv) **Depression:** GAD Patients with Physical illness (GPI) evinced higher Depression symptoms than Patients having Physical Illness without GAD (PI) group (M=17.28, 8.67 $t=3.98$; $p >. 01$) showing it was significant at .01 level consistent with existing literature that suggests that physical illnesses and anxiety elevates risk for depression (Katon, 2011).
- v) **Eating disorder:** GAD Patients with Physical illness (GPI) evinced higher Eating Disorder symptoms than Patients having Physical Illness without GAD (PI) group (M=12.84, 8.73; $t=6.69$; $p >. 01$), and found significant at .01 level consistent with previous findings that report that anxiety is a risk factor for disordered eating behaviours particularly in the presence of other physical health concerns (Udo et al., 2019).
- vi) **Substance Abuse:** GAD Patients with Physical illness (GPI) evinced higher Substance Abuse symptoms than Patients having Physical Illness without GAD (PI) group (M=13.35, 8.34; $t=6.84$; $p >. 01$) and significant at .01 level. The finding is supported by previous research reporting that individuals with chronic anxiety and physical illnesses may use substances as a way of coping (Kushner et al., 2000).

Objective-4: To examine any significant difference between (i) GAD Patients without physical illness (GP) (ii) Patients having Physical Illness

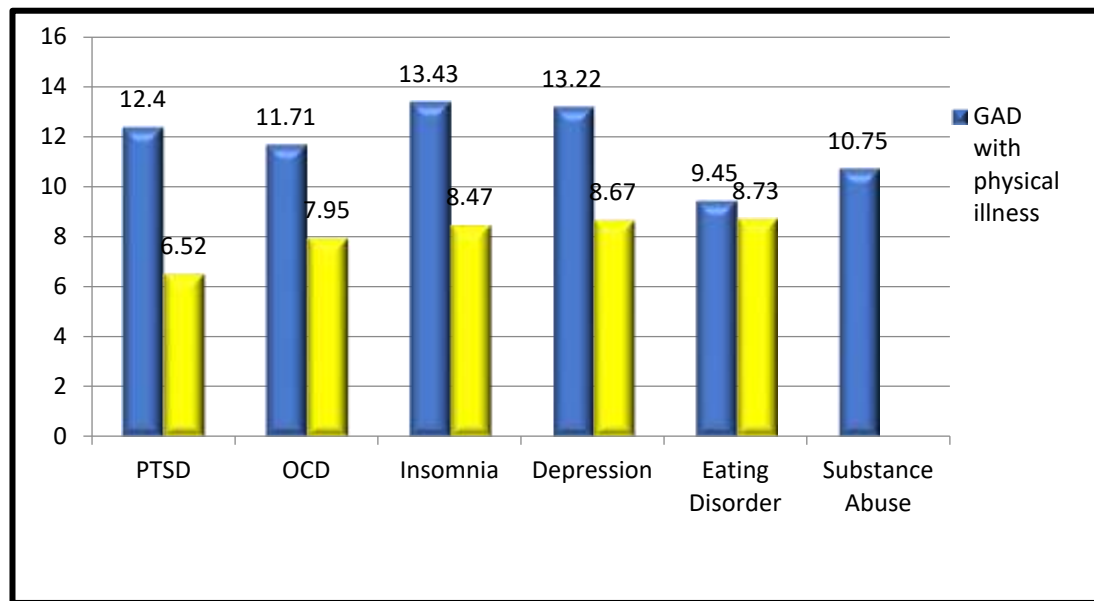
without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.

To examine the significant difference between GAD Patients with physical illness (GPI) and Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse, an independent t-test was utilized, and the results declared significant difference as portrayed in Table 7 and also portrayed with diagram in figure 6.

Table 7: Showing the mean, SD, Kurtosis, skewness, and independent t-test between (i) GAD Patients without physical illness (GP) and (ii) Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse (N=360).

<i>Illness</i>	<i>Stats</i>	<i>PTSD</i>	<i>OCD</i>	<i>Insomnia</i>	<i>Depression</i>	<i>Eating disorder</i>	<i>Substance Abuse</i>
GAD without physical illness (GP)	Mean	12.40	11.71	13.43	13.22	9.45	10.75
	SD	3.35	3.23	3.89	3.13	2.03	2.34
	Kurtosis	-0.83	-0.84	-0.92	-0.75	-0.72	-0.96
	Skewness	-0.86	-0.90	-0.83	-0.83	-0.93	-0.89
Patients having Physical Illness without GAD (PI)	Mean	6.52	7.95	8.47	8.67	8.73	8.34
	SD	2.99	2.79	2.86	2.65	2.08	2.36
	Kurtosis	-0.84	-0.73	-0.91	-0.70	-0.92	-0.75
	Skewness	-0.60	-0.58	-0.86	-0.84	-0.86	-0.60
t=test between GP and PI		4.92**	7.323**	5.517**	4.950**	4.657**	8.92**

Figure 6: Showing the mean, SD, Kurtosis, skewness, and independent t-test between (i) GAD Patients without physical illness (GP) and (ii) Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse (N=360).



The Results in Table-7 demonstrated the significant mean differences between i) GAD Patients without physical illness (GP) (ii) Patients having Physical Illness without GAD groups on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse separately which were shown in **Table-7:**

- i) On PTSD:** GAD Patients without physical illness (GP) group showed higher PTSD symptoms than Patients having Physical Illness without GAD group (PI) (M=14.19, 6.52; $t=8.92$; $p > .01$) and found significant at .01 level supported by prior research suggesting that even in the absence of physical illness, individuals with GAD are more vulnerable to PTSD-like symptoms (Cukor et al., 2010).
- ii) OCD:** GAD Patients without physical illness (GP) group showed higher OCD symptoms than Patients having Physical Illness without GAD group (PI) (M=11.71, 7.95; $t=7.323$; $p > .01$) and found significant at .01 level

consistent with previous findings which suggest that persons with high anxiety and uncertainty intolerance are more prone to OCD (Tolin et al., 2003).

- iii) **Insomnia:** GAD Patients without physical illness (GP) group showed higher Insomnia symptoms than Patients having Physical Illness without GAD group (PI) ($M=13.43, 8.47$; $t=5.517$; $p > .01$) and found significant at .01 level. Previous studies have also reported similar findings suggesting GAD related worry is closely linked to sleep disturbances that may further lead to insomnia (Harvey, 2002).
- iv) **Depression:** GAD Patients without physical illness (GP) group showed higher Depression symptoms than Patients having Physical Illness without GAD group (PI) ($M=13.22, 8.67$; $t=4.950$; $p > .01$) and found significant at .01 level consistent to previous studies that have found that burdens of GAD may contribute to depressive symptoms even without concurrent physical illnesses (Mineka, 1998)
- v) **Eating disorder:** GAD Patients without physical illness (GP) group showed higher Eating Disorder symptoms than Patients having Physical Illness without GAD group (PI) ($M=9.45, 8.73$; $t=4.657$; $p > .01$) and found significant at .01 level supported by prior findings that report that anxiety disorders, particularly GAD often precede or cooccur with eating disorders (Kaye, 2004).
- vi) **Substance Abuse:** GAD Patients without physical illness (GP) group showed higher Substance used Disorder symptoms than Patients having Physical Illness without GAD group (PI) ($M=10.75, 8.34$; $t=8.92$; $p > .01$) and found significant at .01 level consistent with prior studies that suggest that GAD increases vulnerability for substance misuse as a means of self-medication and/or coping strategies (Buckner, 2013).

Objective-5: To study the relationship between PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.

To examine any positive or negative relationship between PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse the Pearson's moment correlation was used and the results were showed in Table 8.

Table 8: Showing Correlation (Pearson's Correlation) between PTSD, OCD, Insomnia, Depression Eating disorder, Substance Abuse and Anxiety among the samples (N=360).

Variables	PTSD	OCD	Insomnia	Depression	Eating disorder	Substance Abuse
PTSD	1	.38**	.39**	.26**	.43**	.26**
OCD		1	.39**	.27**	.39**	.22**
Insomnia			1	.24**	.37**	.26**
Depression				1	.29**	.38**
Eating disorder					1	.36**
Substance Abuse						1
**. Correlation is significant at the 0.01 level (2-tailed).						

The study employed Pearson's Correlation to determine any significant relationship between PTSD, OCD, Insomnia, Depression, Eating disorders, and Substance Abuse as shown in Table-8.

Results provided that:

- i) **PTSD relation with OCD, Insomnia, Depression Eating Disorders, and Substance Abuse:** PTSD had a positive significant relationship with OCD ($r=.38$; $p > .01$), Insomnia ($r=.39$; $p > .01$), Depression ($r=.26$; $p > .01$), Eating disorder ($r=.43$; $p > .01$), and Substance Abuse ($r=.26$; $p > .01$) at .01 significant level.

The results were supported by an earlier study where patients with PTSD diagnosis were evaluated for OCD in a medical hospital. The results showed that out of 44 referrals, 18 (i.e., 41%) were diagnosed with current OCD with PTSD, 19 (i.e., 43%) diagnosed as PTSD without current or lifetime OCD and 7 diagnosed with PTSD and OCD symptoms, indicating a positive relationship between the two disorders (Nacasch et al., 2011)

Another study focused on the relation between PTSD and Insomnia wherein individuals with insomnia or lesser sleep in general (<6 hours) was significantly associated with onset of PTSD symptoms suggesting the increased risk insomnia might have in relation to new-onset mental problems such as PTSD among others (Gehrman et al., 2013).

The results of the present study are consistent with previous findings which have found that approximately 48 to 55 % of individuals with PTSD have also met the diagnostic criteria of Major Depressive Disorder showing the positive relationship between PTSD and Depression (Roley et al., 2015). A study examining the prevalence and impact of Trauma history among 4,524 eating disorder patients have also found that 18.6 % i.e., 843 patients had experienced at least one Traumatic Event and 24.2% among these also reported more than one Traumatic experience. (Backholm et al., 2013). Moreover, a national women's study focusing on both current and lifetime PTSD has found that the prevalence were significantly higher in individuals with eating disorders particularly bulimia nervosa than those without it (Dansky et al., 1997).

The present study's results are further consistent with previous findings. A study including 132 outpatient participants revealed a positive correlation between severity of addiction and the severity of life trauma with $p= 0.001$. Additionally, the severity level of addiction was positively correlated with PTSD symptoms (Kuksis et al., 2017).

- ii) **OCD relation with Insomnia, Depression Eating disorder, Substance Abuse and Anxiety:** the OCD positively related with Insomnia ($r=.39$; $p > .01$), Depression ($r=.27$; $p > .01$), Eating disorder ($r=.39$; $p > .01$) and Substance Abuse ($r=.22$; $p > .01$) at .01 significant level.

The findings are consistent with previous literature. A study done by Timpano and team in 2014 indicates a significant relationship between obsessions and insomnia rather than compulsions and insomnia (Timpano et al., 2014).

Various studies have found a positive relationship between OCD and Depressive symptoms. Lifetimes rates of depression in OCD patients have been reported to be around 67.2% in clinical studies (Pinto et al., 2006), another reported 73.4% and 81.2% of early and late-onset lifetime depression respectively, in patients with OCD (Millet et al., 2004).

Studies examining OCD and Eating Disorders have found significant relations between the two by reporting markedly higher prevalence 15.7% and 19 % vs. 0% and 1.1% with p value <0.05 (both current and lifetime respectively) of OCD in individuals with eating disorders as compared to the general population (Speranza et al., 2001).

In a study of examining substance use disorders among 323 OCD patients, 27% of the sample met lifetime criteria for a substance use disorder (Mancebo et al., 2009).

- iii) **Insomnia relation to Depression Eating disorder, Substance Abuse, and Anxiety:** Insomnia had a positive significant relation with Depression ($r=.24$; $p > .01$), Eating disorder ($r=.37$; $p > .01$), and Substance Abuse ($r=.26$; $p > .01$) at .01 significant level.

Results are consistent with previous studies which have determined the relation between these disorders. At least 41% of patients with depression have chronic symptoms of insomnia and 20% of patients with primary diagnosis of insomnia have exhibited depressive symptoms (Stewart et al., 2006; Soldatos CR, 1994). Among 481 substance use disorder patients, 66.5% had various symptoms of insomnia (Grau-Lopez et

al., 2020). Research done in 2016 focused on the relationship between insomnia and anxiety in university students where 462 participated. It was found that there was a significant positive correlation between anxiety and clinical insomnia with p value 0.006 (Choueiry et al., 2016).

- iv) **Depression relation to Eating disorder, Substance Abuse, and Anxiety:** Depression showed a significant positive relations with Eating disorder ($r=.29$; $p > .01$), Substance Abuse ($r=.34$; $p > .01$) at .01 significant level.

The results were supported by earlier studies. A research done on 350 students in Pakistan found a significant relationship and interdependency between eating disorders and depression (Saleem et al., 2014). An analysis of 6355 substance dependent patients indicates that at least 44% of these patients also had a lifetime history of depression (Miller et al., 1996). A worldwide survey has reported that approximately 45.7% of persons with a lifetime depression also had a lifetime history of one or more anxiety disorder, signifying the positive relation between the two disorders (Kessler et al., 2015).

- v) **Eating disorder relation to Substance Abuse, and Anxiety:** Eating disorder positively related with Substance Abuse ($r=.36$; $p > .01$) at .01 significant level.

The findings are consistent with previous research. Various studies have found significant positive relations between eating disorders and substance abuse where individuals seeking treatment for eating disorders often have high rates of alcohol and/or drug dependence (Bushnell et al., Newman & Gold, 1992). A study focusing on women with eating disorders reported that approximately 47% of them had at least one anxiety disorder along with the onset of the eating disorder particularly social phobia more common with higher association with bulimic pathologies (Godart et al., 2003).

vi) **Substance Abuse and Anxiety relationship:** Substance Abuse had a significant relationship with Anxiety ($r=.48$; $p > .01$) at .01 significant level.

This is consistent with previous studies where 80% of substance use disorder patients were found to have high to moderate levels of anxiety in comparison to their healthy controls (Mohamed et al., 2020).

CHAPTER – VI
SUMMARY AND CONCLUSION

The present research study titled as “Generalized Anxiety Disorder: Comorbidity among adults” obtained the following findings:

The study used psychological scales which were cross checked for their applicability for the present samples. It was designed to looking the generalized anxiety disorders to other mental illnesses. For attempting the objectives of the study, three groups of patients namely - (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP), and (iii) Patients having Physical Illness without GAD (PI) were compared on the levels and relationship with other selected mental illnesses. Accordingly, the results were discussed following the objectives of the study.

The first objective of the study examines the different levels of PTSD, OCD, Insomnia, Depression, Eating Disorder and Substance abuse for three different groups of patients and the results demonstrated that the different levels on all different mental illnesses - PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse. The study confirmed the first hypothesis and suggests accepting it.

The second objectives was to examine any significant difference between the observed three groups of patient : i) GAD Patients with physical illness (GPI), and (ii) GAD Patients without physical illness (GP) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse which showed GAD patients with Physical illness (GPI) group had the higher mean scores on all dependent variables than GAD patients without physical illness (GP); both groups suffering from GAD as such had a selected mental illness in both groups. The results may be explained as the patients who were suffering from generalized anxiety disorder having other mental illnesses as the consequences of GAD that confirms the second hypothesis was acceptable.

The third objective tried to examine significant difference between (i) GAD Patients with physical illness (GPI), and (ii) Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse; and the results evinced that the GAD Patients with physical illness (GPI) had higher mental illness than GAD Patients with physical illness (GPI) which signified

that generalized anxiety disorder was accompanied by other mental illnesses; and also invites to accept the hypothesis no 3.

The fourth objective examines the significant difference between (i) GAD Patients without physical illness (GP), and (ii) Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse; and the results evinced that the GAD Patients without physical illness (GP) had higher mental illness than Patients having Physical Illness without GAD (PI) which indicated that generalized anxiety disorder was accompanied by other mental illnesses; and also invites to accept the hypothesis no 4.

The fifth objective was to study the relationship between PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse among the samples. The Pearson's correlation provided that all selected mental illnesses under study were positively correlated each other which demonstrated that even generalized anxiety disorders also having comorbidity with all of them; and which can be imprinted as hypothesis no 5 was also acceptable.

This study has provided critical insights into the complex relationship between Generalized Anxiety Disorder (GAD) and its co-occurrence with various physical and psychological health conditions among adults. From a nursing perspective, the findings reinforce the essential role nurses play in recognizing, assessing, and managing mental health symptoms that coexist with chronic physical illnesses.

The study revealed that comorbidity is highly prevalent among adults with GAD, with many patients simultaneously experiencing conditions such as cardiovascular diseases, diabetes, musculoskeletal disorders, and depression. These comorbidities often complicate the clinical picture, contributing to increased healthcare needs, prolonged hospital stays, and reduced quality of life. Female participants, in particular, demonstrated a higher burden of comorbidity, pointing to the need for gender-sensitive nursing care and interventions.

For nursing practice, these findings underscore the importance of adopting a holistic, patient-centered approach to care. Nurses are often the first point of contact

and play a vital role in early identification of anxiety symptoms, conducting comprehensive assessments, and providing education, support, and referrals. Addressing both the physical and psychological aspects of a patient's health is essential for achieving optimal outcomes.

This research also highlights the need for further training in mental health nursing, as well as stronger collaboration between mental health professionals and general healthcare providers. Integrating mental health screening tools, such as the GAD-7, into routine nursing assessments can facilitate early intervention and prevent worsening of comorbid conditions.

In conclusion, this study contributes valuable knowledge to the field of psychiatric nursing and reinforces the need for interdisciplinary, preventive, and integrative care strategies in managing GAD and its comorbidities. As frontline caregivers, nurses must be empowered with the skills, knowledge, and support necessary to address these challenges effectively. Continued research and practice-based innovations in this area will be essential to enhancing the quality of life for individuals living with GAD and associated health conditions.

Conclusion

To conclude, the findings indicate that Generalized Anxiety Disorders (GAD) has a significant relation with various other mental disorders such as PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse. The study examined the differences between the three groups: (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP), and (iii) Patients having Physical Illness without GAD (PI) on the observed mental disorders. It was confirmed that the both types of Patients who were having generalized anxiety disorders showed higher mental illnesses like PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse. This suggested that the GAD has comorbidity with PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse. The results of the study suggested the importance of studying the co-morbidity and co-occurrence of psychological problems, that can heightened chronicity of generalized anxiety disorders and impose consequences on the affected individuals.

Understanding the connection and processes underlying between these disorders may shed notable information on the mechanisms behind certain mental problems. Further, this may be crucial for the development and improvement of the treatment and management as well as conceptualizations of these different disorders.

Limitation

The study could not cover the whole targeted population and took only representative of the three groups of patients admitted in the hospitals.

The study could not use longitudinal study to know the GAD suffering duration which may contribute important information on GAD comorbidity

The study could determine only the difference between GAD illness and Gender on selected dependent variables not able focus on other possible factors of mental illness especially GAD illness.

The study could not focus on cultural differences on GAD comorbidity which may contribute uniqueness of the targeted population

The study could look the commodity of GAD with limited mental illness though much comorbidity might happen.

Suggestion for future research

It was suggested that a bigger sample size with more representative of the targeted population and reiteration of the study would provide more information about the GAD comorbidity.

It was suggested that replication of the study using longitudinal study which would confirm the GAD comorbidity with selected mental illness.

It was suggested to study not only gender differences but also cultural differences, ecological difference, socio demographic difference and other psychological variables to give confirmatory support of the light set by the present study.

It was suggested that inclusion of more mental illness to identify the GAD comorbidity with them to contribute more information regarding GAD comorbidities.

Significance of the study

Though some limitations of the study, the study highlighted and contributed additional important information about the comorbidity of generalized anxiety disorders among the targeted population which never been explored before.

The study provided the GAD had comorbidity with PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.

The study evinced a significant relationship between the PTSD, OCD, Insomnia; Depression, Eating disorder, and Substance Abuse, one mental illness may invite another mental illness which need attention.

The study demonstrated the GAD comorbidity difference on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse regardless of physical illnesses.

The study portrayed the GAD commodity difference between GAD patients with physical illness, and without physical illness by showing differences on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse which implied the burden of anxiety for the patients, and may also has impact on carer of the patients with GAD.

The overall results highlighted the GAD had several comorbidity which explain the need of attention to GAD patients for early detection, prevention and psychological intervention.

Implications for Nursing

The growing prevalence of Generalized Anxiety Disorder (GAD), especially in the presence of comorbid psychological and physical illnesses, demands a multidimensional response from the nursing profession. As frontline caregivers in healthcare systems, nurses are uniquely positioned to address the complexities of

GAD through direct clinical care, education, policy leadership, and research advancement. The implications of this thesis—Generalized Anxiety Disorder: Comorbidity Among Adults—underscore the urgency of building mental health capacity within nursing roles.

Nurses are not only responsible for treatment and support, but also for prevention, advocacy, and health system transformation. This section outlines the key implications of the study for nursing practice, education, administration, and research.

Implications for Nursing Practice

Nurses are often the first point of contact for patients experiencing psychological distress, especially in primary care and hospital settings where GAD is often undiagnosed or misdiagnosed. The high rate of comorbidity between GAD and disorders such as PTSD, OCD, depression, insomnia, eating disorders, and substance use disorder highlights the necessity of comprehensive, person-centred assessment and care planning.

Nurses must be trained and supported to conduct structured mental health assessments using validated screening tools like the GAD-7, PHQ-9, PTSD-8, and WHO-ASSIST V3.0. They should be vigilant in detecting psychological distress that may manifest through somatic symptoms. Informed clinical judgment is essential to avoid underdiagnosing coexisting disorders.

Finally, nurses play a critical role in psychoeducation—helping patients and families understand the connection between anxiety and physical health, reducing stigma, and promoting health-seeking behaviour.

Implications for Nursing Education

The findings of this thesis highlight a pressing need for enhanced mental health training in nursing curricula at both undergraduate and postgraduate levels. Current nursing programs must include in-depth content on anxiety disorders, comorbidity, and interdisciplinary management strategies.

There is a need to strengthen the clinical competency of nursing students in screening and managing patients with multiple mental health issues. Simulation-based education and role-play scenarios involving patients with complex comorbid conditions can prepare future nurses to handle such real-world challenges.

Continuing nursing education should also emphasize communication skills, trauma-informed care, and non-stigmatizing approaches. Workshops and seminars on current diagnostic tools and therapies (e.g., CBT, mindfulness, motivational interviewing) should be integrated into professional development initiatives. Nurse educators have the responsibility to bridge the gap between theory and practice through evidence-informed instruction that reflects the realities of mental health comorbidity.

