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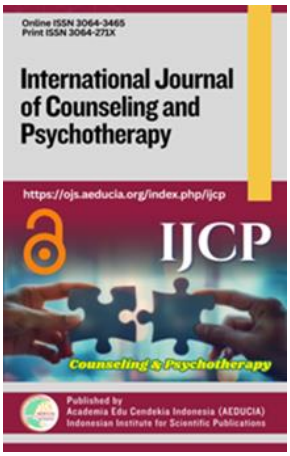

Generalized Anxiety Disorder and Treatment Options

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ABSTRACT

Background: Generalised Anxiety Disorder (GAD) is a chronic mental health condition characterised by persistent and excessive worry that lasts for at least six months and interferes with daily functioning. The disorder affects adolescents and adults worldwide and is frequently accompanied by psychological and somatic symptoms such as restlessness, fatigue, sleep disturbance, irritability, and impaired concentration. Because these symptoms often appear in primary health settings, accurate diagnosis remains challenging. **Objective:** This article reviews the aetiology, clinical characteristics, and current treatment options for GAD, highlighting emerging therapeutic approaches. **Method:** The study employs a narrative literature review of recent psychological and psychiatric publications on diagnostic criteria, epidemiology, pharmacological management, and cognitive-behavioural interventions. **Results:** Findings indicate that GAD presents with diverse symptom trajectories across the lifespan and disproportionately affects certain populations, including women and older adults. Evidence also shows that combined pharmacotherapy and cognitive behavioural therapy remains the most effective treatment, while mindfulness-based and integrative therapies demonstrate promising complementary outcomes. **Conclusion:** Comprehensive and individualised treatment is essential for improving long-term symptom management and quality of life. **Contribution:** This review synthesizes evidence supporting clinical practice.

1. INTRODUCTION

Prevalence rates of Generalized Anxiety Disorder (GAD) in the U.S are estimated at around 6.8 million adults, or 3.1% (LeWine, 2022) and 4% of the global population (Wandler, 2024). GAD is a specific diagnosis within the larger grouping of anxiety disorders. Given its prevalence, much research has focused on understanding its aetiology, course, and specific issues. In addition, treatment options for clients suffering from GAD have been widely researched and continue to evolve.

The American Psychiatric Association's (APA) *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5-TR, 2022) characterized GAD by excessive, uncontrolled worry which persists for at least 6 months. Revisions to the *DSM* have changed the definition of this disorder to clarify the diagnostic process. For example, the *DSM-III* previously considered excessive worry of at least one month as meeting criteria for a GAD diagnosis. Currently, the *DSM-5-TR* extended this criterion to 6 months (APA, 2022). There was even speculation in the past about GAD being classified as an Axis II personality disorder due to its characteristics. However, it remained an Axis I disorder (Wittchen, 2002) until the Axis system was eliminated with the *DSM-5*.

Symptoms include increased motor tension, hyperactivity of the autonomic nervous system, and increased vigilance, but *not panic attacks*. Clients experiencing motor tension may complain about fatigue, trembling, and restlessness (Szuhany & Simon, 2022). Hypervigilance may leave them feeling *keyed up* or suffering from impaired concentration (Gale & Oakley-Browne, 2000). Since those

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suffering from GAD have difficulty controlling their anxiety, they may also suffer from sleep difficulties and irritability. Often their worry is over trivial issues, such as daily routines, or is grossly out of proportion to the real impact of the feared event. Excessive worry ultimately harms a client's functioning, whether social or vocational (Szuhany & Simon, 2022). Even when other disorders do not accompany GAD, it can result in considerable impairment and disability (Wittchen, 2002). Physically, GAD is associated with a variety of somatic disorders such as heart disease, hyperthyroidism and pheochromocytoma (Munir & Takov, 2022; Szuhany & Simon, 2022). Psychologically, it has been linked to depression and suicide. Due to the prevalence of somatic symptoms, clients often seek health care first and are referred to physiotherapy (Pauley et al., 2023).

GAD is one of the most impactful disorders in children and adolescents. Pediatric Generalised Anxiety Disorder is also characterized by excessive and uncontrollable worry accompanied by physical symptoms such as headaches, tension, restlessness, gastrointestinal distress, and heart palpitations (Walkup et al., 2022). These symptoms cause significant distress and interfere with a child's interactions with friends and family, both at home and school. GAD occurs in approximately 2 to 6% of children and adolescents, with more often in girls than boys, and the average age of onset is about eight years (Schwartz, 2024). Interestingly, children and adolescents were not eligible for a GAD diagnosis until publication of the fourth edition of the *DSM*.