Implications for Nursing Administration

Nursing administrators are pivotal in translating the implications of research into practice by shaping policy, workforce development, and institutional culture. Based on this thesis, several priorities emerge for healthcare leaders in nursing:

Staffing and Workforce Support: Given the emotional toll of caring for patients with comorbid mental health disorders, nurse-patient ratios must be realistic and support mechanisms such as mental health days or peer support groups should be established.

Policy and Protocol Development: Institutions must adopt protocols for routine mental health screening and integrated care pathways for patients with GAD and coexisting conditions. This includes electronic health record (EHR) modifications to include anxiety-specific assessments.

Interdisciplinary Collaboration: Administrators should facilitate collaborations between mental health specialists, general medical teams, and nursing staff. Case conferences, mental health rounds, and collaborative care models are essential for holistic patient management.

Implications for Nursing Research

Despite the widespread impact of GAD and its comorbidities, there is limited nursing-led research in this area. This thesis opens up several avenues for future research, particularly in developing nurse-led interventions for managing anxiety and comorbid disorders in clinical and community settings.

Nurses can investigate the effectiveness of psychoeducation programs, mindfulness-based stress reduction, telehealth counseling, and integrated care delivery models tailored for patients with complex mental health needs. Community-based participatory research (CBPR) involving patients and caregivers can also provide deeper insights into stigma, treatment barriers, and recovery facilitators.

Furthermore, qualitative studies exploring the lived experiences of adults with GAD and comorbid conditions can inform more empathetic and personalized nursing care. Nurse researchers should also contribute to policy-focused research that evaluates the impact of mental health integration into general care on nurse workload, patient outcomes, and system efficiency.

Increased funding, mentorship, and institutional support are necessary to foster a culture of inquiry among nurses and position them as leaders in mental health innovation.

The growing burden of Generalized Anxiety Disorder, especially when coupled with other mental and physical illnesses, calls for a comprehensive response from the nursing profession. Nurses must evolve to meet this challenge through enhanced clinical competence, continuous education, strategic leadership, and robust research. The findings of this study serve as a guide for nursing interventions and policies that aim to improve the health and well-being of adults suffering from GAD and its comorbidities. An investment in nursing development is not only beneficial to individuals with GAD but is essential to achieving broader public health goals and a more resilient healthcare system.

Conclusion

To conclude, the findings indicate that Generalized Anxiety Disorders (GAD) has a significant relation with various other mental disorders such as PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse. The study examined the differences between the three groups: (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP), and (iii) Patients having Physical Illness without GAD (PI) on the observed mental disorders. It was confirmed that the both types of Patients who were having generalized anxiety disorders showed higher mental illnesses like PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse. This suggested that the GAD has comorbidity with PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse. The results of the study suggested the importance of studying the co-morbidity and co-occurrence of psychological problems, that can heightened chronicity of generalized anxiety disorders and impose consequences on the affected individuals. Understanding the connection and processes underlying between these disorders may shed notable information on the mechanisms behind certain mental problems. Further, this may be crucial for the development and improvement of the treatment and management as well as conceptualizations of these different disorders.

APPENDICES

Consent Form for research participation

I , Ms. V. L. Biaknungi, Ph. D. Scholar of Department of Clinical Psychology, Mizoram University is conducting Ph. D. Research on the topic of “Generalized Anxiety Disorder: Comorbidity among Adults”. It is not a study of your personal mental health. It should take approximately 1 hours to complete.

Your participation in this research is voluntary. You may refuse to take part in the research or exit the research at any time without penalty. You are free to decline to answer any particular question you do not wish to answer for any reason.

You will receive no direct benefits from participating in this research study. However, your responses may help us learn more about psychological conditions based on which I can give you suggestion how to cope with your problems, if there is any.

There are no foreseeable risks involved in participating in this study other than those encountered in day-to-day life, some of the questions to be sensitive, some questions may cause emotional discomfort, some may be distressing to you as you think about your experiences.

Nowhere is your name is written. Your answers will be stored in a password protected electronic format, not collect identifying information such as your name, email address, or IP address. Therefore, your responses will remain anonymous. No one will be able to identify you or your answers, and no one will know whether or not you participated in the study.

If you have questions at any time about the study or the procedures, you may contact my research supervisor, Professor Zokaitluangi via phone at 9436151606 or via email at zktluangi.psy@mzu.edu.in.

You have read the above information, kindly give our response and agreement :

- You voluntarily agree to participate
- You are 18 years of age or older

☐ Agree

Signature: _____

☐ Disagree

Thank You

Investigator : Ms. V. L. Biaknungi

Phone :

Appendix-II

SI No: _____

Socio-Demographic Profile

1. Age : _____
2. Birth Place : _____
3. Permanent address : _____
4. Sex : _____
5. Family size : _____
6. Type of family : Joint family /nuclear family/ others
7. Number of sibling : _____
8. Family monthly income : below 5000/ 5001-10000/ 10001-50000/
above 50001
9. Marital status : married / unmarried/ divorce/ other

Appendix-III

SI No: _____

Socio-Demographic Datasheet for Patient

10.	Age	:	_____
11.	Birth Place	:	_____
12.	Permanent address	:	_____

13.	Sex	:	_____
14.	Any major Illness	:	_____

15.	If, since, when	:	_____
16.	Any hospitalization	:	_____
17.	If, reason (s)	:	_____
18.	If, Duration	:	_____
19.	Admission date	:	_____

20.	Discharge date	:	_____
21.	Physical Health Condition:		
a)	Hb	:	Normal/not normal
b)	Temperature	:	Normal/not normal
c)	BP	:	Normal/not normal
d)	Any illness	:	_____
22.	Treatment History	:	_____
23.	Present health problem	:	_____

Appendix-IV

Short PTSD Inventory (PTSD-8; Hensen et al, 2010)

Instruction: Read the instructions carefully. The following are symptoms that people sometimes have after experiencing, witnessing or being confronted with a traumatic event. Please read each one carefully and mark your answer with an X according to how much the symptoms have bothered you since the trauma (One X per question). Not at all=0 Rarely=1; Sometimes=2, Most of the time=3					
Sl No	Questions on eating	Not at all	Rarely	Some times	Most of the time
1	Recurrent thoughts or memories of the event.	0	1	2	3
2	Feelings as though the event is happening again.	0	1	2	3
3	Recurrent nightmares about the event.	0	1	2	3
4	Sudden emotional or physical reactions when reminded of the event.	0	1	2	3
5	Avoiding activities that remind you of the event.	0	1	2	3
6	Avoiding thoughts or feelings associated with the event.	0	1	2	3
7	Feeling jumpy, easily startled.	0	1	2	3
8	Feeling on guard.	0	1	2	3

Appendix-V

Yale-Brown Obsessive-Compulsive Scale (Goodman et al., 1989)

Instruction: Read the instructions carefully. The following are symptoms that people sometimes have after experiencing in their life Please read each one carefully and mark your answer with an X according to how much appropriate to you.					
How much time do you spend on obsessive thoughts?	None	0-1 hrs	day 1-3 hrs	day 3-8 hrs	More than 8hrs
How much do your obsessive thoughts interfere with your personal, social, or work life?	None	Mild	Definite manageable	Substantially interference	severe
How much do your obsessive thoughts distress you?	None	Little Disabling	Moderate but manageable	Severe	Nearly constant, disabling
How hard do you try to resist your Obsessions?	Always try Rarely	Try much of the time	Try some of the time	Rarely try Often yield	Never try. Completely yield
How much control do you have over your Obsessive thoughts?	complete control	Much control	Some control	Little control	No control

Compulsions are repetitive behaviours or mental acts that you have a strong urge to repeat that are aimed at reducing your anxiety or preventing some dreaded event.					
How much time do you spend performing compulsive behaviors?	None	0-1 hrs/day	1-3 hrs/day	3-8 hrs/day	More than 8 hrs/day
How much do your compulsive behaviors interfere with your personal, social, or work life?	None	Mild	Definite manageable	Substantially interference	severe
How anxious would you feel if you were prevented from performing your compulsive behaviours?	None	Little	Moderate but Manageable	Severe	Nearly constant, Disabling
How hard do you try to resist your compulsive behaviors?	Always try Rarely	Try much of the time	Try some of the time	Rarely try Often yield	Never try. Completely yield
How much control do you have over your compulsive behaviors?	complete control	Much control	Some control	Little control	No control

Appendix-VI

Insomnia Severity Index (Morin, 2016).

Instruction: Read the instructions carefully. The following are symptoms that people sometimes have after experiencing in their life Please read each one carefully and mark your answer with an X according to how much appropriate to you.					
Insomnia Problem	None	Mild	Modera te	Sever e	Very Sever e
Difficulty falling asleep	0	1	2	3	4
Difficulty staying asleep	0	1	2	3	4
Problems waking up too early	0	1	2	3	4
How SATISFIED / DISSATISFIED are you with your CURRENT sleep pattern	Very Satisfi ed	Satisfi ed Mode rately	Satisfie d	Dissat isfied	Very Dissat isfied
How NOTICEABLE to others do you think your sleep problem is in terms of impairing the quality of your life?	Not at all Notice able	A Little	Somew hat	Much	Very Much Notice able
How WORRIED/DISTRESSED are you about your current sleep problem?	Not at all Worri ed	A Little	Somew hat	Much	Much Very Much Worri ed

To what extent do you consider your sleep problem to INTERFERE with your daily functioning (e.g. daytime fatigue, mood, ability to function at work/daily chores, concentration, memory, mood, etc.) CURRENTLY?	Not at all Inter-fering	A Little	Some-what	Some what Much	Very Much Inter-fering

Appendix-VII

Patient Health Questionnaire

(PHQ-9-Depression Severity Scale, Spitzer, et al., 1999)

Introduction: Read the instruction carefully. Over the last 2 weeks, how often have you been bothered by the following problems? Not at All = 0; Several Days = 1; Over Half the Days=2; Nearly Every Day=3					
1	Little interest or pleasure in doing things	0	1	2	3
2	Feeling down, depressed, or hopeless	0	1	2	3
3	Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4	Feeling tired or having little energy	0	1	2	3
5	Poor appetite or overeating	0	1	2	3
6	Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7	Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8	Moving or speaking so slowly that other people could have noticed? Or the opposite—being so idgety or restless that you have been moving	0	1	2	3
9	around a lot more than usual	0	1	2	3

Appendix-VIII

The Eating Disorder Examination (EDE: Fairburn and Cooper 1993)

Instruction: Read the statement carefully.							
NSG/S/ED/BN-5							
Give your response appropriate to your behaviour in the past 28days							
Sl No	Questions on eating	1-5	6- 12	13- 15	16- 22	23- 27	every day
1	Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?						
2	Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight?						
3	Have you tried to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)?						
4	Have you tried to follow definite rules regarding your eating (for example, a calorie limit) in						
5	Have you had a definite desire to have an empty stomach with the aim of influencing your shape or weight?						
6	Have you had a definite desire to have a totally flat stomach?						

7	Has thinking about food, eating or calories made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?						
8	Has thinking about shape or weight made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?						
9	Have you had a definite fear of losing control over eating?						
10	Have you had a definite fear that you might gain weight?						
11	Have you felt fat?						
12	Have you had a strong desire to lose weight?						

Appendix-IX

The Alcohol, Smoking, and Substance Involvement Screening Test

(ASSIST; WHO, 2003)

Instructions: 1.Read carefully		
2. Give your response appropriate to your behaviour		
In your life, which of the following substances have you ever used? (NON- MEDICAL USE ONLY)	Yes	No
Tobacco products (cigarettes, chewing tobacco, cigars, etc.)		
Alcoholic beverages (beer, wine, spirits, etc.)		
Cannabis (marijuana, pot, grass, hash, etc.)		
Cocaine (coke, crack, etc.)		
Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)		
Inhalants (nitrous, glue, petrol, paint thinner, etc.)		
Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)		
Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)		
Opioids (heroin, morphine, methadone, codeine, etc.)		
Other - specify:		

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Educational Qualifications

- 1) Sc. Nursing – RIPANS, 2008
- 2) M.Sc. Nursing – RGUHS, 2014
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Research Experience: Perusing Ph D Research

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Research Topic: Generalized Anxiety Disorder: Comorbidity among Adults
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Teaching Experience

- 1) Worked as a Lecturer in the Department of Nursing, RIPANS, from 2015 till date.
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Workshops/Training Programs Attended

- 1) National Workshop on Research Methodology in Nursing, organized by Nursing Council of Mizoram, (2021)
- 2) Workshop on Mental Health and Psychosocial Support, conducted by Nursing Council of Mizoram, (2023)
- 3) Faculty Development Program on Innovative Teaching Strategies in Nursing Education, Nursing Council of Mizoram, (2024)

Publications (if any)

- 1) Biaknungi V.L. & Zokaitluangi, Prof (2023). Generalized Anxiety Disorder Comorbidity with Posttraumatic Stress Disorder and Obsessive Compulsive Disorder. Published at Contemporary Social Scientist (CSS) Journal, MZU. Vol.15, Issue 2, ISSN No : 2230 – 956X, 2023.
- 2) V.L. Biaknungi & Dr. Lukima Saikia (2024). Generalized Anxiety Disorder and comorbidity with Depression. Published at Mizoram educational Journal (A National refereed Journal), MZU. Vol X, Issue 3 & 4, ISSN 2395-713X.

Seminars/Conferences Attended

- 1) Paper Presentation for the paper titled “Generalized Anxiety Disorder and Comorbidity with Depression” at 57th National & 26th International Conference of Indian Academy of Applied Psychology (IAAP), organized by the Department of Clinical Psychology and Psychology, Mizoram University on 27th – 29th January 2022.
- 2) Paper Presentation for the paper titled “Generalized Anxiety Disorder Comorbidity with Posttraumatic Stress disorder and obsessive Compulsive disorder” at the International conference- “Emerging Trends in Psychological Interventions :Future Prospects and Challenges” organized by School of Medical and Paramedical Sciences at Mizoram University 14th Nov – 16th Nov 2023.



INTERNATIONAL CONFERENCE
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EMERGING TRENDS IN PSYCHOLOGICAL INTERVENTIONS
(HEALTH AND ALLIED SCIENCES): FUTURE PROSPECTS AND CHALLENGES

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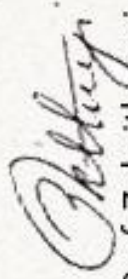
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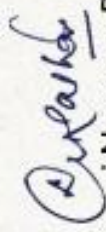
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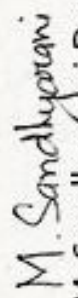
For delivering Key note address/Invited talk/ Symposium/Paper presentation on the topic

Generalized Anxiety Disorder Comorbidity with Post Traumatic Stress Disorder and Obsessive Compulsive Disorder

in the International Conference on Emerging Trends in Psychological Interventions
(Health And Allied Sciences): Future Prospects And Challenges (RCI - Accredited).
Organised by School of Medical and Paramedical Sciences, Mizoram University,
from 14th November to 16th November, 2023.


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Mizoram University
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Mizoram University
Secretary



57th NATIONAL & 26th INTERNATIONAL CONFERENCE
OF

INDIAN ACADEMY OF APPLIED PSYCHOLOGY (IAAP)

Virtual conference

Relevance of psychology in pandemic condition & it's impact on well-being in the digital world.

Certificate of Participation

This Certificate is awarded to

Dr/Mr/Mrs/Ms V.L. Biaknungi

For presenting paper, titled - General Anxiety Disorder and Co-morbidity with Depression

Co-authored by Prof. Zokaitluangi

**in the 57th National & 26th International Conference
of the Indian Academy of Applied Psychology (RCI - Accredited), organised jointly by
the Department of Clinical Psychology and Department of Psychology, Mizoram University,
from 27th January to 29th January, 2022.**


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Generalized Anxiety Disorder Comorbidity with Post Traumatic Stress Disorders and Obsessive-Compulsive Disorders

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Abstract

This study examined the Generalized Anxiety Disorder Comorbidity with Post Traumatic Stress Disorders and Obsessive-Compulsive Disorders by comparing between 80 GAD patients (40 male and 40 female) and 80 Adult patients without GAD who selected through purposive sampling procedures from the Mizo Adults, samples had well-matched demographic variables, age range between 20 to 30 years of age served as a sample. The study used (1) the Generalized Anxiety Disorder Assessment (GAD-7: Spitzer et al., 2006)., (2) the PTSD Inventory (PTSD-8; Hensen et al, 2010), and the Yale-Brown Obsessive-Compulsive Scale (Goodman et al, 1989) for the collection of data. Results portrayed that Adult Patients with GAD had a higher PTSD and OCD than adult patients without GAD significant levels, and Female Adult Patients with GAD are also higher than adult male patients with GAD, and GAD predicted PTSD and OCD significantly. The results may be interpreted as Adult Patients with GAD need higher psychological care than patients without GAD, and female adult patients have more higher symptoms of PTSD and OCD than male adult patients can be explain as special attention should be while designing psychological care .

Keywords: *GeneralizedAnxiety Disorder, Post Traumatic Stress Disorders, Obsessive Compulsive Disorder, male, female, etc*

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INTRODUCTION

Generalized Anxiety disorder is defined as excessive anxiety and worry (apprehensive expectation), occurring more days than not for at least 6 months, about several events or activities (APA, 2013). In generalized anxiety disorder, the anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning. GAD is characterized by worries about possible negative outcomes in the future (Dugas et al., 1998b).

Posttraumatic stress disorder is another form of anxiety disorder in which it occurs in a person who has experienced or witnessed a traumatic event, series of events or set of circumstances for more than a month and caused significant distress or problems in the

individual's daily functioning. Posttraumatic Stress disorder may be caused by natural disasters, serious accidents, terrorist attack, war/combat, rape/sexual assault, historical trauma, intimate partner violence, bullying etc (APA,2013).

Obsessive compulsive disorder is a disorder a recurring, unwanted thoughts, ideas or sensations (obsessions), compel to do something repetitively (compulsion) which is time consuming (more than 1 hour a day) in trying to do away such reoccurring thought which resulting significant distress, and impairment in work or social functioning. (APA,2013)

The Generalized Anxiety Disorder and Obsessive-Compulsive Disorder symptoms are overlapping but their differences are recognized in different domains. Accordingly, many symptoms such as repetitive, unwelcome, and time-consuming thoughts (American Psychiatric Association, 2013) are common to both. Likewise, GAD and OCD share, “intolerance of uncertainty” (Frost et al., 1997) which refers to the compulsive behaviour in OCD and to the worry GAD (Dugas et al., 2004). When lacks motor symptoms and mental compulsions are not identified, OCD may be misdiagnosed as GAD (Sharma et al.,2021). OCD and Generalized anxiety disorder (GAD) may have significant similarities, leading to confusion. The main distinction between the two is that, OCD concerns are more unrealistic whereas GAD anxieties are typically more grounded. The symptoms of posttraumatic stress disorder and Generalized Anxiety Disorder are significantly overlap, and a high degree of comorbidity happened between these two disorders but future research is needed to identify what factors lead to GAD and PTSD separately (Przeworski & Dunbeck, 2016).

REVIEW OF LITERATURE

Study revealed that the Italian population experienced high levels of distress during the worst months of the pandemic, indicating presence of anxiety symptoms and high levels of PTSD symptoms that women scored considerably higher than men on all dimensions of PTSD symptoms including intrusion, avoidance, and hyperarousal. Gender and age (generation) appears to be a distinguishing factor of experiencing PTSD and GAD symptoms (Brivio, Oliveri, Guidi & Pravettoni, 2021).

A study compared two patient groups: individuals with GAD and patients with OCD which revealed that the OCD group exhibited a higher prevalence and stronger expression of obsessive and compulsive symptoms compared to the GAD group. Nonetheless, 94% of GAD patients acknowledged having some obsessive-compulsive symptoms with obsessions and compulsions varied. Increases in the severity of anxiety symptoms were shown to be

correlated with higher levels of obsessive-compulsive symptoms in both the GAD and OCD groups. Obsessive-compulsive symptoms are frequently present in people with generalized anxiety disorder (GAD) and obsessive-compulsive symptoms in individuals with GAD could differ from those in people with OCD (Citkowska-Kisieleska et al.,2020). A cross-sectional study conducted among war veterans, 44.8 % having PTSD with persistent somatic issues, and 97.4% met the criteria for comorbid mental disorders. The most common psychiatric conditions among them were dysthymia (13.6%), panic disorder with agoraphobia (11.0%), generalized anxiety disorder (82.5%), alcohol abuse (34.4%), suicidal thoughts (26.0%), past depressive episodes (36.4%), and depressive episodes with melancholic features (36.4%) suggesting that numerous comorbidities invariably present in veterans of combat with chronic PTSD (Klaric et al.,2017).

Results of metanalysis demonstrated a lifetime comorbidity of 22% for particular phobia, 18% for social anxiety disorder (social phobia), 12% for Panic Disorder, and 30% for Generalized anxiety disorder (GAD) between OCD and other anxiety disorders. Adult OCD sufferers have a high specific comorbidity rate with GAD, and a lifetime history of GAD has been recorded by over 30% of persons with OCD (Andrews et al., 1990). An etiological standpoint mentioned that a classical conditioning to an anxiety-provoking stimuli is linked to both PTSD and OCD. As a veterans who experienced battle trauma were later diagnosed with both PTSD and OCD (Zohar et al., 2011). The obsessive thoughts associated with OCD, such as doubt, disgust of dirt, and fear of contamination are different from the thoughts, flashbacks, or psychological anguish in reaction to reminders of the incident in PTSD. Furthermore, the generic OCD like trash, frequent washing, public restrooms, etc had nothing to do with the trauma (Pallanti, 2011).

Statement of the problem

Available literature evinced that approximately 6% of the general population suffers from generalized anxiety disorder, a present and usually chronic mental illness (Murphy & Leighton, 2008). Additionally, GAD have a lifetime comorbidity of OCD with other anxiety disorders around 30% (Andrews et al., 1990). Thus, it is evident that in order to receive an appropriate course of treatment and have a positive outcome, a precise assessment of OCD and anxiety comorbidities is required.

OCD and post-traumatic stress disorder have a number of symptomatology-related similarities. Both have intrusive thoughts that recur frequently, as well as avoidant conduct that seriously impairs day-to-day functioning and is motivated by the need to avoid any cue,

thing, or location that makes them uncomfortable. In order to lessen anxiety, both entail compulsive behaviours (de Silva & Marks, 1999; 2001).

Numerous investigations have tried to investigate the connection between OCD symptoms and trauma, and found both PTSD and OCD among war veterans (Zohar et al, 2011). In conclusion, in order to begin a more focused and successful course of therapy, it is evident that an accurate and thorough examination of an OCD patient who also has another anxiety disorder is necessary.

OBJECTIVES: The study aims to study the Generalized Anxiety Disorder Comorbidity with Post Traumatic Stress Disorders and Obsessive-Compulsive Disorders, and has some objectives as follows:

- 1) To examine the applicability of *(1) the Generalized Anxiety Disorder Assessment (GAD-7: Spitzer et al., 2006)*, *(2) the PTSD Inventory (PTSD-8; Hensen et al, 2010)*, and *(3) Yale-Brown Obsessive-Compulsive Scale (Goodman et al, 1989) scales to the target population.*
- 2) To examine any significant difference between *Adult Patients with GAD and Adult patients without GAD*, and also between *Female Adult Patients and adult Male patients on PTSD and OCD.*
- 3) To examine any significant relationship between *PTSD and OCD* variables.
- 4) To study any significant prediction of *PTSD* on *OCD* among the samples.

HYPOTHESIS: In consistency with the objectives of the study the following hypotheses were framed for the present study:

- 1) The tool selected to be employed in the study: *(1) Generalized Anxiety Disorder Assessment (GAD-7: Spitzer et al., 2006)*, *(2) the PTSD Inventory (PTSD-8; Hensen et al, 2010)*, and *(3) Yale-Brown Obsessive-Compulsive Scale (Goodman et al, 1989) will have applicability among the targeted population will have applicability targeted population.*
- 2) *Adult Patients with GAD would score higher than adult patients without GAD, and Female Adult Patients will score higher than Adult Male patients on PTSD and OCD.*
- 3) There will be a positive significant relationship between *PTSD and OCD* variables.
- 4) PTSD will have a significant prediction on the *OCD* variables among the samples.

METHODOLOGY

The methodology followed in the study was presented below:

Sample: 80 samples consisting of two groups comprises of 40 patients with GAD diagnosed and 80 adult patients not having GAD but shared demographic variables (sex, age, etc.) with equal number of male and female, age range was 20 to 30 years of age were selected from the admitted adult patients admitted in Psychiatric Civil Hospital (Kulikawn) and Zoram Medical hospital (Falkawn) run by Government of Mizoram, and having well matched sociodemographic variables served as sample.

TOOLS USED:

1. **The socio-demographic profiles (Biaknungi, 2022):** It consists of the general profiles including age, gender, address, type of illness, onset time of illness, any other illness with onset, treatment history, etc to tap the subject's information which can be utilized for cross-checking of the true representation of the sample and to get any further relevant information.
2. **The Generalized Anxiety Disorder Assessment (GAD-7):** Spitzer et al., 2006) which measure the generalized anxiety disorder across various settings and populations, it has excellent internal consistency, scored on a four-point Likert scale (0–3) with total scores ranging from 0 to 21 with higher scores reflecting greater anxiety severity.
3. **The Post-traumatic Stress Disorder Scale:** A modified form of the PTSD-8 scale will be used to identify patients who have Posttraumatic Stress Disorder. The PTSD-8 is derived from the first sixteen items of the Harvard Trauma Questionnaire (HTQ) , which corresponds to the DSM-IV criteria for PTSD (Hansen, Andersen, Armour, Elkit, Palic & Mackril, 2010). This scale is a Likert scale consisting of eight items which are rated on four four-point scale.
4. **Informed Consent Form (Biaknungi, 2022).** The scale constructed by researcher to get inform about the research, expected participation of the sample, assurance of privacy and confidentially, time taken, condition of voluntary participation etc for getting written consent of the sample.

Research Design: The design of the present study was 2 x 2 factorial design which represents 2 illness (patient with GAD and Patient without GAD) and 2 genders (male and female) comparing on PTSD and OCD.

Procedures: The researcher prepared a specific proforma for collecting demographic details of participants used for the present study, selected through themulti-stage sampling procedures. The selected psychological tools were collected, necessary translation and multiplication was done. Necessary permission from authorities and carers, and written informed consent was taken. Then, the administration of the psychological scales and

interview will be conducted by strictly following APA research ethics (2000, 2016) and prescribed manual of the tests; all doubts were clarified, confidentiality was assured to maintain.

RESULTS

The data collected through selected psychological tools from samples were checked to screened out missing number and outlier, nothing was found as the researcher did entry of data carefully, and ready for further analysis. The results was presented sequentially following the objectives of the study as follows:

Objective-1: To examine the applicability of (1) *the Generalized Anxiety Disorder Assessment (GAD-7: Spitzer et al., 2006)*, (2) *the PTSD Inventory (PTSD-8; Hensen et al, 2010)*, and (3) *Yale-Brown Obsessive-Compulsive Scale (Goodman et al, 1989)* scales to the target population.

To examine the applicability of the two scales, descriptive statistics (mean, SD, Kurtosis and Skewness) were calculated for the normality assumption check, The results provided that skewness values and Kurtosis values were less than 1.0 (+/-) which conveyed that the data had a normality. Cronbach Alpha Reliability was employed and the result showed high reliability that PTSD felt at .71 and OCD reliability at .73. The homogeneity of variance was also checked and showed acceptable homogeneity (PTSD =.19 and OCD= .16). The overall results showed the applicability of the tests in the targeted population. The results also highlighted the appropriateness of parametric statistics for further analysis, and the result suggested accepting hypothesis no-1.

Objective-2: To examine any significant difference between *Adult Patients with GAD and Adult patients without GAD, and also between Female Adult Patients and Male Adult patients of the samples on PTSD and OCD.*

To examine any significant difference between the Adult Patients with GAD and Adult patients without GAD, and also between Female Adult Patients and Male Adult patients of the samples on PTSD and OCD, an independent t-test was used. The result displayed that *Adult Patients with GAD* scored higher than *Adult patients without GAD* on PTSD (M=23.52; 16.82; $t=4.63.10$; $p>.01$) and OCD (M=33.19; 29.65; $t=3.49$; $p>.01$) and significant at significant .01 level. The same trend was found between female and male

patients, that females scored higher than males on PTSD ($M=22.26$; 17.09 ; $t=3.58$; $p>.01$) and on OCD ($M=32.94$; 29.90 ; $t=2.67$; $p>.01$) at significant .01 level. The result has accepted hypothesis no-2. A study on Gender differences in Generalized Anxiety Disorder: Results from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) revealed that Male and female prevalence ratios for DSM-IV GAD were 1:1.9 throughout a lifetime and 1:2.2 during 12 months. Comorbid drug and alcohol use disorders, nicotine dependence, and antisocial personality disorder were substantially more common in men with GAD. Comorbid mood disorders (except bipolar disorder) and anxiety disorders (apart from a social anxiety disorder) were substantially more common in women with GAD (Lopez et al, 2008). Women have a two to three times higher risk of developing post-traumatic stress disorder (PTSD) compared to men due to several factors (Christiansen & Hansen, 2015).

The lifetime prevalence of PTSD is about 10–12% in women and 5–6% in men. The lifetime prevalence of PTSD is about 10–12% in women and 5–6% in men with re-experiencing and anxious arousal (Charak et al., 2014). Men and women experience different types of traumas (Van der Meer et al., 2017), women are exposed more to high-impact trauma (e.g. sexual trauma) than men, and at a younger age. OCD may be more common among males in childhood but is more common among females in adolescence and adulthood (Mathes et al., 2019); and a higher rates among women than men (Helzer et al. 1987).

Objective-3: There will be a positive significant relationship between *PTSD and OCD* variables.

The study employed Pearson's Correlation to elucidate any significant difference between PTSD and OCD, and found a significant positive relationship between the two ($r=.34$; $p>.01$) which accepted hypothesis no 3 of the study. The finding was in line with earlier findings that PTSD is comorbid with anxiety disorders evinced with the result of meta-analyses of community and psychiatric samples (Spinhoven et al., 2014). A study conducted among veterans in the Southeast reported that 81% of the sample were with PTSD, 74% for OCD, and 60% for both with a substantial positive connection (Franklin & Raines, 2019). The finding portrayed the positive correlation between PTSD and OCD among the samples and accepting the hypothesis no -3 of the study with a suggestion that PTSD may endorsing OCD in patients.

Objective -4: To study any significant prediction of *PTSD* on *OCD* among the samples.

The simple regression analysis results showed that the PTSD predicted OCD at 19%, and Durbin Watson was lower than 2.0 (DW=1.09) indicating that there was no autocorrelation detected in the sample, and the results suggested accepting the hypothesis no-4. The patient who has met any kind of trauma may compel to perform some kind of OCD symptom (Van der Meer et al., 2017) as earlier mention in earlier findings, and women met higher experience of trauma resulting to have higher OCD than male samples as mention by earlier researcher (Van der Meer et al., 2017; Mathes et al., 2019; Helzer et al. 1987).

Table: Showing normality, homogeneity, reliability of the scales; t-test between two types of patients and genders, correlation between PTSD and OCD, prediction of OCD on PTSD among the samples			
Groups	Statistics	PTSD	OCD
Adults patients with GAD	Mean	23.52	33.19
	Std. Deviation	4.63	6.17
	Kurtosis	-0.65	0.83
	Skewness	-0.74	0.79
Adult patients without GAD	Mean	16.82	29.65
	Std. Deviation	4.54	4.42
	Kurtosis	-0.69	0.72
	Skewness	-0.66	0.83
Female Adult Patients	Mean	22.26	32.94
	Std. Deviation	4.33	4.67
	Kurtosis	-0.67	0.72
	Skewness	-0.72	0.81
Male Adult Patients	Mean	18.09	29.90
	Std. Deviation	3.57	4.43
	Kurtosis	-0.59	0.81
	Skewness	-0.67	0.75
Reliability (Alpha)		.71	.73
Test of Homogeneity of Variances		.19.	16
t-test between Adult Patients with GAD and without GAD		4.63**	3.49 **
t-test between female Patients and male		3.53**	2.67**
Correlation between PTSD and OCD		r = .34**	
Prediction of PTSD on OCD		R ² =.19; Durbin-Watson=1.09	
**= significant at the 0.01 level (2 tailed); *= significant at the 0.05 level (2 tailed)			

Limitation: Participants not big enough to represent the wider population being small size sample. More sample size and looking more types of illness would be preferable.

Furthermore, no validation studies had been conducted on the selected scales in the targeted population.

Significant of the study: The study contributed about Generalized Anxiety Disorder Comorbidity with Posttraumatic Stress Disorder and Obsessive-Compulsive Disorder which not available in the literature, especially in the targeted population. Higher symptom of PTSD and OCD in Adult patients with GAD than Adults patients without GAD, and in Adult female patients and Adult male patients highlighted the need of paying more attention to GAD patients than other mental patients not having GAD, and female adult patients than male adults patient for psychological intervention and also the need of more research to confirmed the psychological problems of patients in framing prevention, early detection and providing health care system.

Implications: This work provides a new evaluating approach on GAD and PTSD and OCD, and contributes to understanding their relationship and predictors. The scales may inspire further simple evaluation of GAD with PTSD and OCD measurement, which could be benefit for prevention and intervention in the future to come.

Suggestion: Based on the finding, it was suggested that the sample size can be increased for generalizing the results. Other groups of mental illness can also be studied/focussed upon. There is a need for more research on the psychological well-being of the neurotic patients.

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Ethical consideration: The study was conducted under a strict consideration of ethical concerns following APA ethics (2002 & 2017), and got an ethical clearance from Mizoram University

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Abstract

General Anxiety Disorder and Co-morbidity with Depression

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Generalized Anxiety Disorder (GAD) and Major Depressive Disorder have been known as having a high rate of co morbidity, may be ranging from 40% to 98% in treatment studies. Models have been put forth to explain this high rate of co-morbidity due to various factors such as family, environment, personality, physical health and gene factors. The present study examined the level of GAD, co-morbidity with Depression, gender difference on generalized anxiety disorder and depression; it employed the Patient Health Questionnaire (PHQ-9-Depression Severity Scale, Spitzer, et al., 1999) on 100 patients with GAD diagnosed admitted in Hospital and 100 normal person not having GAD but shared demographic variables (sex, age, etc.) with equal number of male and female. Results highlighted the positive relations between level of anxiety and depression. Results evinced the need of psychological care for person living with GAD as their burden was coupled with depression.

Keyword: Anxiety, depression, comorbidity, environment, personality, etc.

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GENERALIZED ANXIETY DISORDER AND CO-MORBIDITY WITH DEPRESSION

Generalized Anxiety disorder is defined as an excessive anxiety and worry (apprehensive expectation), occurring more days than not for at least 6 months, about a number of events or activities (APA, 2013). In generalized anxiety disorder, the anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning. GAD is characterized by worries about possible negative outcomes in the future (Dugas et al., 1998b).

Depression has been distinguished from anxiety by the experience of loss of pleasure, thoughts of personal loss and failure, and dysphoric mood (Clark, Beck, & Beck, 1994), while anxiety has been distinguished by threat-related thoughts, subjective anxiety, worry, and tension (Clark et al., 1994). Depression (major depressive disorder) is a common and serious medical illness that negatively affects how you feel, the way you think and how you act (APA, 2013) that may cause the individual clinically significant distress or impairment in social, occupational, or other important areas of functioning; and the symptoms must also not be a result of substance abuse or another medical condition (Truschel, 2020).

GAD had a combined lifetime prevalence of 3.7% (0.1%), 12-month prevalence of 1.8% (0.1%), and 30-day prevalence of 0.8% (APA, 2013). Prevalence estimates varied widely across countries, with lifetime prevalence highest in high-income countries (5.0%), lower in middle-income countries (2.8%), and lowest in low-income countries (1.6%). Generalized anxiety disorder typically begins in adulthood and persists over time, although onset is later and clinical course is more persistent in lower-income countries. Lifetime co-morbidity is high (81.9%), particularly with mood (63.0%) (Ruscio et al, 2017).

Women are 2-3 times more likely than men to meet lifetime criteria for Generalized Anxiety Disorder (GAD); having more somatic complaints, fatigue and muscle tension than men; the lifetime prevalence rate of Generalized Anxiety Disorder (GAD) is between 5% and 6% in which women are reported to have an increase rate of GAD in comparison to men. GAD is reported as the second most common psychiatric disorder after depression in a primary setting. In GAD, around 90% of the individuals have comorbid psychiatric illness in which mood disorders is the most common lifetime comorbid disorder that the GAD patient acquired. GAD is also comorbid with another anxiety disorders like Panic Disorder and Social Anxiety Disorder (Jalnakpurkar, Allen & Pigot, 2018).

Studies have shown that there will be increase mental health problems when there is an outbreak of infectious diseases and in that female are more prone than males. Hou et al.,(2020) investigated gender differences of depression and anxiety and explored the associated factors during the Covid-19 epidemic among the Chinese social media users. They have recruited 3088 participants through social media in China. They conducted the study using the socio-demographic variables, COVID-19 epidemic related questions, the 2-item Patient Health Questionnaire (PHQ-2), and the 2-item Generalized Anxiety Disorder Scale (GAD-2), the Chinese version of the 10-item Connor-Davidson Resilience Scale. The study revealed that the total prevalence of depression and anxiety was 14.14% and 13.25% respectively. Females were experiencing more severe stress and anxiety symptoms, while males showed better resilience to stress.

Study provided that 37% of depression cases, Anxiety began before or concurrently whereas 32% of anxiety cases, depression began before or concurrently. 72% of lifetime anxiety cases had a history of depression, but 48% of lifetime depression cases had anxiety (Moffitt et.al.,2007).

Generalized anxiety disorder has high rates of comorbidity such as major depressive disorder and dysthymia. In the study of the comorbidity of Generalized anxiety disorder, evidences shows that generalized anxiety disorder and major depressive disorder have shared a genetic diathesis (Noyes Jr.,2001), females are more likely than males to experience an anxiety disorder (Yonkers & Gurguis, 1995), the prevalence rates were also higher in women than men for each anxiety disorder examined, including generalized anxiety disorder (Kessler et al., 1994) and a previous investigation found its association with depression (Lewinsohn et al., 1994). Generalized anxiety disorder (GAD) are highly prevalent and frequently comorbid diagnoses with Depression as a majority of individuals with MDD report a lifetime history of one or more

anxiety disorders (Fava, et al., 2000; Kessler, et al., 1996). GAD in particular is highly comorbid, with 60–70% having a lifetime history of MDD (Carter et al., 2001). MDD and GAD are accompanied by overlapping, perhaps indistinguishable genetic liabilities (Hettema et al., 2006), and a number of shared symptoms such as fatigue, difficulty concentrating, sleep disturbance, and agitation (Zimmerman & Chelminski, 2003). Across all psychiatric disorders, comorbidity is the rule, which is definitely the case for anxiety and depressive disorders, as well as their symptoms. With respect to major depression, a worldwide survey reported that 45.7% of individuals with lifetime major depressive disorder had a lifetime history of one or more anxiety disorder.

Anxiety and depressive disorders are among the most common psychiatric illnesses; they are highly comorbid with each other, and together they are considered to belong to the broader category of internalizing disorders. Based on statistics from the Substance Abuse and Mental Health Services Administration, the 12-month prevalence of major depressive disorder in 2017 was estimated to be 7.1% for adults and 13.3% for adolescents (Kalin, 2020). Data for anxiety disorders are less current, but in 2001–2003, their 12-month prevalence was estimated to be 19.1% in adults, and 2001–2004 data estimated that the lifetime prevalence in adolescents was 31.9% (NIMH). Both anxiety and depressive disorders are more prevalent in women, with an approximate 2:1 ratio in women compared with men during women's reproductive years (Kalin, 2020).

Across all psychiatric disorders, a worldwide survey reported that 45.7% of individuals with lifetime major depressive disorder had a lifetime history of one or more anxiety disorder (Kessler et al., 2015), commonly coexist during the same time frame; 41.6% of individuals with major depression also had one or more anxiety disorder over the same; and anxiety disorders, the lifetime comorbidity with depression is estimated to range from 20% to 70% (Dunner, 2001), that 53% of the patients with major depression had significant anxiety (Hettema et al 2006); and depression measure explained 44% of the variance in anxiety measures (Menza et al., 1993).

Objectives:

Much research has been done on anxiety but comorbidity is underestimated, and they are not yet done in the targeted population of the study. On these counts, to meet the research gap, the present study framed the following objectives:

- 1) To determine gender differences in GAD and depression among the samples
- 2) To determine illness differences in GAD and depression among the samples
- 3) To examine the relationship between GAD and Depression.
- 4) To study any prediction of Depression on GAD

Hypothesis

To meet the objectives framed for the present study, the following hypotheses were outlined, as follow:

- 1) There will be a significant gender difference in GAD and Depression among the participants.
- 2) Patient with GAD and patients without GAD will have different score on Depression
- 3) There will be a significant positive relation between GAD and Depression
- 4) To significant prediction of depression on GAD was expected

Methodology : The methodology followed in the study was presented below:

Sample: 200 samples consisting of two groups comprises of 100 patients with GAD diagnosed admitted in Hospital and 100 normal person not having GAD but shared demographic variables (sex, age, etc.) with equal number of male and female, age range was 25 to 50 years of age. Equal gender representation in both patient with GAD and Patient without GAD was there for comparison.

Tools used:

- 1) **The socio-demographic profiles:** It consists of the general profiles including age, gender, address, type of illness, onset time of illness, any other illness with onset, treatment history, etc to tap the subject's information which can be utilized for cross-checking of the true representation of the sample and to get any further relevant information.
- 2) **Patient Health Questionnaire (PHQ-9-Depression Severity Scale, Spitzer, et al., 1999):** It is a diagnostic instrument for common mental disorders, which scores each of the 9 DSM-IV criteria as "0" (not at all) to "3" (nearly every day), contained nine-items and having Cronbach's alpha of 0.89 among primary care patients. It is one of the most validated tools in mental health and can be a powerful tool to assist clinicians with diagnosing depression and monitoring treatment response.
- 3) **The Generalized Anxiety Disorder Assessment (GAD-7: Spitzer et al., 2006)** which measure the generalized anxiety disorder across various settings and populations, it has excellent internal consistency, scored on a four-point Likert scale (0–3) with total scores ranging from 0 to 21 with higher scores reflecting greater anxiety severity.

Research Design: The design of the present study was 2 x 2 factorial design which represents 2 illness (patient with GAD and Patient without GAD) and 2 genders (male and female) comparing on GAD and Depression.

Procedures: The researcher will prepare a specific proforma for collecting demographic details of participants used for the present study, selected through the multi-stage sampling procedures. Then, the administration of the psychological scales and interview will be conducted by strictly following APA research ethics (2000, 2016) and prescribed manual of the tests; all doubts were clarified, confidentiality was assured to maintain.

Results: The raw data was checked for missing and outlier, then again checked for applicability of the selected scales on normality, linearity, homogeneity and reliability. The scales were found trustworthy for using in the target population ($\alpha = .89; .83$), Skewness and kurtosis showed normality range from -1.02 to .51, homogeneity was found (Levene's Test = .00; .00) significant for both scales which evinced that the parametric statistics may be used for analysis. Pearson's correlation revealed the correlation between GAD and depression was Positive significant relationship ($\alpha = .89^{**}$). Two-way ANOVA results revealed the significant effect of gender on depression (45%) and GAD (9%), with depression prediction on anxiety (28%).

Table: showing Mean, SD, kurtosis, skewness, reliability, homogeneity, correlation and ANOVA on Depression and GAD for the sample.									
Illness	Gender	Depression				GAD			
		Mean	SD	kurtosis	skewness	mean	SD	kurtosis	Skewness
GAD Patients	Female GAD	27.30	2.93	-.83	-.22	6.85	2.86	-.36	.49
	Male GAD	22.26	2.89	-.49	-.13	6.71	2.67	-.11	.48
Non-GAD patients	Female Non-GAD	20.50	2.67	.07	-.15	5.55	2.07	-.16	.37
	Male Non-GAD	15.56	2.47	-.49	.51	4.84	1.93	.43	.48
Total female scored		24.78				6.78			
Total Male scored		18.03				5.20			
Total score GAD patients		23.90				6.20			
Total Non-GAD patients		18.91				5.17			
Reliability		.89				.83			
Homogeneity (Brown Forsythe)		.00				.00			
Pearson's Correlation between depression and GAD						r=.26**			
GAD prediction on Depression (simple regression)						F=. 29.14**; R ² =.09			
ANOVA	Gender	F=332; eta sq= 45**				F=42.81; eta sq=.09**			
	Illness	F=131.82; eta sq= 28**				F=25; eta sq=.000 NS			

Discussion:

The results illustrated the female scored higher than male, and patients with GAD scored higher than non-GAD patient on anxiety and depression which invite to accept the first hypothesis and second hypothesis; it has conformation finding from the earlier research that females are more likely than males to experience an anxiety disorder (Yonkers & Gurguis, 1995). Pearson's correlation revealed the correlation between GAD and depression was positive significant relationship ($\alpha = .89^{**}$) which support the third hypothesis and got consistency finding with the earlier research that individuals with lifetime major depressive disorder had a lifetime history of one or more anxiety disorder (Kessler et al., 2015). Two-way ANOVA results revealed the significant effect of gender on depression and GAD, with depression prediction on anxiety which provided reasons to accept the third and fourth synopsis and also got a support of earlier findings that patients with major depression had significant anxiety (Hettema et al., 2006) and depression explained 44% of anxiety (Menza et al., 1993).