Generalized anxiety is a frequently occurring disorder across age groups, but about two-thirds of GAD sufferers tend to be female (LeWine, 2022). Due to the nature and prevalence of this disorder, GAD is responsible for a significant economic burden on society. Those with GAD experience decreased work productivity and increased use of health care services, primarily primary care physicians (Wittchen, 2002; Schwartz, 2024). Due to this route of treatment-seeking behaviour, GAD is rarely recognized and diagnosed (Wittchen, 2002). If a proper diagnosis is not obtained, the chances of proper treatment are low. This outcome is troubling because the global annual cost of anxiety disorders is now 6.5 trillion (Kavelaars et al., 2023), with over half of the costs contributed by non-psychiatric medical treatments. This economic burden has motivated research to understand GAD better and promote effective treatment.

Recent studies on Generalised Anxiety Disorder have made significant progress in understanding its multifactorial aetiology, chronic course, and evolving treatment strategies (Patriquin & Mathew, 2017; Peng, 2024). Contemporary investigations integrate neurobiological findings, particularly dysfunction in amygdala prefrontal circuitry and serotonergic mechanisms, with cognitive behavioural models emphasizing intolerance of uncertainty, maladaptive worry processes, and perceived lack of control (Greifenberger et al., 2025; Schlinger, 2021). Diagnostic refinements in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR) have strengthened reliability, although debates regarding duration criteria and comorbidity with depression persist (Cooper, 2026; Torales et al., 2025). Meta-analyses confirm that Cognitive Behavioural Therapy remains a first-line psychological treatment with moderate to large effect sizes, often outperforming pharmacotherapy alone. At the same time, SSRIs and SNRIs continue as primary pharmacological options despite partial remission rates (Johnco et al., 2025). Emerging innovations, including internet-delivered CBT, mindfulness-based interventions, Acceptance and Commitment Therapy, and novel pharmacological explorations such as psychedelic-assisted therapy, reflect a shift toward integrative, accessible, and personalized care (Chambers et al., 2023; Brennan et al., 2022). Overall, the state of the art highlights a multidimensional biopsychosocial framework while underscoring the ongoing need for more effective, culturally responsive, and long-term treatment models.

Although extensive literature has examined the aetiology, course, and treatment of Generalised Anxiety Disorder, several important gaps remain. First, many studies focus predominantly on either biological or psychological dimensions, with limited integrative analysis that synthesizes neurobiological, cognitive, developmental, and sociocultural factors into a unified framework. Second, despite the high comorbidity between GAD and major depressive disorder, there is insufficient clarity regarding differential diagnosis and tailored intervention strategies addressing overlapping symptomatology. Third, while pharmacotherapy and Cognitive Behavioural Therapy are widely recognised as first-line treatments, response rates remain modest, and over half of patients do not achieve full remission, indicating a need for more precise and personalised treatment models. Additionally, although emerging approaches such as digital CBT, mindfulness-based interventions, and novel pharmacological agents show promise, comparative long-term effectiveness and cross-cultural applicability remain underexplored.

This study aims to provide a comprehensive and integrative review of Generalised Anxiety Disorder by synthesising current evidence on its prevalence, aetiology, clinical course, gender and diversity considerations, and treatment modalities. Specifically, the study seeks to (1) analyze biological, psychological, and sociocultural contributors to the development and maintenance of GAD; (2) examine the chronicity, comorbidity patterns, and diagnostic challenges associated with the disorder; (3) evaluate the effectiveness and limitations of pharmacological and psychotherapeutic interventions; and (4) identify emerging treatment innovations and areas requiring further empirical investigation. Through this integrative approach, the study

intends to clarify conceptual understanding and inform more effective, evidence-based clinical practice.

2. METHOD

2.1 Study Design

This study employed a narrative literature review design to examine existing scholarly publications related to Generalised Anxiety Disorder (GAD) and its treatment approaches. This design was selected because it allows researchers to synthesise findings from studies with diverse methodological backgrounds. Through this approach, the study integrates theoretical and empirical insights from psychological and psychiatric research to provide a comprehensive understanding of the aetiology, clinical characteristics, and treatment strategies associated with GAD.