Limitations: Participants may not represent the wider population being small size sample and one type of mental illness. More sample size and looking more types of illness would be preferable. Furthermore, no validation studies had been conducted on the selected scales.

Implications: This work provides a new evaluating approach on anxiety and depression, and contributes to understand their relationship and predictors. The scales may inspire further simple evaluation of GAD and depression measurement, which could be benefit for prevention and intervention.

Suggestion: Based on the finding, it was suggested that the GAD and Depression is highly prevalence and need more research with bigger samples looking on the causes and its implications in the targeted population for framing prevention and intervention

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DEPARTMENT	:	Nursing
TITLE OF THESIS	:	Generalized Anxiety Disorder: Co-morbidity among Adults
DATE OF ADMISSION	:	7 th December, 2020
APPROVAL OF RESEARCH PROPOSAL		
1) DRC:	:	15 th April, 2021
2) BOARD OF STUDIES	:	20 th April, 2021
3) SCHOOL BOARD	:	19 th May, 2021
MZU REGISTRATION NO	:	2006577
Ph.D. REGISTRATION NO	:	MZU/Ph.D./1668 of 07.12.2020
EXTENSION (IF ANY)	:	NIL

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ABSTRACT

GENERALIZED ANXIETY DISORDER: CO-MORBIDITY AMONG ADULTS

**AN ABSTRACT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENT FOR THE DEGREE OF DOCTOR OF
PHILOSOPHY**

V.L. BIAKNUNGI

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**DEPARTMENT OF NURSING
SCHOOL OF MEDICAL AND PARAMEDICAL SCIENCES
DECEMBER, 2025**

**GENERALIZED ANXIETY DISORDER: CO-MORBIDITY
AMONG ADULTS**

By

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**In partial fulfillment of the requirement of the Degree of Doctor of Philosophy
in Nursing of Mizoram University, Aizawl**

INTRODUCTION

Anxiety disorders are the most common of all psychiatric illnesses and result in considerable functional impairment and distress. Prevalence rates for anxiety disorders within the general population have been given at 4 to 6 per cent for Generalized anxiety disorder and Panic disorder, 2 to 3 per cent for Obsessive-compulsive disorder (OCD), 8 per cent for Post-traumatic Stress Disorder (PTSD), 13 per cent for Social Anxiety Disorder and 22 per cent for Phobias (Townsend, 2010).

Despite the high prevalence rates of these anxiety disorders, they often are under recognized and undertreated clinical problems (Bhatt, 2019).

On March 11, 2020, the World Health Organization (WHO) declared COVID-19 a global pandemic (WHO, 2020). The outbreak resulted in significant mortality and triggered widespread mental health concerns. Studies have identified various psychological stressors including fear of infection, loss of loved ones, isolation, job loss, financial insecurity, media overload, and the vulnerability of specific groups in both high- and low-income countries (Cénat et al., 2021; Lai et al., 2018; Ahmed et al., 2020). Healthcare workers, in particular, experienced severe emotional and physical fatigue. These stressors have been linked to mental health conditions such as anxiety, depression, insomnia, PTSD, OCD, somatization, self-harm, and suicidal ideation (Bo et al., 2020; Cao et al., 2020). Prior research also confirms that infectious disease outbreaks are associated with mental health symptoms in survivors, healthcare workers, family members, and the wider community (Cénat et al., 2020)

A systematic review showed a relatively high rate of anxiety, posttraumatic stress disorder and psychological distress symptoms among population affected by COVID-19 in multiple countries. The prevalence of anxiety was 15.15%, insomnia was 23.87%, PTSD was 21.94%, psychological distress 13.29% than others (Cénat et al., 2021).

Anxiety disorders are often under recognized and untreated, leading to severe depression, substance dependence, and even suicide. Individuals with chronic anxiety typically experience a poor quality of life. Effective management requires a team approach—pharmacist, nurse, and physician—to educate patients and families, promote drug adherence, and provide support. Family involvement is crucial in maintaining treatment compliance. Despite optimal care, relapse rates remain high (Jordan et al., 2018; Dold et al., 2017; Cho et al., 2016).

GENERALIZED ANXIETY DISORDER

Generalized Anxiety Disorder (GAD) is a chronic mental health condition marked by persistent, excessive, and uncontrollable worry across various life areas such as health, finances, work, and family (APA, 2013). Unlike temporary anxiety triggered by specific stressors, GAD is ongoing and often disproportionate to real-life situations. According to the DSM-5, GAD is diagnosed when excessive worry occurs on most days for at least six months and includes symptoms like irritability, restlessness, fatigue, muscle tension, sleep disturbances, and difficulty concentrating (APA, 2013).

In the U.S., the DSM-IV estimates GAD's lifetime prevalence at 5%, with current rates between 2% and 3%. Factors such as gender, race, and socioeconomic status influence prevalence, yet only 43.2% of affected individuals receive treatment (Weisberg, 2009). Environmental and genetic influences, poor sleep, and high social media usage contribute to rising anxiety rates. In India, the 2016 National Mental Health Survey (NMHS) highlighted gaps in mental health awareness and care (Manjunatha et al., 2022). Though GAD is common in general practice, research often focuses more on severe psychiatric disorders and addictions (Hoehn-Saric & McLeod, 1985).

Historical Background and Conceptual Development

The conceptual understanding of anxiety has evolved over centuries, transitioning from broad interpretations of nervousness to a more refined

classification of specific anxiety disorders. Early psychiatric literature from the late 19th and early 20th centuries treated anxiety as a general feature of neurosis, lacking clear diagnostic boundaries. Sigmund Freud was among the first to distinguish anxiety from fear and to discuss its psychodynamic roots. Freud (1926) categorized anxiety neurosis as a condition driven by internal psychic conflict, which laid a theoretical foundation but lacked empirical validation.

Systematic classification of anxiety began in the mid-20th century with the DSM-I (1952), which grouped anxiety under “psychoneurotic disorders.” DSM-III (1980) recognized Generalized Anxiety Disorder (GAD) as a distinct diagnosis, though it initially required symptoms like motor tension and autonomic hyperactivity, leading to overlap criticisms (Barlow et al., 1986). DSM-IV (1994) and DSM-5 refined the criteria, shifting focus from physiological symptoms to cognitive aspects such as excessive worry and persistent apprehensive expectations. The shift in conceptualization reflected increased understanding of GAD as a unique condition rather than a residual category.

Today, GAD is recognized not only as a standalone disorder but also as one that frequently co-occurs with various psychiatric and medical conditions, significantly contributing to global disease burden and individual functional impairment (Stein & Sareen, 2015).

Risk factors and symptoms of GAD

Both genetic and environmental factors contribute to GAD. Initial studies linked GAD to stressors independent of demographics (Lau et al., 2001; Brantley et al., 1999), though later work found overlap with other disorders (Kessler et al., 1994). Family studies report significant heritability, with serotonin 1A receptor gene polymorphisms associated with GAD and comorbid depression (Hettema et al., 2001; Molina et al., 2011). Sociodemographic factors—being married, homemaker status, and employment—have been implicated (Wittchen et al., 1994). Childhood internalizing and conduct problems, low socioeconomic status, and maltreatment predict adult GAD (Moffitt et al., 2007).

Significant disability and a lower quality of life are also linked to GAD. A worldwide study on mental illness-related disability discovered that 38% of people with GAD had intermediate to severe occupational role impairment and missed an average of 6.3 days of work each month (Ormel et al., 1994).

Epidemiology of Generalized Anxiety Disorder

Anxiety affects about 1 in 4 children aged 13 to 18, with a median onset age of 11. Severe anxiety disorders have a 6% lifetime prevalence in this group, with overall prevalence ranging from 5.7% to 12.8%. Rates are nearly twice as high in females as in males (Silva et al., 2018; Scheeringa & Burns, 2018; Ströhle et al., 2018). Epidemiological data on Generalized Anxiety Disorder (GAD) emerged more slowly due to evolving diagnostic criteria. However, recent findings challenge the notion of GAD as merely a prodrome, residual, or severity marker of other mental illnesses.

Global Context

GAD is one of the most prevalent anxiety disorders worldwide. According to the Global Burden of Disease Study, approximately 3.1% of the global population experiences GAD annually, with lifetime prevalence ranging between 5% and 7% in most countries (Baxter et al., 2014). The disorder often begins in early adulthood, although symptoms may emerge in adolescence or later in life.

Comorbidity with other mental disorders is the rule rather than the exception. Over 60–70% of individuals with GAD have at least one other psychiatric diagnosis, most commonly major depressive disorder, social anxiety disorder, or substance use disorders (Brown et al., 2001). This high rate of comorbidity increases the overall burden of disease, complicates treatment strategies, and adversely affects prognosis.

Indian Context

In India, GAD remains underreported due to stigma, low mental health awareness, and limited diagnostic resources. The National Mental Health Survey (2016) estimated anxiety disorders, including GAD, at 3.6%, with higher rates in

urban areas and among women (Jayasankar et al., 2022). Accurate GAD-specific data are scarce due to inconsistent diagnostics. Studies show GAD often coexists with chronic illnesses, especially among older adults and low-income groups (Math & Srinivasaraju, 2010).

Though initiatives like the Mental Healthcare Act (2017) and National Mental Health Programme exist, implementation gaps hinder progress, and GAD remains a largely hidden, disabling condition.

Concept of Comorbidity

Comorbidity refers to the simultaneous presence of additional medical or psychiatric conditions alongside a primary disorder. In mental health, it is common and significantly affects diagnosis, treatment, and outcomes. Generalized Anxiety Disorder (GAD) frequently coexists with depression, panic disorder, substance use disorders, and physical illnesses like cardiovascular disease. Comorbid GAD often results in more severe symptoms, reduced treatment response, and increased chronicity risk (Kessler et al., 2005). For nurses, this highlights the need for integrated care addressing both mental and physical health. Comorbidity also complicates research by challenging single-diagnosis models. Recognizing and managing comorbidity in GAD is vital to improving outcomes and overall well-being.

GAD and Psychiatric Comorbidities

Generalized Anxiety Disorder (GAD) frequently co-occurs with other psychiatric disorders, leading to complex clinical presentations and significant challenges in diagnosis and treatment. Psychiatric comorbidities are more the norm than the exception in individuals with GAD, with studies indicating that up to 90% of individuals with GAD have at least one additional psychiatric disorder (Kessler et al., 2005).

The most common comorbidities include Major Depressive Disorder (MDD), Panic Disorder, Post-Traumatic Stress Disorder (PTSD), and Substance Use

Disorders (SUDs). These co-occurrences not only complicate clinical management but also contribute to a more chronic and debilitating course of illness.

1) **Major Depressive Disorder (MDD):** GAD and MDD often coexist, sharing similar symptoms such as fatigue, concentration difficulties, and sleep disturbances. This overlap complicates diagnostic clarity and may lead to underdiagnosis or misdiagnosis. Research suggests that individuals with comorbid GAD and MDD experience more severe symptoms, a greater risk of suicide, and poorer treatment outcomes than those with either disorder alone (Melchior et al., 2007).

2) **Panic Disorder and Other Anxiety Disorders:** GAD frequently co-occurs with Panic Disorder, Social Anxiety Disorder, and Specific Phobias. Although these disorders are distinct in their symptomatology, they may share underlying vulnerabilities such as heightened anxiety sensitivity and cognitive distortions. The comorbidity of GAD and other anxiety disorders often results in increased functional impairment and chronicity, warranting tailored treatment approaches (Brown et al., 2001).

3). **Post-Traumatic Stress Disorder (PTSD):** Individuals with a history of trauma may develop both PTSD and GAD. While PTSD is characterized by re-experiencing traumatic events and avoidance behaviors, GAD presents as generalized worry. However, the two can interact and exacerbate one another. Comorbidity with PTSD is associated with heightened arousal, reduced coping skills, and poorer psychosocial functioning (Berenz & Coffey, 2012). Moreover, the presence of both disorders may diminish the effectiveness of conventional treatments, necessitating integrated therapeutic interventions.

4). **Substance Use Disorders (SUDs):** GAD is linked to increased substance use, as individuals often self-medicate with alcohol, cannabis, or benzodiazepines. While offering short-term relief, these substances worsen anxiety and dependency. Integrated treatment targeting both conditions is essential for effective management (Buckner et al., 2008).

The high comorbidity rate in individuals with GAD highlights the need for

thorough assessment strategies in clinical and community settings. Nurses must be trained in mental health evaluation, risk screening, and referral processes. Early detection and multidisciplinary care can improve outcomes and reduce psychiatric burden. A holistic, patient-centered approach is vital, shifting focus from disorder-specific treatments to managing the complex interplay of coexisting mental health conditions.

Socio-Demographic and Cultural Factors

The experience, expression, and treatment of Generalized Anxiety Disorder (GAD) are significantly influenced by socio-demographic and cultural variables. Factors such as age, gender, education, occupation, cultural beliefs, stigma, and geographic location (urban vs. rural) shape how individuals perceive anxiety, seek help, and respond to treatment. These influences are particularly relevant in the context of comorbidity, where complex social and cultural determinants may affect both mental and physical health outcomes.

Age: Age is a critical determinant in the onset, course, and manifestation of GAD. While GAD can occur at any stage of life, its prevalence tends to peak in adulthood, particularly between the ages of 30 and 50 years (Kessler et al., 2005). In older adults, GAD is often underdiagnosed due to overlapping symptoms with physical illnesses, age-related cognitive decline, and misattribution of anxiety symptoms to aging or somatic conditions (Wolitzky-Taylor et al., 2010).

Gender; Gender differences are well-documented in the prevalence and presentation of GAD. Women are nearly twice as likely to be diagnosed with GAD as men, a trend attributed to biological, psychological, and sociocultural factors (Remes et al., 2016). Hormonal fluctuations, such as those occurring during menstrual cycles, pregnancy, and menopause, may contribute to heightened vulnerability to anxiety in women.

Education: Educational attainment significantly influences awareness, perception, and management of GAD. Individuals with lower levels of education often have limited access to mental health information, which can hinder recognition of anxiety

symptoms and delay help-seeking (Patel et al., 2010). Additionally, educational level is linked with health literacy, impacting the ability to comprehend treatment plans, adhere to medications, and engage in preventive strategies.

Occupation: Occupational stress significantly contributes to Generalized Anxiety Disorder (GAD). Factors like job insecurity, high workload, poor work-life balance, and trauma exposure increase risk. Additionally, sedentary occupations may lead to physical comorbidities such as obesity and cardiovascular disease alongside GAD (Stansfeld & Candy, 2006).

Unemployment: It is another significant factor, often leading to financial instability, social exclusion, and reduced self-worth—all of which are associated with higher rates of GAD and depression. Job-related identity and routine provide structure and meaning, and their absence can exacerbate anxiety symptoms.

Cultural Beliefs and Stigma: Cultural frameworks deeply shape the understanding and expression of mental health disorders, including GAD. In many non-Western societies, psychological symptoms are often somatised, meaning emotional distress is expressed through physical complaints like headaches, fatigue, or stomach pain (Raguram et al., 2001).

Stigma associated with mental illness remains a significant barrier to care across cultures. In India, for example, anxiety and depression are frequently seen as personal weaknesses or consequences of spiritual imbalance, leading individuals to rely on faith healers or traditional remedies instead of formal treatment (Lauber & Rössler, 2007).

Rural and Urban Differences: Geographic location is another socio-demographic factor influencing the prevalence and management of GAD. Urban environments are associated with higher levels of stress due to noise pollution, overcrowding, competitive lifestyles, and social isolation. Consequently, urban residents may have higher rates of GAD, but also greater access to mental health services, including psychiatrists, psychologists, and community support programs (Peen et al., 2010).

In contrast, rural populations often face unique challenges. These include limited healthcare infrastructure, fewer trained mental health professionals, longer distances to healthcare facilities, and stronger cultural stigma. As a result, individuals with GAD in rural settings may go undiagnosed or receive suboptimal care. Additionally, rural patients are more likely to present with comorbid physical illnesses such as hypertension and diabetes due to lower preventive care utilization.

GAD and its prevalence

The DSM-III first identified Generalized Anxiety Disorder (GAD) as persistent anxiety lasting at least four weeks with symptoms from three of four categories (APA, 1980). DSM-III-R later extended the duration to 24 weeks and required six of eighteen symptoms to enhance diagnostic validity. GAD is marked by excessive worry, prolonged anxiety, hypervigilance, and physical symptoms. Studies show 38% of individuals with GAD also has a personality disorder, while 17% have GAD alone. Prevalence among adults ranges from 1.5% to 3%, with U.S. data indicating a lifetime risk of around 5% (Andrews et al., 1995).

In younger people, the incidence of GAD is higher and affects women twice as often as it does males. Those in the 45–59% age group had a higher prevalence of 7.7%, with females experiencing a higher incidence (7%) compared to males (4%) (Wittchen et al., 1994).

GAD diagnosis, assessment tools, and co-morbidities

In addition to being linked to excessive use of general health care resources, GAD patients were shown to commonly use primary health care rather than sensible health specialist settings (Maier et al., 2000; Roy-Byrne & Katon, 1997; Wittchen et al., 2000). In general care, anxiety may occasionally be misdiagnosed as depression, leading to incorrect diagnoses of GAD (Hoge et al., 2012). A study conducted revealed that 66% of primary care physicians misdiagnosed generalized anxiety disorder (GAD). Similarly, another investigation revealed that 27% of patients who received a false positive diagnosis of depression actually had an anxiety condition (Nisenson et al., 1998). GAD patients frequently appear physically, and it can be

challenging to distinguish between symptoms due to anxiety and those associated with medical conditions (Ballenger et al., 2001). To rule out other medical causes of worry, clinicians must take a patient's medical history and perform a physical examination before diagnosing GAD. The clinical symptoms must serve as the basis for laboratory research (Fricchione, 2004).

When assessing Generalized Anxiety Disorder (GAD), it is essential to evaluate the patient's medical history, including pulmonary, neurologic, cardiac, or endocrine conditions, as well as the use of stimulants (e.g., cocaine), prescription drugs, over-the-counter medications like corticosteroids, herbal remedies, and substance withdrawal (Pollack et al., 1998; Goldberg & Posner, 2000).

Comorbidities are highly prevalent in GAD, with 90% of patients also diagnosed with conditions like depression, bipolar disorder, substance abuse, or other anxiety disorders (Stein, 2001). Major depression is seen in 29%–62% of cases, while alcohol addiction and social anxiety affect 38% and 34%, respectively (Olfson et al., 1997).

Significance Of The Study

Generalized Anxiety Disorder (GAD) is a prevalent and debilitating mental health condition that often remains under recognized, particularly when accompanied by comorbid mental and physical health conditions. Its chronic nature and impact on daily functioning make it a significant public health concern. The significance of this study lies in its comprehensive exploration of GAD and its comorbidities among adults, aiming to address gaps in existing knowledge and clinical practices.

Understanding the patterns of comorbidity in GAD is essential because individuals with comorbid conditions often experience more severe symptoms, higher healthcare utilization, and poorer treatment outcomes compared to those with GAD alone (Brown et al., 2001; Stein & Sareen, 2015). For instance, the coexistence of GAD with depression or cardiovascular disorders exacerbates the clinical course, complicates diagnosis, and increases functional impairment. Identifying and addressing these comorbidities through targeted interventions can lead to more

effective treatment strategies and improved quality of life for patients.

In India, where mental health resources are limited and stigma remains high, this study holds significant relevance. It supports the development of culturally appropriate diagnostic tools, raises awareness among healthcare professionals, and informs policies to integrate mental health into primary care. The study emphasizes the vital role of nurses and allied health professionals in early detection, psychoeducation, and holistic care.

By analyzing GAD across diverse adult populations and considering factors like age, gender, socioeconomic status, and rural-urban residence, it identifies key risk factors and vulnerabilities. This approach promotes mental health equity and tailored interventions. Ultimately, the study bridges the gap between clinical research and practice, advocating for community-based, integrated strategies to reduce the burden of GAD and its comorbidities.

Clinical and Nursing Implications

Generalized Anxiety Disorder (GAD), due to its high prevalence and comorbidities, poses significant challenges in clinical and nursing care. Nurses, as frontline healthcare providers, are essential in screening, managing, and referring GAD patients. Recognizing GAD's impact across primary and specialized care is crucial for early detection, integrated treatment, and better health outcomes through coordinated, patient-centred approaches.

Challenges in Nursing Care and Screening

One of the primary challenges in nursing care related to GAD is the recognition of symptoms, which are often vague, overlapping, or masked by physical complaints. Patients with GAD commonly present with somatic symptoms such as headaches, muscle tension, gastrointestinal distress, or insomnia, leading nurses to focus on treating the physical manifestations while overlooking the underlying psychological disorder (Andrews et al., 2010).

Further complicating the situation is the presence of comorbid physical or psychiatric conditions. In patients with diabetes, cardiovascular disease, or depression, GAD may be under recognized or attributed to their primary diagnosis. Nurses may also face difficulties differentiating between GAD and normal stress reactions, particularly in culturally diverse populations where expressions of distress vary widely.

Limited mental health training among general nurses is a key barrier, with many lacking education in psychiatric assessment, including anxiety disorders. This leads to low confidence in using tools like the GAD-7. Time constraints, lack of privacy, and stigma further hinder effective screening, especially in rural or conservative settings.

Role of Nurses in Early Identification and Referral

Nurses play a vital role in early detection of GAD and its comorbidities through continuous patient interaction. They can identify behavioural signs, physical symptoms, and psychosocial stressors often overlooked. Systematic screening using tools like GAD-7, HADS, and DSM-5 criteria enhances detection.

Nurses also provide psychoeducation, using clear, non-stigmatizing language to reduce fear and improve treatment adherence, while educating families to support recovery. Timely referral to mental health professionals is crucial, with nurses coordinating care and maintaining knowledge of referral pathways. In resource-limited settings, nurses may serve as primary mental health providers, making their assessment skills essential.

Implications for Nursing Education and Policy

Given the increasing burden of GAD and its comorbidities, there is a pressing need to strengthen mental health education in nursing curricula. Nursing programs should incorporate training in psychological assessment, communication skills, crisis intervention, and collaborative care models. Continuing education programs and workshops can further equip practicing nurses to manage anxiety disorders.

At the policy level, healthcare systems must recognize the role of nurses in mental health and invest in task-sharing models, especially in areas with psychiatrist shortages. Policies should also support routine screening for anxiety in chronic disease management programs and promote integrated electronic health records for improved care coordination.

GAD's clinical and nursing implications are complex, especially with comorbidities. Nurses must overcome diagnostic challenges but are well-positioned for early detection and holistic care. Strengthening nurse education and integrated care models is key to managing GAD effectively and compassionately.

Research Gap and Justification

Despite increasing recognition of Generalized Anxiety Disorder (GAD) as a major mental health concern, significant research gaps persist, particularly in adult Indian populations. GAD profoundly affects psychological, physical, and social functioning, with its burden intensified by frequent comorbidities. Yet, existing studies largely focus on Western contexts or isolate GAD from its co-occurring conditions, limiting their applicability in diverse cultural settings.

This study aims to fill these gaps by examining GAD's comorbidity patterns among Indian adults, offering region-specific insights to inform clinical care, health policy, and integrated treatment approaches. This section outlines the existing knowledge gaps and the rationale for this investigation.

Lack of Region-Specific Data (e.g., Indian Adults)

One of the greatest significant gaps in the literature is the scarcity of empirical data on GAD among Indian adults. Most large-scale studies on GAD have been conducted in Western countries, such as the United States, Canada, and parts of Europe, where sociocultural contexts, health systems, and help-seeking behaviours differ vastly from those in South Asia (Kessler et al., 2005). As a result, findings from such studies may not be directly applicable to Indian populations, who face unique challenges related to stigma, access to care, traditional beliefs, and family

dynamics (Lauber & Rössler, 2007).

The National Mental Health Survey (2016) reported a 3.5% prevalence of anxiety disorders in India, with regional and gender disparities (Jayasankar et al., 2022). However, data on GAD and its comorbidities in adults, particularly those aged 30–50, remain scarce. Existing studies are limited, often using small, non-representative samples and lacking in-depth analysis of comorbid conditions.

Limited Studies on Physical and Psychological Comorbidities

A key research gap is the limited focus on the dual burden of physical and psychiatric comorbidities in individuals with GAD. Although GAD commonly co-occurs with depression, substance use, panic disorder, and physical conditions like cardiovascular disease and diabetes (Roy-Byrne et al., 2008), these links are rarely explored together, especially in low- and middle-income countries like India.

Most studies address either psychological or physical aspects in isolation, ignoring their bidirectional relationship—where mental distress can worsen physical illness and vice versa (Martino et al., 2015), thus limiting comprehensive understanding and integrated care approaches.

In India's fragmented healthcare system, mental and physical health services often operate separately, delaying GAD diagnosis and reducing care effectiveness. This study addresses the gap by examining GAD comorbidities across six groups, providing a holistic understanding of its interaction with both psychiatric and physical health conditions.

Need for Holistic Care Approaches

A third key research gap is the lack of evidence supporting holistic, integrative care models for individuals with GAD and comorbidities. Mental and physical health services are often delivered separately, especially in primary care and nursing, leading to missed early detection and fragmented care. The biopsychosocial model, which addresses biological, psychological, and social factors, is ideal for managing GAD due to its somatic and psychosocial dimensions (Engel, 1977).

However, region-specific research on implementing such models in India—particularly among adults—is scarce, limiting efforts to adapt comprehensive care strategies within local healthcare systems.

Moreover, while collaborative care models have been successful in the West, their cultural appropriateness, feasibility, and impact in Indian populations remain underexplored. For example, the role of family members in decision-making, the preference for traditional healers, and the shortage of mental health professionals all pose unique challenges that must be accounted for in designing effective interventions (Saxena et al., 2007).

The current study justifies its focus on GAD comorbidity among adults as a way to inform culturally appropriate, evidence-based interventions that promote integrative care. Nurses and primary care providers will be key stakeholders in this transformation, and findings from the study could be used to train healthcare workers in screening, early referral, and coordinated management strategies.

In summary, there is a pressing need for research that addresses the specific characteristics of GAD comorbidities in Indian adults. Current literature is marked by several significant gaps, including a lack of region-specific data, limited exploration of combined psychiatric and physical comorbidities, and insufficient evaluation of holistic care approaches. These gaps not only hinder our understanding of the disorder but also impair our ability to develop effective interventions.

STATEMENT OF THE PROBLEM

Generalized Anxiety Disorder (GAD) is a persistent and debilitating condition characterized by excessive anxiety and worry across various life domains, such as finances, relationships, health, and daily routines. It frequently occurs alongside other mental health disorders, making effective treatment more complex. Globally, anxiety disorders affect about 4% of the population—roughly 301 million people—with women being disproportionately affected. The COVID 19 pandemic has triggered a surge in anxiety and depression, increasing global prevalence by an estimated 25%.

In India, around 3.5% of the population experiences anxiety or stress-related disorders, with nearly 15% requiring clinical intervention. Urban populations and younger women are particularly vulnerable. In Mizoram, anxiety-related disorders affect 16% of mental health service users, alongside high rates of substance use and mood disorders. Comorbidity is common in GAD—about 60% also suffer from depression, PTSD, insomnia, or substance use disorders. This overlap worsens symptoms, disrupts functioning, and complicates treatment outcomes, highlighting the need for integrated care.

Given the rising burden of mental health conditions, investigating GAD comorbidity in adults is a public health priority. GAD frequently overlaps with disorders like PTSD, OCD, MDD, eating disorders, and SUDs, creating a complex clinical picture. In adults, untreated GAD and its comorbidities can lead to chronic illness, disability, emotional distress, economic hardship, and reduced quality of life. A deeper, context-specific understanding is essential for developing effective, holistic, and culturally appropriate interventions.

GAD and PTSD : Generalized Anxiety Disorder (GAD) and Post-Traumatic Stress Disorder (PTSD) are two of the most prevalent and debilitating psychiatric disorders affecting adult populations globally. The co-occurrence of Generalized Anxiety Disorder (GAD) and Post-Traumatic Stress Disorder (PTSD) poses significant clinical challenges due to overlapping symptoms like heightened threat perception, sleep disturbances, and impaired emotion regulation. This comorbidity intensifies symptoms, worsens functioning, increases healthcare use, and raises suicide risk. The bidirectional relationship means GAD can delay PTSD recovery, while unresolved trauma prolongs anxiety. Diagnostic overlap complicates accurate identification, often leading to incomplete treatment and reduced efficacy. Individuals with both disorders frequently respond poorly to standard therapies, underscoring the need for integrated, trauma-informed, and anxiety-sensitive interventions tailored to address both conditions effectively. In view of these clinical, diagnostic, and research gaps, a focused investigation into the comorbidity of GAD and PTSD in adult populations is essential.

GAD and OCD: Generalized Anxiety Disorder (GAD) and Obsessive-Compulsive Disorder (OCD) are distinct but often co-occurring psychiatric conditions in adults. GAD involves persistent, excessive worry about daily life, along with symptoms like fatigue and restlessness. OCD features intrusive thoughts (obsessions) and repetitive behaviors (compulsions). Despite separate classifications, research shows a high rate of comorbidity, with many individuals meeting diagnostic criteria for both disorders, highlighting overlapping features and the need for integrated treatment approaches.

Given the significant clinical, diagnostic, and treatment challenges of comorbid GAD and OCD, there is a pressing need for research focused on adult populations. Studies should explore prevalence, symptom patterns, risk and protective factors, and the long-term course of this comorbidity. Additionally, investigating its impact on quality of life and the efficacy of integrated treatments is essential. Expanding knowledge in this area will help clinicians better identify, assess, and manage GAD-OCD comorbidity, ultimately improving diagnostic accuracy, personalized care, and evidence-based psychiatric practice.

GAD and Insomnia: Generalized Anxiety Disorder (GAD) and Insomnia frequently co-occur in adults, forming a complex and mutually reinforcing comorbid relationship. GAD involves excessive, uncontrollable worry accompanied by symptoms like restlessness, fatigue, and sleep disturbances. Insomnia, characterized by difficulty initiating or maintaining sleep, leads to daytime impairment and distress. Though diagnostically distinct, their comorbidity exacerbates symptoms, increases functional impairment, and often results in treatment resistance. Addressing this overlap through integrated approaches - such as combined cognitive-behavioral therapy for anxiety and insomnia (CBT-I), mindfulness practices, psychoeducation, sleep hygiene, and digital health tools - can improve outcomes. These multimodal, patient-centered strategies are essential for reducing both individual suffering and the broader societal impact of untreated comorbid anxiety and sleep disorders. Given the high prevalence and clinical consequences of GAD-Insomnia comorbidity, dedicated research is needed to enhance diagnostic accuracy and optimize treatment. A deeper understanding of their interaction will support more effective, holistic care and

promote mental well-being across diverse adult populations.

The high rate of comorbidity between GAD and MDD has been consistently documented in both clinical and epidemiological research. It is estimated that up to 60% of individuals diagnosed with GAD also meet the criteria for MDD at some point in their lives, and vice versa.

Clinically, the symptom overlap between GAD and MDD—such as fatigue, sleep issues and concentration problems—often leads to diagnostic challenges. Despite their frequent co-occurrence and impact, research exploring this comorbidity remains limited, especially in diverse adult populations. Existing studies often isolate anxiety and depression, overlooking their interaction. Key influencing factors like gender, socioeconomic status, trauma, and healthcare access are under examined, limiting the applicability of findings to real-world clinical settings.

Research on GAD-MDD comorbidity should adopt multidimensional, person-centred approaches, exploring prevalence, symptom profiles, cognitive-emotional mechanisms, and psychosocial stressors. Integrated treatments combining trans diagnostic CBT, emotion regulation, and pharmacotherapy may enhance effectiveness for individuals with both disorders.

GAD and Eating Disorders: Generalized Anxiety Disorder (GAD) and Eating Disorders (EDs) frequently co-occur in adult populations, forming a clinically complex and multifactorial comorbidity that has significant implications for diagnosis, treatment, and overall mental health outcomes.

The comorbidity of GAD and Eating Disorders is clinically significant due to the interplay of anxiety-driven thoughts and disordered eating behaviors. Individuals with GAD may engage in restrictive eating, bingeing, purging, or excessive exercise to cope with chronic worry and emotional dysregulation. Conversely, those with Eating Disorders often experience anticipatory anxiety, body-related worries, and perfectionism—key features of GAD. This reciprocal cycle intensifies both anxiety and disordered eating, worsening symptoms and distress over time.

Despite the clinical significance of GAD and Eating Disorder (ED) comorbidity, it remains under-recognized and insufficiently addressed. Clinicians often focus on visible ED symptoms, overlooking the anxiety that may contribute to or sustain disordered eating. Existing research is limited, often based on Western, female-dominated samples, lacking cultural and gender diversity. Influential factors—such as cultural norms, stigma, trauma, and healthcare access—are seldom examined holistically.

To bridge these gaps, large-scale, context-specific studies are urgently needed to better understand the prevalence, clinical presentation, and treatment outcomes of GAD-ED comorbidity in diverse adult populations.

GAD and Substance Disorders: Generalized Anxiety Disorder (GAD) and Substance Use Disorders (SUDs) frequently co-occur in adult populations, presenting a complex clinical picture that challenges diagnostic clarity, therapeutic efficacy, and long-term recovery outcomes. The comorbidity of Generalized Anxiety Disorder and Substance Use Disorders represents a profound and multifaceted challenge within adult mental health. Addressing this dual diagnosis through targeted research, clinical innovation, and system-level reform can enhance diagnostic accuracy, improve treatment outcomes, and promote long-term recovery for individuals affected by both chronic anxiety and substance dependence.

In summary, the comorbidity of GAD and MDD represents a significant and multifaceted mental health challenge in adult populations. Addressing this comorbidity through dedicated, contextually informed research can enhance diagnostic clarity, improve clinical outcomes, and guide the development of holistic, evidence-based, and patient-centered mental healthcare services.

Targeted Population (about Mizo):

Mizo is the inhabitant of Mizoram State of India Union, located in the North-Eastern corner of India between Bangladesh and Myanmar, with 21,087 km² (8,142 sq mi). It extends from 21°56'N to 24°31'N, and 92°16'E to 93°26'E, (Rintluanga Pachuau, 2009) and are categorized under Schedule Tribes. It has a short History in

the Modernization, stemming from British colonial empire as Mizo Hills in 1895; then, North and south hills being united into Lushai Hills district in 1898 with Aizawl as its headquarters. Mizoram has become a Union Territory in 1972, and became a federal state of India 'Mizoram State' on 20 February 1987 (Nunthara,1996).

Research Gaps:

Despite the widespread occurrence, the understanding of GAD's epidemiology, clinical profile and comorbidity remains significantly concentrated towards Western population or other highly resourced populations.

The Mizo population belongs to Scheduled Tribes in India, represents an underrepresented yet clinically significant demographic for studying Generalized Anxiety Disorder (GAD). Historical marginalization, limited healthcare access, and sociocultural barriers in this community complicate diagnosis and treatment, underscoring the urgent need for localized, data-driven mental health research. This study aims to elucidate comorbidity patterns among adults with GAD, thereby informing clinicians and policymakers about the multifaceted nature of anxiety disorders. By emphasizing integrated treatment approaches that address both GAD and its associated conditions, the research aspires to enhance health outcomes and quality of life. Furthermore, it advocates for increased mental health awareness and resource allocation, encouraging a more supportive and informed societal response.

The study also explores the complex relationship between GAD and physical illness. GAD is a chronic psychological disorder marked by persistent, excessive worry that impairs daily functioning (American Psychiatric Association, 2013). It commonly co-occurs with PTSD, OCD, insomnia, depression, eating disorders, and substance abuse. Additionally, GAD is frequently linked to physical health conditions such as cardiovascular disease, gastrointestinal issues, and chronic pain (Hoffman et al., 2008; Sareen et al., 2006). This psychological-physical comorbidity intensifies distress and places added strain on healthcare systems.

In the Indian context, there is a paucity of region-specific data examining the co-occurrence of GAD with other psychiatric and physical health conditions. Cultural stigma surrounding mental health, limited access to care, and underdiagnosis further complicate the identification and management of comorbid psychological disorders (Kermode et al., 2009). Therefore, a comprehensive understanding of comorbidity patterns among adults with GAD, especially those who are also coping with physical illnesses, are essential to guide clinical interventions, mental health education, and integrated care practices.

This study adopts a comparative, correlational research framework involving three distinct patient groups: (i) GAD patients with physical illness (GPI), (ii) GAD patients without physical illness (GP), and (iii) patients with physical illness but without GAD (PI). The objective is to assess and compare levels of psychological comorbidities—specifically PTSD, OCD, insomnia, depression, eating disorders, and substance abuse—across these groups. These specific disorders have been selected based on evidence suggesting their high co-occurrence with GAD and their substantial impact on health-related quality of life (Kessler et al., 2005; Blanco et al., 2010).

This research aims to investigate the presence, severity, and interrelationships of psychiatric symptoms in adults with GAD, particularly in the context of coexisting physical illness. It seeks to inform culturally appropriate, integrated interventions and support the adoption of biopsychosocial treatment models for anxiety disorders (Barlow, 2002).

So, even though much research has been done on anxiety but the comorbidity is underestimated, and they are not yet done in the targeted population of the study. On these counts, to meet the research gap, the present study was framed to study the following:

Objectives:

On the outcome of reviewed of literature available about the comorbidity of generalized anxiety in other population, the study was aimed to observe the following:

- 1) To examine levels of PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse for three groups of patients (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP), and (iii) Patients having Physical Illness without GAD (PI).
- 2) To examine any significant difference between i) GAD Patients with physical illness (GPI), and (ii) GAD Patients without physical illness (GP) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.
- 3) To determine any significant difference between i) GAD Patients with physical illness (GPI), and (ii) Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.
- 4) To examine any significant difference between (i) GAD Patients without physical illness (GP) and (ii) Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.
- 5) To study the relationship between PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse among the samples.

Conceptual Rationale

The psychological conditions selected for investigation are grounded in their theoretical and empirical links to GAD. PTSD and OCD share features like hyperarousal, intrusive thoughts, and avoidance, commonly seen in GAD (Brown et al., 2001). Insomnia, both a symptom and contributor to anxiety, is well-documented (Riemann et al., 2010). Depression often coexists with GAD, worsening outcomes. Disordered eating and substance use reflect maladaptive coping strategies frequently associated with chronic anxiety (Grilo et al., 2009; Kushner et al., 2000).

This study employs a biopsychosocial framework, acknowledging how genetic vulnerability, HPA axis dysregulation, chronic stress, and maladaptive

coping contribute to comorbid conditions. Physical illness may intensify psychiatric symptoms via biological (e.g., inflammation) and psychosocial (e.g., stigma, disability) pathways.

HYPOTHESIS

To meet the objectives framed for the present study, the following hypotheses were outlined, as follow:

- 1) There is a significant difference between the levels of PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse for three groups of patients (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP) (iii) Patients having Physical Illness without GAD (PI).
- 2) There is a significant difference between i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.
- 3) There is a significant difference between i) GAD Patients with physical illness (GPI), (ii) Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.
- 4) There is a significant difference between (i) GAD Patients without physical illness (GP) (ii) Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.
- 5) There is a positive relationship between PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse among the samples.

REVIEW OF LITERATURE

Generalized Anxiety Disorder (GAD) is among the most prevalent anxiety disorders worldwide, with lifetime prevalence rates ranging from 3% to 6% globally (Bandelow & Michaelis, 2015). In the United States, the National Comorbidity Survey Replication (NCS-R) reported a lifetime prevalence of 5.7% (Kessler et al., 2005). The global 12-month prevalence of GAD is estimated between 1% and 3% (Somers et al., 2006), while the U.S. 12-month prevalence stands at approximately 3.1% (Kessler et al., 2005). These figures reflect individuals experiencing active

symptoms within the past year.

Comorbidity is highly prevalent among those with GAD. Over half of individuals with GAD meet the criteria for at least one other psychiatric disorder, such as major depressive disorder (MDD), panic disorder, or post-traumatic stress disorder (Kessler et al., 2005). The NCS-R further revealed that 67% of GAD cases involve comorbid conditions, with depression being the most frequently co-occurring disorder (Ruscio et al., 2007).

GAD frequently co-occurs with other anxiety disorders and mood disorders. Major depressive disorder (MDD) is the most prevalent comorbid condition, with rates ranging from 30% to 60% (Hirschfeld, 2001). Shared neurobiological mechanisms, such as dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis and serotonergic systems, may explain the frequent co-occurrence of GAD and MDD (Stein et al., 2004).

Comorbid conditions significantly complicate the treatment of Generalized Anxiety Disorder (GAD). While evidence-based therapies like cognitive-behavioral therapy (CBT) and selective serotonin reuptake inhibitors (SSRIs) are effective, their efficacy may diminish in the presence of comorbid disorders (Bruce et al., 2005). Emerging approaches such as mindfulness-based therapies and transdiagnostic treatments have shown promise in addressing these complexities (Norton, 2012).

Gender Differences in Generalized Anxiety Disorder: There is difference in gender accompanied by varying attitudes toward therapy and stigma surrounding mental health (Hinshelwood & Skelton, 2002), which can be more pronounced in men (Hinshelwood & Skelton, 2002).

Hormonal fluctuations during reproductive transitions—such as menstruation, pregnancy, and menopause intensify anxiety symptoms in women (Steiner et al., 2003). Gender norms and stigma may discourage men from seeking psychological help (Mahalik et al., 2003). Understanding these gender differences in GAD is vital for improving diagnostic precision and developing targeted treatment strategies. Future research should explore the biological and sociocultural influences on GAD

across life stages. Gender-sensitive approaches are essential to ensure effective, equitable care and better mental health outcomes for all individuals affected by GAD.

Generalized Anxiety Disorder (GAD) and Post-Traumatic Stress Disorder (PTSD): research evinced that clinical patients with PTSD and comorbid anxiety disorders, only 18% achieved full remission (Zlotnick et al., 2005) which linked to a history of alcohol abuse and childhood trauma, underscoring how early and ongoing adversity can complicate recovery. Israeli civilians exposed to war-related trauma exposed symptoms of PTSD, depression, and GAD (Ginzburg et al., 2010). Social support has been identified as a key protective factor that mitigated symptom severity and persistence. Studies highlight the chronic and treatment-resistant nature of PTSD when comorbid with GAD and depression. These emphasize the importance of trauma-informed, integrated treatment approaches, considering psychosocial variables such as substance use, early trauma, and the availability of social support systems. Addressing these complex interrelationships is crucial for improving long-term outcomes and reducing the burden of comorbid psychiatric conditions in trauma-affected populations.

PTSD frequently co-occurs with mood and anxiety disorders like GAD, though mechanisms behind this comorbidity remain unclear. While emotion dysregulation is linked to both disorders separately, its role in their overlap is understudied (Allbaugh et al., 2025). The interaction between PTSD and GAD highlights the intricacy of anxiety disorders and the demand for sophisticated diagnostic and therapeutic strategies. Researchers and clinicians can improve therapy outcomes and the quality of life for those who are impacted by these disorders by further clarifying their shared and distinctive features.

Generalized Anxiety Disorder and Obsessive-Compulsive Disorder:

Abramowitz and Foa (1998) examined differences and similarities between obsessions and generalized worries in a DSM-IV field trial for OCD with 381 participants. Of these, 20% had comorbid OCD and GAD. While GAD did not

heighten OCD symptom severity, it was linked to greater pathological responsibility and indecisiveness. Comorbid individuals also reported more excessive worries about everyday concerns like health and finances.

Studies of GAD's cognitive mechanisms, highlighting intolerance of uncertainty as a key factor (Dugas et al., 2001), chronic worry was seen as a maladaptive strategy to manage perceived threats, paralleling compulsive behaviors in OCD used to alleviate anxiety from intrusive thoughts.

Khalkhali et al. (2023) used a cross-sectional design to assess 146 clinic-referred OCD patients, 45% of whom also had GAD. Treatment outcomes were measured using the Global Assessment of Functioning (GAF) scale. Both OCD-only and OCD+GAD groups showed significant functional improvement, with no significant differences in treatment gains. This suggests that comorbid GAD, while common, does not necessarily predict poorer outcomes in OCD patients.

Generalized Anxiety Disorder and Insomnia: Generalized Anxiety Disorder (GAD) and insomnia are two highly prevalent mental health conditions that often co-occur and significantly affect individuals' quality of life. GAD is marked by excessive, uncontrollable worry across various life areas, while insomnia involves difficulty initiating or maintaining sleep, or experiencing non-restorative sleep despite adequate opportunity. The interaction between GAD and insomnia can increase symptom severity, contribute to chronicity, and hinder treatment response. This reciprocal influence creates a cycle that negatively impacts functioning and well-being. Addressing both conditions simultaneously is therefore crucial for achieving effective and sustainable treatment outcomes.

American Academy of Sleep Medicine, emphasized the detrimental impact of untreated insomnia on anxiety disorder treatment, including GAD (Morgenthaler et al., 2017). Their review of empirical studies revealed that persistent sleep disturbances impair cognitive functions—attention, memory, and emotional regulation—essential for participating in psychotherapy. This impairment may limit engagement in interventions like cognitive restructuring and exposure therapy,

reducing treatment effectiveness. Consequently, unresolved insomnia can prolong anxiety disorders and reduce therapeutic progress. The authors advocate for routinely assessing and treating insomnia within anxiety disorder protocols. They recommend integrating Cognitive Behavioral Therapy for Insomnia (CBT-I) into GAD treatment plans to improve therapeutic engagement and enhance overall clinical outcomes.

Generalized Anxiety Disorder and Depression: Comorbidity between Generalized Anxiety Disorder (GAD) and Major Depressive Disorder (MDD) poses significant challenges for treatment planning, both disorders generally respond to interventions such as cognitive-behavioural therapy (CBT) and selective serotonin reuptake inhibitors (SSRIs), and experience more persistent and severe symptoms (Cuijpers et al., 2014). This underscores the need for integrated or individualized treatment strategies that address both anxiety and depressive features simultaneously. Neurobiological studies also suggest shared mechanisms underlying these disorders, dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis in both GAD and MDD that indicating a potential biological basis for their frequent co-occurrence (Strawn et al., 2014). Despite extensive research on each disorder independently, further study is needed to clarify the interrelated cognitive, emotional, and neurobiological mechanisms that drive their comorbidity. The current study aims to explore this overlap by examining symptom severity, functional impairment, and shared predictive factors, ultimately aiming to improve diagnostic accuracy and treatment outcomes.

Frequent comorbidity between generalized anxiety disorder (GAD) and major depressive disorder (MDD), often described as “anxious depression” which emphasize anxiety co-occurs with depression, and heightened recognition of anxious depression and tailored treatment approaches that address both disorders concurrently (Goodwin & Stein., 2021). Comorbidity between Generalized Anxiety Disorder and depression is common and linked shared genetic, neurobiological, and environmental factors. Future research should focus on understanding underlying mechanisms and developing more targeted treatment strategies.

Generalized Anxiety Disorder (GAD) and Eating Disorders:

Psychological correlates of emotional eating (EE) in adult women with Generalized Anxiety Disorder (Timko et al., 2021). EE was positively correlated with emotional dysregulation, worry, and experiential avoidance, and negatively correlated with self-compassion and mindfulness.

Generalized Anxiety Disorder (GAD) and eating disorders (EDs) often co-occur, with evidence showing a significant interrelationship. Both arise from complex biopsychosocial factors and, when combined, increase symptom severity and treatment challenges. GAD involves persistent worry across life areas and is commonly linked with mood and eating disorders (APA, 2022). EDs—including anorexia nervosa, bulimia nervosa, and binge eating disorder—feature disordered eating and distorted body image, causing serious physical, emotional, and social impacts that require integrated diagnosis and treatment.

The APA (2022) stresses the frequent comorbidity of GAD with mood and eating disorders, advocating integrated treatment frameworks. Studies recommend tailored cognitive-behavioural therapy targeting anxiety and coping deficits to enhance outcomes for comorbid patients (Henningesen et al., 2022). Further research into their neurobiological and psychological bases is essential for better therapeutic success and sustained recovery.

Generalized Anxiety Disorder (GAD) and Substance Use Disorder (SUD) as Comorbidities

Australian National Survey of Mental Health and Wellbeing demonstrated the connection between mood and anxiety disorders intersect with SUDs (Prior et al., 2016). Individuals with a 12-month SUD (5.1% prevalence), at least 35% had at least one comorbid mood or anxiety condition, with GAD being prominent in those with dual comorbidity with impairment in role functioning, and more use of healthcare services. They were also 18 times more likely to experience suicidal ideation compared to individuals with only SUDs, emphasizing the severe impact of combined disorders.

A comprehensive review of clinical and epidemiological literature, emphasized the complex and detrimental cycle linking Generalized Anxiety Disorder (GAD) with Substance Use Disorders (López et al., 2017). Individuals with GAD frequently turn to substances such as alcohol, benzodiazepines, or illicit drugs to self-medicate chronic worry and heightened physiological arousal as this may offer temporary relief, it often results in a rebound effect where anxiety symptoms worsen with continued use or during withdrawal, perpetuating dependence. Prolonged substance use can also cause neurochemical and behavioural changes that further intensify anxiety, reinforcing emotional distress and addiction.

RESEARCH METHODOLOGY

The present study aims to explore the comorbidity of Generalized Anxiety Disorder (GAD) in adults. It investigates its association with PTSD, OCD, insomnia, depression, eating disorders, substance abuse, and physical illness using a structured research methodology and quantitative approach.

Research approach: The present study adopts a quantitative research approach to explore the comorbidity of Generalized Anxiety Disorder (GAD) with selected psychological and physical health conditions among adults. Quantitative research is characterized by the objective measurement and statistical analysis of variables, allowing researchers to examine relationships, make comparisons, and test hypotheses in a systematic and empirical manner (Creswell & Creswell, 2018).

This approach was chosen due to its suitability in identifying significant patterns and associations among multiple psychological variables such as PTSD, OCD, insomnia, depression, eating disorders, and substance use. Furthermore, it allows for the comparison of symptom severity and comorbidity patterns across three predefined groups:

- (i) GAD patients with physical illness (GPI),
- (ii) GAD patients without physical illness (GP), and
- (iii) patients with physical illness but without GAD (PI).

By using a structured set of standardized tools and statistically testing the

differences between these groups, the quantitative approach provides objective evidence regarding the impact of GAD and physical illness on comorbid psychological conditions.

Research Design: This study employed a correlational research design to examine the relationships between generalized anxiety disorder (GAD) and various psychological and physical health comorbidities among adults. Correlational studies are non-experimental investigations that assess the degree and direction of association between two or more variables without manipulation (Polit & Beck, 2021). This approach was deemed appropriate given the objective of the research—to determine the extent to which GAD symptoms are associated with comorbid psychological conditions (e.g., depression), physical health status, and socio-demographic variables.

A correlational design is employed to investigate the strength and direction of relationships among the psychological variables across the entire sample. This aspect of the design facilitates the understanding of how disorders such as PTSD, OCD, insomnia, depression, eating pathology, and substance use may co-occur and interrelate in adults, regardless of group affiliation. This is particularly relevant for identifying clusters of symptoms and informing integrated intervention models.

The design is non-experimental in nature, as it does not involve manipulation of variables or random assignment. Instead, it relies on standardized psychometric instruments and statistical methods to observe naturally occurring differences and associations among variables. This makes it ethically appropriate and methodologically sound for studying mental health conditions in real-world clinical and community populations.

Furthermore, this design enables both cross-sectional assessment—capturing data at a single point in time—and comparative analysis across different subgroups of adults. Such a design is efficient for examining group-level differences and inter-variable associations without requiring longitudinal follow-up, which may be resource-intensive and impractical for the present study.

By integrating comparative and correlational components, this research design offers a comprehensive and robust framework for achieving the study's objectives, testing the formulated hypotheses, and contributing valuable data to the understanding of GAD comorbidities in adult populations.

The correlational design allows for the analysis of naturally occurring relationships among variables in different subgroups. In this study, three distinct comparison groups were established to investigate correlations within and across clinically defined categories. The groups were based on the presence or absence of GAD but with physical illness. The three groups included: (i) GAD patients with physical illness (GPI), (ii) GAD patients without physical illness (GP), and (iii) patients with physical illness but without GAD (PI).

Sample

Each group consisted of 60 participants, making a total sample size of 360 adults aged between 30 and 50 years. The correlational framework enabled the researcher to assess how GAD severity relates to other variables such as depression scores (PHQ-9), physical comorbidity burden (measured using the Physical Comorbidity Index), and socio-demographic characteristics (e.g., age, education, occupation).

The methodology of this study has been carefully designed to ensure the rigor, validity, and reliability of findings. The research employed a quantitative, comparative, and correlational design to examine differences and relationships among psychological comorbidities across three distinct adult groups: (i) GAD patients with physical illness, (ii) GAD patients without physical illness, and (iii) patients with physical illness but without GAD. This design was chosen to allow for meaningful comparisons and generalizations regarding comorbid patterns and their potential contributing factors.

Pearson's product-moment correlation coefficient (r) was used to assess the linear relationships between continuous variables, while Spearman's rank correlation coefficient (ρ) was employed for non-parametric data. This statistical approach helped identify both the strength and direction of associations—positive, negative, or

no correlation.

This methodology aligns with previous research indicating strong positive correlations between GAD and depressive symptoms (Spitzer et al., 2006), as well as associations between GAD and chronic medical conditions (Kessler et al., 2005). The correlational study design was chosen not to infer causality but to highlight patterns of co-occurrence and mutual influence among the studied variables.

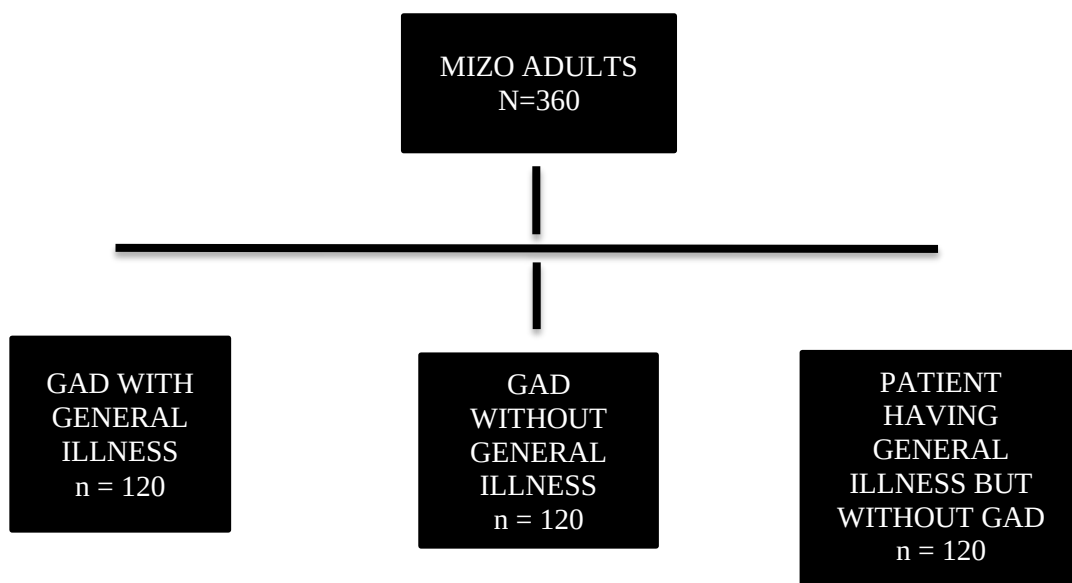


Figure 1: Diagram representing the design of the study

Setting of the study: The study was conducted in both clinical and community-based settings to ensure representation of diverse adult populations affected by Generalized Anxiety Disorder (GAD), with and without comorbid physical illnesses. These settings were selected based on their accessibility, relevance to the study objectives, and potential to yield participants from the three target groups: (i) GAD patients with physical illness (GPI), (ii) GAD patients without physical illness (GP), and (iii) patients with physical illness but without GAD (PI).

(i) **Clinical Settings:** Participants were recruited from outpatient departments (OPDs) and inpatient wards of government and private hospitals, particularly from the psychiatry and general medicine units. These departments commonly encounter

patients presenting with both psychological symptoms (such as anxiety, depression, or insomnia) and chronic physical illnesses (such as hypertension, diabetes, gastrointestinal disorders, and chronic pain conditions). Clinical settings enabled access to individuals with clinically diagnosed GAD, as well as those with physical illness and comorbid psychological distress. Mental health professionals, including psychiatrists and clinical psychologists, assisted in identifying eligible participants based on clinical assessments and referral. This setting was particularly suitable for recruiting individuals who had received a formal diagnosis of GAD and/or other psychological conditions, ensuring diagnostic accuracy and clinical validity.

(ii) ***Community Settings:*** To include individuals who may not have sought or received clinical care, the study also involved data collection from community health centres, urban and rural primary health care units, and general population outreach programs. Community-based recruitment helped identify participants who may experience subclinical symptoms of GAD, or who suffer from physical health conditions but remain undiagnosed for psychological comorbidities. These settings contributed to a more comprehensive and ecologically valid understanding of comorbidity patterns among adults in naturalistic, non-clinical environments.

Outreach efforts were coordinated with the support of community health workers, local NGOs, and primary care nurses, who facilitated participant engagement and trust, especially in rural or underserved areas. Care was taken to guarantee that individuals from both urban and rural settings were included, allowing for a more nuanced understanding of geographic and sociodemographic influences on GAD and comorbidities.

(iii) ***Rationale for Multi-setting Approach:*** Employing both clinical and community settings allowed for:

- 1) Greater heterogeneity of the sample, enhancing generalizability of findings.
- 2) Access to individuals across varying stages of illness, from undiagnosed or subclinical cases to formally diagnosed and treated individuals.

- 3) Cultural and socioeconomic diversity, including participants from different educational, occupational, and residential backgrounds.
- 4) Reduction in selection bias by including both treatment-seeking and non-treatment-seeking populations.

All settings were chosen with attention to ethical standards, participant safety, confidentiality, and logistical feasibility. Necessary permissions were obtained from institutional authorities, and data collection procedures were standardized across locations to ensure consistency and comparability.

The present study employed a random sampling technique as far as possible but also utilized a purposive sampling technique to select participants who met the specific inclusion criteria related to Generalized Anxiety Disorder (GAD), physical illness, or both. Because purposive sampling, a type of probability sampling, was chosen because it allows the researcher to deliberately select individuals who are especially knowledgeable about or experienced with the phenomena under investigation (Etikan, Musa, & Alkassim, 2016). This method is appropriate for clinical and psychological research where the aim is to gain in-depth understanding of particular subgroups rather than to generalize findings to the wider population.

Rationale for Using Purposive Sampling: Given the study's focus on comorbidity patterns among adults with GAD and/or physical illnesses, it was essential to identify individuals who:

- i) Have a confirmed clinical diagnosis of GAD, with or without physical illness;
- ii) Have a physical illness without a diagnosis of GAD;
- iii) Fall within the defined age range of 30 to 50 years;
- iv) Are capable of responding to standardized psychometric tools in English or a translated local language.

These criteria could not be met through random sampling methods, as the probability of randomly identifying individuals across all three required categories (GPI, GP, and PI) would be low and impractical within the timeframe and resource constraints of the study.

Sampling Procedure: Participants were enlisted from both clinical and community settings, as outlined in the prior section. With the assistance of healthcare professionals, including psychiatrists, psychologists, physicians, and nurses, eligible participants were screened and selected based on the following:

- i) Diagnostic history or clinical presentation (for GAD and/or physical illness);
- ii) Willingness and ability to participate;
- iii) Provision of informed consent.

The sampling procedure ensured balanced representation across the three groups:

Group 1 (GPI): Adults diagnosed with GAD and one or more physical illnesses;

Group 2 (GP): Adults diagnosed with GAD but without any physical illness;

Group 3 (PI): Adults diagnosed with physical illness but without GAD.

Each group consisted of both male and female participants, and efforts were made to include individuals from diverse educational, occupational, and residential backgrounds.

Limitations of the Sampling Technique: While purposive sampling is effective for studies with clearly defined populations and objectives, it does present certain limitations:

- i) It lacks randomization, which may reduce the generalizability of findings to the broader population.
- ii) There is a risk of selection bias, as participants are chosen based on the researcher's judgment and clinical referrals.
- iii) The sample may not fully represent undiagnosed individuals or those who avoid formal healthcare systems due to stigma or access barriers.

Despite these limitations, purposive sampling remains a valid and widely accepted method in clinical and psychological research, particularly when the aim is to explore specific phenomena such as comorbid disorders in adults with GAD.

Sample Size: A total of 360 participants were targeted for the main study, equally divided among the three groups (i.e., 120 participants in each group). This distribution allowed for robust group-wise comparison and statistical analysis to test the study's hypotheses.

Strengths of the Sampling Technique:

- i) Enabled the inclusion of clinically relevant subgroups for targeted comparison.
- ii) Supported the study's goal of analyzing comorbidity patterns in specific populations.
- iii) Ensured that participants met specific diagnostic and demographic criteria critical to the research objectives.
- iv) Allowed for efficient use of available resources, particularly within hospital and community settings.

In this study, the main objectives were to determine the co-morbidity of Generalized Anxiety Disorders (GAD). A total of 360 samples were included, consisting of six comparison groups:

- (i) 120 sample of GAD with physical illness
- (ii) 120 of GAD without physical illness,
- (iii) 120 Patients with a physical illness but without GAD, within the age range of 30-50 years.

Each group {(i) male GAD with physical illness (60 female GAD and 60 male GAD without physical illness), (ii) GAD without physical illness (120 male and 120 female patients), and 120 patients with a physical illness but without GAD (60 male and 60 female)}. Efforts were made to control other extraneous variables as far as possible.

The samples were randomly selected from patients registered at Psychiatry Hospital, Kulikawn, Aizawl. Each group's samples were drawn from Mizo adults, matched equally on age, education level, location, and other extraneous variables using socio-demographic profiles constructed by the researcher.

Criteria for Selection of Sample:

Inclusion Criteria:

- 1) Diagnosed with Generalized Anxiety Disorder
- 2) Aged 30 years to 50 years
- 3) Diagnosed with comorbid physical illnesses
- 4) Willing to participate in the study

Exclusion Criteria:

- 1) Patients with severe mental illness
- 2) Individuals with severe cognitive impairment or intellectual disabilities.
- 3) Individuals under psychiatric medication with heavy sedation during the time of survey.
- 4) Individuals unwilling or unable to give informed consent.

Tool Used

In the present study, employed standardized psychological test which were constructed for other culture which need to checked its validity and reliability for using the targeted population.

Validity: Given that the research investigates the comorbidity of Generalized Anxiety Disorder (GAD) with other psychological and physical health conditions, it was crucial to ensure that all instruments used were psychometrically sound and culturally appropriate for the study population. Validity refers to the extent to which a research tool or procedure accurately measures what it is intended to measure (Polit & Beck, 2021).

Content Validity: Content validity was established through an extensive review of existing literature and consultation with subject matter experts in psychiatry, clinical psychology, and psychiatric nursing. Each instrument selected for this study was assessed for its ability to cover the full range of symptoms and dimensions relevant to the constructs under investigation—namely GAD, PTSD, OCD, depression,

insomnia, eating disorders, and substance use.

Construct Validity: All psychological tools used in this study were standardized instruments with well-established construct validity based on prior empirical studies.

Criterion Validity: Criterion validity, specifically concurrent validity, was supported by the fact that many of the participants had been clinically diagnosed by psychiatrists or general physicians prior to data collection. Their clinical diagnoses served as a benchmark for validating the screening instruments administered during the study. A strong alignment between clinical diagnosis and the participants' scores on standardized tools reinforced the criterion validity of the instruments.

Face Validity: Face validity refers to the extent to which the instruments appear to measure what they claim to, from the perspective of respondents. All tools used in the study were easy to understand and relevant to the symptoms experienced by the participants. Prior to full data collection, a **pilot study** was conducted with a small group of participants to assess the face validity of the instruments. Feedback from the pilot sample confirmed that the questions were clear, appropriate, and reflective of their mental health experiences.

Ecological Validity: Ecological validity was ensured by conducting the study in **naturalistic settings**, including hospital outpatient departments, community clinics, and rural health centres. This allowed the collection of data from real-world contexts, enhancing the generalizability and applicability of the findings to practical clinical and public health scenarios.

The tools used for the study, namely: (i) GAD-7 for Generalized Anxiety Disorder, (ii) PTSD-8 for Post-Traumatic Stress Disorder, (iii) Yale-Brown Obsessive Compulsive Scale (Y-BOCS) for OCD, (iv) Insomnia Severity Index (ISI) for sleep disturbances, (v) PHQ-9 for Depression, (vi) Eating Disorder Examination Questionnaire (EDE-Q), and (vii) WHO-ASSIST V3.0 for substance use have undergone extensive validation in both Western and non-Western populations and have demonstrated strong psychometric properties such as factor structure, internal consistency, and convergent validity. Where validated regional translations were

available, they were used to maintain linguistic accuracy and cultural appropriateness.

Table 1: *Instrument Validity Summary Table*

<i>Tool</i>	<i>Type of Validity Established</i>	<i>Source/Reference</i>
GAD-7	Content, Construct, Criterion	Spitzer et al. (2006)
PTSD-8	Construct, Criterion	Hansen et al. (2010)
Y-BOCS	Content, Construct	Goodman et al. (1989)
ISI	Construct, Criterion	Bastien et al. (2001)
PHQ-9	Content, Construct, Criterion	Kroenke et al. (2001)
EDE-Q	Construct, Face	Fairburn & Beglin (2008)
WHO-ASSIST V3.0	Construct, Content, Cultural Validity	WHO (2003)

In conclusion, multiple types of validity were addressed in the design and execution of this study. By using standardized, validated instruments and implementing expert review and pilot testing, the research ensured that the tools used were both scientifically robust and contextually appropriate for the study population. This enhances the reliability and trustworthiness of the results and contributes to the overall rigor of the study.

Reliability

Reliability is ensuring the consistency, stability, and repeatability of a measurement instrument over time and across different populations (Polit & Beck, 2021). In this study, ensuring reliability was critical to accurately assess the comorbidity of Generalized Anxiety Disorder (GAD) with psychological conditions such as PTSD, OCD, insomnia, depression, eating disorders, and substance use among adults.

Internal Consistency in the Current Study:

To ensure the reliability of the tools in the current sample population, Cronbach's alpha coefficients were computed after pilot testing. The pilot study involved a subset of participants ($n = 30$) who were selected to represent the diversity of the target population. All scales demonstrated high internal consistency in this sample as well, with alpha values exceeding the minimum acceptable threshold of 0.70 (Nunnally & Bernstein, 1994). This suggests that the items within each scale measured the same underlying construct consistently across the sample.

Test Administration and Scoring Consistency:

To minimize variability in data collection, all instruments were administered under standardized conditions. Trained mental health professionals and research assistants followed a uniform protocol to ensure consistency in: i) Instructions given to participants, ii) Scoring procedures, and iii) Interpretation of responses.

The use of self-administered and interviewer-assisted formats was carefully managed to avoid introducing bias, especially among participants with literacy challenges. Any clarifications provided were standardized across interviewers to reduce measurement error.

Pilot Testing for Instrument Reliability

As part of the preparatory phase, a pilot study was conducted to:

- i) Assess the feasibility of tool administration,
- ii) Identify potential issues in comprehension,

- iii) Confirm the reliability of the tools in the local context.
- iv) Feedback from pilot participants and preliminary analysis further validated the instruments' reliability in the cultural and linguistic context of the study setting.

The pilot confirmed the clarity, reliability, and appropriateness of the tools and methods. Minor adjustments were made based on feedback. The findings validated the study's readiness for full-scale implementation of the study.

Control for Bias and Error: To enhance reliability and control for possible sources of error, the following strategies were employed:

- i) Use of pre-validated instruments with established psychometric properties,
- ii) Standardized data collection protocols, including setting, timing, and instructions,
- iii) Training of data collectors to ensure uniformity in administration,
- iv) Cross-checking of responses for inconsistencies or incomplete entries,
- v) Use of objective scoring guidelines to reduce subjective interpretation.

Reliability of Standardized Tools:

All the instruments used in this study are standardized, psychometrically validated scales with established reliability coefficients reported in previous research. These tools have demonstrated strong internal consistency (Cronbach's alpha), test-retest reliability, and inter-rater reliability across diverse populations and clinical settings.

Below is a summary of the reliability coefficients of each instrument:

<i>Instrument</i>	<i>Psychological Construct Measured</i>	<i>Reported Cronbach's Alpha</i>	<i>Source</i>
GAD-7	Generalized Anxiety Disorder	$\alpha = 0.89-0.92$	Spitzer et al. (2006)
PTSD-8	Post-Traumatic Stress	$\alpha = 0.82$	Hansen et al.

	Disorder		(2010)
Y-BOCS	Obsessive-Compulsive Disorder	$\alpha = 0.87-0.90$	Goodman et al. (1989)
Insomnia Severity Index (ISI)	Insomnia	$\alpha = 0.90$	Bastien et al. (2001)
PHQ-9	Depression	$\alpha = 0.86-0.89$	Kroenke et al. (2001)
EDE-Q 6.0	Eating Disorder	$\alpha = 0.90$ (Global Score)	Fairburn & Beglin (2008)
WHO-ASSIST V3.0	Substance Abuse	$\alpha = 0.80-0.92$ (varies by substance)	WHO (2003)

Table 2: Reliability coefficients of each instrument

These reliability values fall within acceptable to excellent ranges, supporting the use of these instruments in both clinical and community settings.

The reliability of the instruments used in this study was rigorously assessed and confirmed through both literature support and pilot testing. High internal consistency, standardized administration, and appropriate training of field personnel contributed to the collection of stable and trustworthy data. This strong foundation in reliability ensures the robustness of the findings regarding GAD and its comorbid conditions in the adult population.

Procedure: To ensure the accurate measurement of psychological and physical health variables among adults with and without Generalized Anxiety Disorder (GAD), standardized and validated tools were selected based on their psychometric properties and relevance to the study objectives. The process of tool collection, adaptation, translation, and pilot testing was conducted in accordance with established research guidelines (Polit & Beck, 2021).

The researcher prepared a specific proforma for collecting demographic details of participants to be used for the present study. The identification of the sample was done following simple random sampling procedures from Kulikawn hospital for selection of person with GAD (for both 60 male and 60 female patients); whereas selection for the non- GAD patients was screened with the help of DSM-V and GAD-7, and the Socio-demographic profiles were employed for selected samples in trying to match the person with GAD. After the identification of the samples was done, the researcher informed all about the purpose of the study, and the psychological scales to the identified samples, and then necessary permission was taken from authorities and the concerned participants. Then, the administration of the psychological scales and interview was conducted by strictly following APA research ethics (2000, 2016) and prescribed manual of the tests; all doubts were clarified, confidentiality were maintained, and checking of responses was also done and end with vote of thank from the researcher.

Data Collection Procedure: The pilot study was carried out over two weeks. Eligible participants were approached in clinics and communities. Data collection took 35–45 minutes per participant. Assistance was given where literacy was limited. Observations were recorded, including participant fatigue, item comprehension, and response behaviour.

Analysis of Pilot Data: Descriptive statistics and Cronbach's alpha were calculated using SPSS. All instruments had alpha values above 0.80, indicating good to excellent internal consistency within the pilot sample.

Participant Feedback and Observations: The participant feedback and observation of the researcher included that (i) Items generally well understood, (ii) Clarifications needed for PTSD-8 and WHO-ASSIST in a few cases, (iii) Participants related well to anxiety, depression, and sleep-related items, and (iv) Minor fatigue noted with longer tools

Modifications Based on Pilot Findings: After completion of the pilot study some modification was done like – (i) Clarification prompts added, (ii) Tool order adjusted

to reduce fatigue, (iii) Enhanced training for data collectors, and (iv) Quiet, private data collection environments ensured

Ethical Considerations in the Pilot: Confidentiality was maintained, informed consent obtained, and referrals provided for distressed participants. Participants could withdraw at any time.

Pilot Study Integration: The full data collection process was informed and refined by the results of a ***pilot study*** conducted prior to the main research. This trial run helped establish optimal tool sequence, administration methods, and appropriate interviewer behaviour for handling sensitive topics like substance use and trauma.

Data Collection Method

The final data collection method was designed to systematically gather accurate, comprehensive, and ethically sound information from adult participants regarding Generalized Anxiety Disorder (GAD) and its comorbidity with other psychological and physical health conditions. The study employed structured self-report questionnaires and interviewer-administered surveys using standardized tools to assess symptoms of anxiety, PTSD, OCD, insomnia, depression, eating disorders, and substance use.

Phase 1: Preparatory Phase: Prior to the commencement of data collection, the following steps were undertaken:

Ethical approval was obtained from the Institutional Review Board (IRB) of Mizoram University and concerned healthcare institutions.

Permissions were secured from hospital administrators, community health centres, and other field sites.

Training sessions were conducted for research assistants and interviewers to ensure standardized administration and adherence to ethical protocols.

All instruments were reviewed for linguistic clarity and cultural sensitivity. Regional language versions were used where necessary, employing *translation and back-translation techniques* to preserve content validity.

Phase 2: Participant Recruitment: Participants were selected using purposive sampling based on predefined inclusion and exclusion criteria. Recruitment occurred in both clinical settings (psychiatry and general medicine departments of hospitals) and community settings (urban and rural health centres). Healthcare professionals—including psychiatrists, nurses, and community health workers—assisted in identifying eligible participants.

Interested individuals were briefed about the study objectives, procedures, and ethical safeguards. Those who agreed to participate provided written informed consent before data collection commenced.

Phase 3: Data Collection Procedure: The actual data collection process was carried out over a six-month period. The following procedures were followed to ensure consistency and reliability:

Introduction and Rapport Building: Participants were introduced to the study in a calm and private environment. The researcher or trained assistant explained the study's purpose, the voluntary nature of participation, and reassured confidentiality.

Administration of Socio-Demographic Sheet: A researcher-designed data sheet was administered to collect background information such as age, gender, marital status, education, occupation, area of residence (urban/rural), and history of physical illness or mental health diagnosis.

Psychological Instruments Administration: Each participant completed the following tools in either written or orally administered form, depending on their literacy level:

- 1) Generalized Anxiety Disorder-7 (GAD-7; Spitzer et al., 2006)
- 2) PTSD-8 Scale (Hansen et al., 2010).
- 3) Yale-Brown Obsessive Compulsive Scale (Y-BOCS; Goodman et al., 1989)

- 4) Insomnia Severity Index (ISI; Bastien et al., 2001)
- 5) Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001)
- 6) Eating Disorder Examination Questionnaire (EDE-Q 6.0; Fairburn & Beglin, 2008)
- 7) WHO-ASSIST Version 3.0 (WHO, 2003)

The tools were administered in a fixed sequence, and each session lasted approximately **35 to 45 minutes**. For illiterate participants or those with limited reading abilities, interviewer-assisted administration was conducted using a **standardized script** to prevent interviewer bias.

Observation and Monitoring: During the administration, the researcher monitored participants for signs of fatigue, emotional distress, or confusion. If any such signs were noted, the participant was given the option to pause, discontinue, or receive psychological support.

Data Verification and Safeguarding: After collection, each questionnaire set was checked for completeness and consistency. Identifiable information was coded, and the data were stored securely with access limited to the primary researcher.

Ethical Safeguards during Data Collection

Confidentiality: Personal identifiers were replaced with codes. All data were stored in password-protected devices and locked filing cabinets.

Voluntary Participation: Participants were informed that they could withdraw at any stage without any consequence to their care or relationship with the institution.

Referral Support: Participants showing signs of significant psychological distress were referred to mental health professionals with their consent.

Data Use and Reporting: All data collected were used exclusively for academic research purposes, and results were reported in aggregate form to protect individual identities.

The data collection method was methodically planned and ethically implemented to ensure high-quality, valid, and reliable data. By combining standardized psychometric assessments, professional training of research staff, and participant-centred ethical procedures, the study was able to capture complex psychological comorbidities associated with GAD among diverse adult populations.

About the Psychological Tools Used:

The following psychological scale were used to identify the comorbidity of the Generalized Anxiety (GAD) Patients:

- i) *The Demographic Questionnaire (Biaknungi, 2021)*:** This instrument was designed by the researcher to elicit demographic information of the participants and it included questions concerning the participant's gender, age, and the major health problem.
- ii) *The Semi Structured Interview Questionnaire (Biaknungi, 2021)*:** This instrument was designed to elicit descriptive data from the respondents with regards to the other illness that they have along with the Generalized anxiety disorders.
- iii) *The Post-traumatic Stress Disorder Scale* (Hansen et al., 2010):** Modified form of PTSD-8 scale was used to identify patients who are having Posttraumatic Stress Disorder. The PTSD-8 is derived from the first sixteen items of the Harvard Trauma Questionnaire (HTQ), which corresponds to the DSM-IV criteria for PTSD (Hansen, Andersen, Armour, Elkit, Palic & Mackril, 2010). This scale is a Likert scale consisting of eight items which are rated on four point scale.
- iv) *Obsessive Compulsive Test*:** The Yale Brown OCD Scale (YBOCS; Goodman et al., 1989) was used to identify Obsessive Compulsive disorder in the patient. This is a likert scale consisting of 10 questions and if the patient have scored: 8-15 = Mild OCD; 16-23 = Moderate OCD; 24-31= Severe OCD; 32-40 = Extreme OCD.

v) *Insomnia Severity test:* The Insomnia severity Index (Bastien et al., 2001) was used to test the severity of the Insomnia in the patients. This test consisted of 7 questions. The score will be evaluated as: 0–7 = No clinically significant insomnia; 8–14 = Subthreshold insomnia; 15–21 = Clinical insomnia (moderate severity); 22–28 = Clinical insomnia (severe).

vi) *Depression Scale:* To assess the depressive level of the patient, PHQ-9 depression questionnaire (Kroenke et al., 2001) was used. This likert scale consisted of 9 questions and it will be interpreted as follows - 0-4 none, 5-9 mild, 10-14 moderate, 15-19 moderately severe, 20-27 severe.

vii) *Eating disorder assessment scale:* Modified version of Eating Disorder examination questionnaire (EDE-Q 6.0; Fairburn & Beglin, 2008) was used to identify eating problems in the patients. It is a likert scale consisting of 12 questions which assessed the eating behaviour of the patient for past 28 days.

viii) *Substance abused disorder:* To identify substance abused disorder and to identify the substance that they are abusing WHO-ASSIST V3.0 (WHO, 2003) questionnaire was used. Score Ranges and Interpretation - 0-3 (Alcohol) or 0-10 (Other Substances): Indicates low risk of health and other problems from substance use. No further intervention is typically needed, but continues to monitor. 4-26 (Alcohol) or 11-26 (Other Substances): Indicates moderate risk of health and other problems from substance use. A brief intervention is recommended to help reduce substance use and prevent escalation.

27+ (All Substances): Indicates high risk and suggests a likelihood of substance use disorder. Referral for a more detailed assessment and possibly specialist treatment is recommended.

ix) *GAD-7:* To confirm the patients that they are really having Generalized Anxiety Disorder (Spitzer et al., 2006), GAD-7 will be administered. In this scale, there are 7 questions and the score were interpreted as: 0–4: minimal anxiety; 5–9: mild anxiety; 10–14: moderate anxiety; 15–21: severe anxiety.

Permission for Use: In this study titled “Generalized Anxiety Disorder: Comorbidity Among Adults,” several standardized and widely recognized assessment tools were used to evaluate comorbid psychological conditions including depression, insomnia, post-traumatic stress, obsessive-compulsive symptoms, substance use, and eating disorders. Prior to administration, each tool was reviewed for copyright status, permission requirements, and licensing for non-commercial academic research. The following section outlines the permission status for each instrument used:

- 1) **Generalized Anxiety Disorder 7-Item Scale (GAD-7).** It is available for free for non-commercial academic use and does not require formal permission for use in thesis research, provided it is cited properly.
- 2) **Patient Health Questionnaire-9 (PHQ-9);** It is in the public domain and freely available for non-commercial academic and clinical use, requiring no special permission for inclusion in research studies.
- 3) **PTSD-8 Scale;** The PTSD-8 has been made available for research purposes and can be used freely in academic studies. Though formal permission may not be necessary, citation of the original source and proper acknowledgment are required.
- 4) **Yale-Brown Obsessive Compulsive Scale (Y-BOCS);** The Yale-Brown Obsessive Compulsive Scale (Y-BOCS), developed by Goodman et al. (1989), is copyrighted by Yale University. While academic use is often permitted for non-commercial research, the tool typically requires formal permission or licensing from the copyright holders or their representatives. In this study, the scale was used strictly for academic purposes, and appropriate citation was provided.
- 5) **Insomnia Severity Index (ISI);** The ISI, developed by Morin (1993), is commonly used in academic and clinical research and is available without charge for non-commercial research purposes. It is published in peer-reviewed journals and available online. Permission was not required for academic use, but appropriate citation was ensured.

- 6) ***Eating Disorder Examination Questionnaire (EDE-Q)***; The EDE-Q is freely available for non-commercial research with appropriate referencing, but users are required to acknowledge its source.
- 7) ***WHO-ASSIST Version 3.0***; The WHO (2003) Alcohol, Smoking and Substance Involvement Screening Test (ASSIST V3.0) is published and distributed by the World Health Organization and is in the public domain for research and public health use. No licensing is required for academic use.
- 8) **Socio-Demographic Data Sheet**: A structured socio-demographic data sheet was developed by the researcher (Biaknungi, 2021) specifically for this study to gather relevant background variables. It does not require external permission. Content validity was ensured through review by a panel of subject experts in psychiatric nursing and psychology.
- 9) **Informed Consent form (Biaknungi, 2021)**: informed consent was constructed for the participant which included, the purpose of the study, what is measured, time taken, expected participation, voluntary involvement, assurance of confidentiality on personal information of the participants, and request for written consent for participation in the study.

Ethical Considerations

- 1) Ethical approval was obtained from the Institutional Human Ethics Committee, MZU
- 2) Settings permission was obtained from Kulikawn Hospital
- 3) Written informed consent was taken from all participants before data collection after thorough explanation during interactive session.
- 4) Confidentiality and anonymity of participants were strictly maintained.

Results

The results were displayed with table and figure for easy and clear understanding of the findings.

Checking Raw Data: The raw data was checked for missing, double entry and outlier for further analysis was done. The conduction of data collection was done by the researcher with due care for such possible entry in the data, and not found any of such data. So, the data was ready for further analysis.

Sample Characteristics: The study was designed to examine the ‘Generalized Anxiety Disorder: Comorbidity among Adults’. Accordingly, it tries to explore GAD comorbidity by comparing (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP), (iii) Physical illness without GAD (PI); and Patients without GAD along with male and female differences in PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse. The researcher constructed the sociodemographic profiles to examine the true representation and control extraneous variables as per the objectives set forth.

The sample of the study consisted of three types of patients (120 GPI with Physical Illness, 120 GAD without Physical Illness (GP), 120 Physical Illness without GAD (PI); and all other demographic variables were controlled to have a well distributed for the three groups which included: two types of gender (180 male and 180 female), 20 to 50 years (three age groups-150 in 20-30 year, 120 in 31-40 year, 90 in 41-50 year), three levels of education (144 below Class x, 132 with XII, and 84 with Graduate or above), socio-economic status (three groups: 162 falls below Rs 10000 below family monthly income, 126 falls between 10001 to 20000, 72 fall in 20001 or above) as given below (Table-1):

Psychometric Property Check: The study employed some standardized psychological scales for the collection of data which were constructed for other cultures and not for the target population of the study which required checking its applicability to the targeted population. To check the psychometric properties, the

normality (Mean, SD, Kurtosis and Skewness), reliability (Cronbach Alpha) and homogeneity (Levene, 1960) were computed as showed in Table-1.

Normality: The Normality was done using descriptive statistics. Kurtosis and skewness were within the acceptable range (± 2), showing the normality prevalence.

Reliability test: The Reliability statistics may be used for further analysis.

Objective-1: To examine levels of PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse for three groups of patients (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP) (iii) Patients having Physical Illness without GAD (PI).

To examine the level of PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse for three groups of patients (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP) (iii) Patients having Physical Illness without GAD (PI) descriptive statistics was employed, and the results was kept in **Table 4**.

To examine the levels of PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse for three groups of patients (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP), (iii) Physical illness Patients without GAD (PI), descriptive statistics (Mean, SD, Kurtosis, Skewness) was employed which was placed in **Table-4** and displayed in **Figures 2 & 3**.

Results demonstrated the Mean difference between the groups as follows:

i) **On PTSD:** The GAD Patients with Physical illness (GPI) group (M=14.19) showed highest PTSD symptoms followed by the GAD Patients without Physical illness (GP) group (M=14.19), then comes the Patient having Physical illness without GAD group (M=12.40).

ii) **On OCD:** The GAD Patients with Physical illness (GPI) group (M=15.41) showed highest OCD symptoms followed by the GAD Patients without Physical

illness (GP) group (M=11.71) , then comes the Patient having Physical illness without GAD group (M=7.95)

iii) **On Insomnia:** The GAD Patients with Physical illness (GPI) group (M=16.13) showed highest Insomnia symptoms followed by the GAD Patients without Physical illness (GP) group (M=13.43), then comes the Patient having Physical illness without GAD group (M=8.47)

iv) **On Depression:** The GAD Patients with Physical illness (GPI) group (M=17.28) showed highest Depression symptoms followed by the GAD Patients without Physical illness (GP) group (M=13.22) , then comes the Patient having Physical illness without GAD group (M=8.67)

v) **On Eating disorder:** The GAD Patients with Physical illness (GPI) group (M=12.84) showed highest PTSD symptoms followed by the GAD Patients without Physical illness (GP) group (M=9.45) , then comes the Patient having Physical illness without GAD group (M=8.73)

vi) **On Substance Abuse:** The GAD Patients with Physical illness (GPI) group (M=13.35) showed highest Substance Use disorder symptoms followed by the GAD Patients without Physical illness (GP) group (M=10.75), then comes the Patient having Physical illness without GAD group (M=8.34)

Objective-2: To examine any significant difference between i) GAD Patients with physical illness (GPI), and (ii) GAD Patients without physical illness (GP) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse

An independent t-test was conducted to examine any significant difference between i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse was computed, and the result was presented in **Table 5** and portrayed in **Figure 4**.

i) **On PTSD:** The GAD Patients with Physical illness (GPI) group showed higher PTSD symptoms than the GAD Patients without Physical illness (GP) group ($M=14.19$, $.12.40$; $t = 4.31$; $P > .01$) and their difference was significant at .01 level, consistent with previous research which has reported that presence of chronic physical illness when combined with GAD may increase vulnerability to trauma and related symptoms (Craske et al., 2017).

ii) **On OCD:** The GAD Patients with Physical illness (GPI) had higher OCD symptoms than the GAD Patients without Physical illness (GP) group ($M=15.41$, 11.71 ; $t= 4.31$; $p >.01$) and significant at .01 level, reflecting the heightened health related obsessions and/or compulsions frequently found in medically ill anxious individuals (Garnaat et al., 2015).

iii) **Insomnia:** GAD Patients with Physical illness (GPI) scored higher Insomnia symptoms than GAD Patients without Physical illness (GP) group ($M=16.13$, 13.43 ; $t=4.25$; $p > .01$), and significant at .01 level, highlighting the impact of anxiety, mood, worry, physical discomfort as observed in previous studies linking sleep disturbances with physical illness and anxiety (Taylor et al., 2005).

iv) **Depression:** GAD Patients with Physical illness (GPI) evinced higher Depression symptoms than GAD Patients without Physical illness (GP) group ($M=17.28$, 13.22 ; $t=4.02$; $p > .01$) and significant at .01 level consistent with earlier findings that suggest comorbidity of depressive symptoms with physical illness may increase helplessness, grief, loss of functioning, uncertainty about the future and so on (Katon, 2011). Eating disorder: GAD Patients with Physical illness (GPI) evinced higher Eating Disorder symptoms than GAD Patients without Physical illness (GP) group ($M=12.84$, 9.45 ; $t = 3.98$; $p > .01$), and significant at .01 level suggesting that disordered eating behaviours may emerge as maladaptive coping strategies in response to increased anxiety and somatic distress.

v) **Substance Abuse:** GAD Patients with Physical illness (GPI) evinced higher Substance Abuse symptoms than GAD Patients without Physical illness (GP) group ($M=13.35, 10.75$; $t=4.05$; $p > .01$), and significant at .01 level. This is consistent with previous studies reporting that both physical and psychological burdens may resort to substance dependence as a form of coping (Kelly & Daley, 2013).

Objective -3: To determine any significant difference between i) GAD Patients with physical illness (GPI), (ii) Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.

To determine the significant difference between the two groups: GAD Patients with physical illness (GPI) and Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse an independent t-test was employed and the results was presented in Table 6 and also portrayed with diagram in figure 5.

The Results in Table-4 demonstrated the significant mean differences between GAD Patients with Physical illness (GPI) and Patients having Physical Illness without GAD (PI) groups on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse:

i) **On PTSD:** GAD Patients with Physical illness (GPI) group showed higher PTSD symptoms than Patients having Physical Illness without GAD (PI) group ($M= 14.19, 6.52$; $t= 6.28$; $p > .01$) which was significant at .01 level. This is supported by earlier studies showing bidirectional relationship between PTSD and GAD which report that persons with anxiety disorders have more risk to develop PTSD especially when compounded by physical illness and chronic stress (Kessler et al., 1995).

ii) **OCD:** GAD Patients with Physical illness (GPI) had higher OCD symptoms than Patients having Physical Illness without GAD (PI) group ($M=15.41, 7.95$; $t= 6.28$; $p > .01$), and found significant at .01 level. Previous findings have also shown

that anxiety disorders such as GAD are highly comorbid with shared features of obsessive thought patterns and worry (Ruscio et al., 2010).

Insomnia: GAD Patients with Physical illness (GPI) scored higher Insomnia symptoms than Patients having Physical Illness without GAD (PI) group ($M=16.13$, 8.47 ; $t=6.69$; $p > .01$) which was Statistics were checked using Cronbach's Alpha, which evinced that all scales have above .80, such as PTSD ($\alpha = .91$), OCD ($\alpha = .87$), Insomnia ($\alpha = .91$), Depression ($\alpha = .89$), Eating Disorder ($\alpha = .88$), and Substance Abuse ($\alpha = .89$).

Homogeneity test: The Homogeneity test was done using the Levene statistics. The results provided the acceptable value on all scales (Levene's test; non-significant) which showed the trustworthiness of the scales.

The results confirmed the applicability of the scales for the targeted population and fulfilment of the assumptions of parametric statistics which suggested that parametric

iii) significant at .01 level. Prior studies have also reported that GAD is associated with sleep difficulties and physical illness may further increase sleep disturbances due to discomfort and stress (Taylor et al., 2005).

iv) **Depression:** GAD Patients with Physical illness (GPI) evinced higher Depression symptoms than Patients having Physical Illness without GAD (PI) group ($M=17.28$, 8.67 $t=3.98$; $p > .01$) showing it was significant at .01 level consistent with existing literature that suggests that physical illnesses and anxiety elevates risk for depression (Katon, 2011).

v) **Eating disorder:** GAD Patients with Physical illness (GPI) evinced higher Eating Disorder symptoms than Patients having Physical Illness without GAD (PI) group ($M=12.84$, 8.73 ; $t=6.69$; $p > .01$), and found significant at .01 level consistent with previous findings that report that anxiety is a risk factor for disordered eating

behaviours particularly in the presence of other physical health concerns (Udo et al., 2019).

vi) **Substance Abuse:** GAD Patients with Physical illness (GPI) evinced higher Substance Abuse symptoms than Patients having Physical Illness without GAD (PI) group ($M=13.35, 8.34; t=6.84; p > .01$) and significant at .01 level. The finding is supported by previous research reporting that individuals with chronic anxiety and physical illnesses may use substances as a way of coping (Kushner et al., 2000).

Objective-4: To examine any significant difference between (i) GAD Patients without physical illness (GP) (ii) Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.

To examine the significant difference between GAD Patients with physical illness (GPI) and Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse, an independent t-test was utilized, and the results declared significant difference as portrayed in Table 7 and also portrayed with diagram in figure 6.

The Results in Table-5 demonstrated the significant mean differences between i) GAD Patients without physical illness (GP) (ii) Patients having Physical Illness without GAD groups on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse separately which were shown in **Table-5:**

i) **On PTSD:** GAD Patients without physical illness (GP) group showed higher PTSD symptoms than Patients having Physical Illness without GAD group (PI) ($M=14.19, 6.52; t=8.92; p > .01$) and found significant at .01 level supported by prior research suggesting that even in the absence of physical illness, individuals with GAD are more vulnerable to PTSD-like symptoms (Cukor et al., 2010).

ii) **OCD:** GAD Patients without physical illness (GP) group showed higher OCD symptoms than Patients having Physical Illness without GAD group (PI) ($M=11.71, 7.95; t=7.323; p > .01$) and found significant at .01 level consistent with previous

findings which suggest that persons with high anxiety and uncertainty intolerance are more prone to OCD (Tolin et al., 2003).

iii) *Insomnia:* GAD Patients without physical illness (GP) group showed higher Insomnia symptoms than Patients having Physical Illness without GAD group (PI) ($M=13.43, 8.47$; $t=5.517$; $p > .01$) and found significant at .01 level. Previous studies have also reported similar findings suggesting GAD related worry is closely linked to sleep disturbances that may further lead to insomnia (Harvey, 2002).

iv) *Depression:* GAD Patients without physical illness (GP) group showed higher Depression symptoms than Patients having Physical Illness without GAD group (PI) ($M=13.22, 8.67$; $t=4.950$; $p > .01$) and found significant at .01 level consistent to previous studies that have found that burdens of GAD may contribute to depressive symptoms even without concurrent physical illnesses (Mineka, 1998)

v) *Eating disorder:* GAD Patients without physical illness (GP) group showed higher Eating Disorder symptoms than Patients having Physical Illness without GAD group (PI) ($M=9.45, 8.73$; $t=4.657$; $p > .01$) and found significant at .01 level supported by prior findings that report that anxiety disorders, particularly GAD often precede or cooccur with eating disorders (Kaye, 2004).

vi) *Substance Abuse:* GAD Patients without physical illness (GP) group showed higher Substance used Disorder symptoms than Patients having Physical Illness without GAD group (PI) ($M=10.75, 8.34$; $t=8.92$; $p > .01$) and found significant at .01 level consistent with prior studies that suggest that GAD increases vulnerability for substance misuse as a means of self-medication and/or coping strategies (Buckner, 2013).

Objective-5: To study the relationship between PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.

To examine any positive or negative relationship between PTSD, OCD, Insomnia,

Depression, Eating disorder, and Substance Abuse the Pearson's moment correlation was used and the results were showed in Table 7 and figure 8.

The study employed Pearson's Correlation to determine any significant relationship between PTSD, OCD, Insomnia, Depression, Eating disorders, and Substance Abuse as shown in Table-7.

Results provided that:

i) **PTSD relation with OCD, Insomnia, Depression Eating Disorders, and Substance Abuse:** PTSD had a positive significant relationship with OCD ($r=.38$; $p > .01$), Insomnia ($r=.39$; $p > .01$), Depression ($r=.26$; $p > .01$), Eating disorder ($r=.43$; $p > .01$), and Substance Abuse ($r=.26$; $p > .01$) at .01 significant level.

The results were supported by an earlier study where patients with PTSD diagnosis were evaluated for OCD in a medical hospital. The results showed that out of 44 referrals, 18 (i.e., 41%) were diagnosed with current OCD with PTSD, 19 (i.e., 43%) diagnosed as PTSD without current or lifetime OCD and 7 diagnosed with PTSD and OCD symptoms, indicating a positive relationship between the two disorders (Nacasch et al., 2011)

Another study focused on the relation between PTSD and Insomnia wherein individuals with insomnia or lesser sleep in general (<6 hours) was significantly associated with onset of PTSD symptoms suggesting the increased risk insomnia might have in relation to new-onset mental problems such as PTSD among others (Gehrman et al., 2013).

The results of the present study are consistent with previous findings which have found that approximately 48 to 55 % of individuals with PTSD have also met the diagnostic criteria of Major Depressive Disorder showing the positive relationship between PTSD and Depression (Roley et al., 2015).

A study examining the prevalence and impact of Trauma history among 4,524 eating disorder patients have also found that 18.6 % i.e., 843 patients had

experienced at least one Traumatic Event and 24.2% among these also reported more than one Traumatic experience (Backholm et al., 2013).

Moreover, a national women's study focusing on both current and lifetime PTSD has found that the prevalence were significantly higher in individuals with eating disorders particularly bulimia nervosa than those without it (Dansky et al., 1997).

The present study's results are further consistent with previous findings. A study including 132 outpatient participants revealed a positive correlation between severity of addiction and the severity of life trauma with $p = 0.001$. Additionally, the severity level of addiction was positively correlated with PTSD symptoms (Kuksis et al., 2017).

OCD relation with Insomnia, Depression Eating disorder, Substance Abuse and Anxiety: the OCD positively related with Insomnia ($r = .39$; $p > .01$), Depression ($r = .27$; $p > .01$), Eating disorder ($r = .39$; $p > .01$) and Substance Abuse ($r = .22$; $p > .01$) at .01 significant level.

The findings are consistent with previous literature. A study done by Timpano and team in 2014 indicates a significant relationship between obsessions and insomnia rather than compulsions and insomnia (Timpano et al., 2014).

Various studies have found a positive relationship between OCD and Depressive symptoms. Lifetimes rates of depression in OCD patients have been reported to be around 67.2% in clinical studies (Pinto et al., 2006), another reported 73.4% and 81.2% of early and late-onset lifetime depression respectively, in patients with OCD (Millet et al., 2004).

Studies examining OCD and Eating Disorders have found significant relations between the two by reporting markedly higher prevalence 15.7% and 19 % vs. 0% and 1.1% with p value < 0.05 (both current and lifetime respectively) of OCD in individuals with eating disorders as compared to the general population (Speranza et al., 2001).

In a study of examining substance use disorders among 323 OCD patients, 27% of the sample met lifetime criteria for a substance use disorder (Mancebo et al., 2009).

ii) **Insomnia relation to Depression Eating disorder, Substance Abuse, and Anxiety:** Insomnia had a positive significant relation with Depression ($r=.24$; $p > .01$), Eating disorder ($r=.37$; $p > .01$), and Substance Abuse ($r=.26$; $p > .01$) at .01 significant level.

Results are consistent with previous studies which have determined the relation between these disorders. At least 41% of patients with depression have chronic symptoms of insomnia and 20% of patients with primary diagnosis of insomnia have exhibited depressive symptoms (Stewart et al., 2006; Soldatos CR, 1994). Among 481 substance use disorder patients, 66.5% had various symptoms of insomnia (Grau-Lopez et al., 2020). Research done in 2016 focused on the relationship between insomnia and anxiety in university students where 462 participated. It was found that there was a significant positive correlation between anxiety and clinical insomnia with p value 0.006 (Choueiry et al., 2016).

iii) **Depression relation to Eating disorder, Substance Abuse, and Anxiety:** Depression showed a significant positive relations with Eating disorder ($r=.29$; $p > .01$), Substance Abuse ($r=.34$; $p > .01$) at .01 significant level.

The results were supported by earlier studies. A research done on 350 students in Pakistan found a significant relationship and interdependency between eating disorders and depression (Saleem et al., 2014). An analysis of 6355 substance dependent patients indicates that at least 44% of these patients also had a lifetime history of depression (Miller et al., 1996). A worldwide survey has reported that approximately 45.7% of persons with a lifetime depression also had a lifetime history of one or more anxiety disorder, signifying the positive relation between the two disorders (Kessler et al., 2015).

iv) **Eating disorder relation to Substance Abuse, and Anxiety:** Eating disorder positively related with Substance Abuse ($r=.36$; $p > .01$) at .01 significant level.

The findings are consistent with previous research. Various studies have found significant positive relations between eating disorders and substance abuse where individuals seeking treatment for eating disorders often have high rates of alcohol

and/or drug dependence (Bushnell et al., Newman & Gold, 1992). A study focusing on women with eating disorders reported that approximately 47% of them had at least one anxiety disorder along with the onset of the eating disorder particularly social phobia more common with higher association with bulimic pathologies (Godart et al., 2003).

v) **Substance Abuse and Anxiety relationship:** Substance Abuse had a significant relationship with Anxiety ($r=.48$; $p > .01$) at .01 significant level.

This is consistent with previous studies where 80% of substance use disorder patients were found to have high to moderate levels of anxiety in comparison to their healthy controls (Mohamed et al., 2020).

Summary and Conclusion

The present research study titled as “Generalized Anxiety Disorder: Comorbidity among adults” obtained the following findings:

The study used psychological scales which were cross checked for their applicability for the present samples. It was designed to looking the generalized anxiety disorders to other mental illnesses. For attempting the objectives of the study, three groups of patients namely - (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP), and (iii) Patients having Physical Illness without GAD (PI) were compared on the levels and relationship with other selected mental illnesses. Accordingly, the results were discussed following the objectives of the study.

The first objective of the study examines the different levels of PTSD, OCD, Insomnia, Depression, Eating Disorder and Substance abuse for three different groups of patients and the results demonstrated that the different levels on all different mental illnesses - PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse. The study confirmed the first hypothesis and suggests accepting it.

The second objectives was to examine any significant difference between the observed three groups of patient : i) GAD Patients with physical illness (GPI), and (ii) GAD Patients without physical illness (GP) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse which showed GAD patients with Physical illness (GPI) group had the higher mean scores on all dependent variables than GAD patients without physical illness (GP); both groups suffering from GAD as such had a selected mental illness in both groups. The results may be explained as the patients who were suffering from generalized anxiety disorder having other mental illnesses as the consequences of GAD that confirms the second hypothesis was acceptable.

The third objective tried to examine significant difference between (i) GAD Patients with physical illness (GPI), and (ii) Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse; and the results evinced that the GAD Patients with physical illness (GPI) had higher mental illness than GAD Patients with physical illness (GPI) which signified that generalized anxiety disorder was accompanied by other mental illnesses; and also invites to accept the hypothesis no 3.

The fourth objective examines the significant difference between (i) GAD Patients without physical illness (GP), and (ii) Patients having Physical Illness without GAD (PI) on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse; and the results evinced that the GAD Patients without physical illness (GP) had higher mental illness than Patients having Physical Illness without GAD (PI) which indicated that generalized anxiety disorder was accompanied by other mental illnesses; and also invites to accept the hypothesis no 4.

The fifth objective was to study the relationship between PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse among the samples. The Pearson's correlation provided that all selected mental illnesses under study were positively correlated each other which demonstrated that even generalized anxiety disorders also having comorbidity with all of them; and which can be imprinted as hypothesis no 5 was also acceptable.

This study has provided critical insights into the complex relationship between Generalized Anxiety Disorder (GAD) and its co-occurrence with various physical and psychological health conditions among adults. From a nursing perspective, the findings reinforce the essential role nurses play in recognizing, assessing, and managing mental health symptoms that coexist with chronic physical illnesses.

The study revealed that comorbidity is highly prevalent among adults with GAD, with many patients simultaneously experiencing conditions such as cardiovascular diseases, diabetes, musculoskeletal disorders, and depression. These comorbidities often complicate the clinical picture, contributing to increased healthcare needs, prolonged hospital stays, and reduced quality of life. Female participants, in particular, demonstrated a higher burden of comorbidity, pointing to the need for gender-sensitive nursing care and interventions.

For nursing practice, these findings underscore the importance of adopting a holistic, patient-centered approach to care. Nurses are often the first point of contact and play a vital role in early identification of anxiety symptoms, conducting comprehensive assessments, and providing education, support, and referrals. Addressing both the physical and psychological aspects of a patient's health is essential for achieving optimal outcomes.

This research also highlights the need for further training in mental health nursing, as well as stronger collaboration between mental health professionals and general healthcare providers. Integrating mental health screening tools, such as the GAD-7, into routine nursing assessments can facilitate early intervention and prevent worsening of comorbid conditions.

In conclusion, this study contributes valuable knowledge to the field of psychiatric nursing and reinforces the need for interdisciplinary, preventive, and integrative care strategies in managing GAD and its comorbidities. As frontline caregivers, nurses must be empowered with the skills, knowledge, and support necessary to address these challenges effectively. Continued research and practice-

based innovations in this area will be essential to enhancing the quality of life for individuals living with GAD and associated health conditions.

Conclusion

To conclude, the findings indicate that Generalized Anxiety Disorders (GAD) has a significant relation with various other mental disorders such as PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse. The study examined the differences between the three groups: (i) GAD Patients with physical illness (GPI), (ii) GAD Patients without physical illness (GP), and (iii) Patients having Physical Illness without GAD (PI) on the observed mental disorders. It was confirmed that the both types of Patients who were having generalized anxiety disorders showed higher mental illnesses like PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse. This suggested that the GAD has comorbidity with PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse. The results of the study suggested the importance of studying the co-morbidity and co-occurrence of psychological problems, that can heightened chronicity of generalized anxiety disorders and impose consequences on the affected individuals. Understanding the connection and processes underlying between these disorders may shed notable information on the mechanisms behind certain mental problems. Further, this may be crucial for the development and improvement of the treatment and management as well as conceptualizations of these different disorders.

Limitation

The study could not cover the whole targeted population and took only representative of the three groups of patients admitted in the hospitals.

The study could not use longitudinal study to know the GAD suffering duration which may contribute important information on GAD comorbidity

The study could determine only the difference between GAD illness and Gender on selected dependent variables not able focus on other possible factors of mental illness especially GAD illness.

The study could not focus on cultural differences on GAD comorbidity which may contribute uniqueness of the targeted population

The study could look the commodity of GAD with limited mental illness though much comorbidity might happen.

Suggestion for future research

It was suggested that a bigger sample size with more representative of the targeted population and reiteration of the study would provide more information about the GAD comorbidity.

It was suggested that replication of the study using longitudinal study which would confirm the GAD comorbidity with selected mental illness.

It was suggested to study not only gender differences but also cultural differences, ecological difference, socio demographic difference and other psychological variables to give confirmatory support of the light set by the present study.

It was suggested that inclusion of more mental illness to identify the GAD comorbidity with them to contribute more information regarding GAD comorbidities.

Significance of the study

Though some limitations of the study, the study highlighted and contributed additional important information about the comorbidity of generalized anxiety disorders among the targeted population which never been explored before.

The study provided the GAD had comorbidity with PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse.

The study evinced a significant relationship between the PTSD, OCD, Insomnia; Depression, Eating disorder, and Substance Abuse, one mental illness may invite another mental illness which need attention.

The study demonstrated the GAD comorbidity difference on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse regardless of physical illnesses.

The study portrayed the GAD commodity difference between GAD patients with physical illness, and without physical illness by showing differences on PTSD, OCD, Insomnia, Depression, Eating disorder, and Substance Abuse which implied the burden of anxiety for the patients, and may also has impact on carer of the patients with GAD.

The overall results highlighted the GAD had several comorbidity which explain the need of attention to GAD patients for early detection, prevention and psychological intervention.

Implications for Nursing

The growing prevalence of Generalized Anxiety Disorder (GAD), especially in the presence of comorbid psychological and physical illnesses, demands a multidimensional response from the nursing profession. As frontline caregivers in healthcare systems, nurses are uniquely positioned to address the complexities of GAD through direct clinical care, education, policy leadership, and research advancement. The implications of this thesis—Generalized Anxiety Disorder: Comorbidity Among Adults—underscore the urgency of building mental health capacity within nursing roles.

Nurses are not only responsible for treatment and support, but also for prevention, advocacy, and health system transformation. This section outlines the key implications of the study for nursing practice, education, administration, and research.

Implications for Nursing Practice

Nurses are often the first point of contact for patients experiencing psychological distress, especially in primary care and hospital settings where GAD is often undiagnosed or misdiagnosed. The high rate of comorbidity between GAD and

disorders such as PTSD, OCD, depression, insomnia, eating disorders, and substance use disorder highlights the necessity of comprehensive, person-centred assessment and care planning.

Nurses must be trained and supported to conduct structured mental health assessments using validated screening tools like the GAD-7, PHQ-9, PTSD-8, and WHO-ASSIST V3.0. They should be vigilant in detecting psychological distress that may manifest through somatic symptoms. Informed clinical judgment is essential to avoid underdiagnosing coexisting disorders.

Finally, nurses play a critical role in psychoeducation—helping patients and families understand the connection between anxiety and physical health, reducing stigma, and promoting health-seeking behaviour.

Implications for Nursing Education

The findings of this thesis highlight a pressing need for enhanced mental health training in nursing curricula at both undergraduate and postgraduate levels. Current nursing programs must include in-depth content on anxiety disorders, comorbidity, and interdisciplinary management strategies.

There is a need to strengthen the clinical competency of nursing students in screening and managing patients with multiple mental health issues. Simulation-based education and role-play scenarios involving patients with complex comorbid conditions can prepare future nurses to handle such real-world challenges.

Continuing nursing education should also emphasize communication skills, trauma-informed care, and non-stigmatizing approaches. Workshops and seminars on current diagnostic tools and therapies (e.g., CBT, mindfulness, motivational interviewing) should be integrated into professional development initiatives. Nurse educators have the responsibility to bridge the gap between theory and practice through evidence-informed instruction that reflects the realities of mental health comorbidity.

Implications for Nursing Administration

Nursing administrators are pivotal in translating the implications of research into practice by shaping policy, workforce development, and institutional culture. Based on this thesis, several priorities emerge for healthcare leaders in nursing:

Staffing and Workforce Support: Given the emotional toll of caring for patients with comorbid mental health disorders, nurse-patient ratios must be realistic and support mechanisms such as mental health days or peer support groups should be established.

Policy and Protocol Development: Institutions must adopt protocols for routine mental health screening and integrated care pathways for patients with GAD and coexisting conditions. This includes electronic health record (EHR) modifications to include anxiety-specific assessments.

Interdisciplinary Collaboration: Administrators should facilitate collaborations between mental health specialists, general medical teams, and nursing staff. Case conferences, mental health rounds, and collaborative care models are essential for holistic patient management.

Implications for Nursing Research

Despite the widespread impact of GAD and its comorbidities, there is limited nursing-led research in this area. This thesis opens up several avenues for future research, particularly in developing nurse-led interventions for managing anxiety and comorbid disorders in clinical and community settings.

Nurses can investigate the effectiveness of psychoeducation programs, mindfulness-based stress reduction, telehealth counseling, and integrated care delivery models tailored for patients with complex mental health needs. Community-based participatory research (CBPR) involving patients and caregivers can also provide deeper insights into stigma, treatment barriers, and recovery facilitators.

Furthermore, qualitative studies exploring the lived experiences of adults

with GAD and comorbid conditions can inform more empathetic and personalized nursing care. Nurse researchers should also contribute to policy-focused research that evaluates the impact of mental health integration into general care on nurse workload, patient outcomes, and system efficiency.

Increased funding, mentorship, and institutional support are necessary to foster a culture of inquiry among nurses and position them as leaders in mental health innovation.

The growing burden of Generalized Anxiety Disorder, especially when coupled with other mental and physical illnesses, calls for a comprehensive response from the nursing profession. Nurses must evolve to meet this challenge through enhanced clinical competence, continuous education, strategic leadership, and robust research. The findings of this study serve as a guide for nursing interventions and policies that aim to improve the health and well-being of adults suffering from GAD and its comorbidities. An investment in nursing development is not only beneficial to individuals with GAD but is essential to achieving broader public health goals and a more resilient healthcare system.

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