2.2 Study Object

The object of this study consists of scholarly literature discussing Generalised Anxiety Disorder (GAD), including its aetiology, diagnostic characteristics, symptom patterns, and therapeutic interventions. Particular attention is given to research addressing pharmacological treatments, psycho-therapeutic approaches such as cognitive behavioural therapy, and complementary interventions used in the management of anxiety disorders. By examining these studies, the research aims to provide a comprehensive overview of current knowledge and treatment developments in GAD.

2.3 Data Sources

The data used in this study were obtained from various academic publications on Generalised Anxiety Disorder. These sources include peer-reviewed journal articles, academic books, and clinical research reports discussing the diagnosis, epidemiology, and treatment of anxiety disorders. The literature was collected through searches of major academic databases, including Google Scholar and PubMed, as well as reputable international journals in psychology and psychiatry. Only sources that were directly relevant to the topic and provided credible scientific evidence were included in the review.

3. RESULT AND DISCUSSION

3.1 Result

The review of the selected literature indicates that Generalised Anxiety Disorder (GAD) is a chronic mental health condition characterised by persistent and excessive worry that significantly interferes with daily functioning. Individuals with GAD commonly experience a combination of psychological and physical symptoms, including restlessness, fatigue, irritability, sleep disturbances, and difficulties with concentration. These symptoms are often initially expressed as physical complaints, which may complicate diagnosis in primary healthcare settings.

The findings further indicate that GAD affects individuals across different stages of life and occurs more frequently in certain demographic groups, particularly women and older adults. The disorder is also frequently associated with comorbid mental health conditions, especially major depressive disorder, which may complicate clinical assessment and treatment planning.

In terms of treatment, the literature consistently highlights the effectiveness of combined pharmacological and psychological interventions. Cognitive Behavioural Therapy (CBT) is widely recognised as one of the most effective evidence-based psychotherapeutic approaches for managing GAD. Pharmacological treatments commonly involve antidepressant medications such as selective serotonin reuptake inhibitors (SSRIs) and serotonin–norepinephrine reuptake inhibitors (SNRIs). In addition, complementary approaches such as mindfulness-based interventions, relaxation techniques, physical exercise, and body-focused therapies have demonstrated promising results in reducing anxiety symptoms and improving overall well-being.

Table 1. Summary of Key Findings on Generalized Anxiety Disorder and Treatment Approaches

No	Study Aspect	Key Findings	Implications
1	Clinical Characteristics	GAD is characterized by persistent and excessive worry lasting at least six months, accompanied by psychological and physical symptoms such as restlessness, fatigue, sleep disturbances, and impaired concentration.	Early detection is important to ensure accurate diagnosis and effective treatment.
2	Prevalence and Demographics	The disorder affects individuals across the lifespan and is more commonly observed among women and older adults.	Screening strategies should consider demographic risk factors.
3	Comorbidity	GAD frequently co-occurs with other mental health disorders, particularly major depressive disorder.	Comprehensive diagnostic assessment is required.
4	Pharmacological Treatment	Antidepressants, particularly SSRIs and SNRIs, are widely used as first-line pharmacological treatments for GAD.	Medication can help reduce anxiety symptoms and improve functioning.

No	Study Aspect	Key Findings	Implications
5	Psychotherapeutic Treatment	Cognitive Behavioral Therapy (CBT) is one of the most effective psychological treatments for managing GAD.	Psychotherapy should be integrated into treatment planning.
6	Complementary Interventions	Mindfulness-based therapy, relaxation techniques, exercise, and body-oriented interventions can help reduce anxiety symptoms.	These approaches can complement standard treatment strategies.
7	Treatment Challenges	Many patients do not achieve full remission with current treatments.	Further research is needed to develop more personalized and effective interventions.

The findings indicate that Generalized Anxiety Disorder (GAD) is a complex and persistent mental health condition influenced by multiple biological, psychological, and social factors. The reviewed literature consistently shows that GAD presents with diverse symptom patterns and frequently co-occurs with other mental health disorders, particularly depression, which can complicate diagnosis and treatment planning. Evidence further suggests that the most effective management approach involves an integrated treatment model combining pharmacological interventions such as selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitors (SNRIs) with evidence-based psychotherapies, especially Cognitive Behavioural Therapy (CBT). In addition, complementary interventions including mindfulness practices, relaxation techniques, and physical activity may enhance symptom management and improve patients' quality of life. These findings emphasise the importance of comprehensive, individualised, and multidisciplinary treatment strategies to achieve better long-term outcomes for individuals with GAD.

3.2 Discussion

3.2.1 Etiology

From a biological perspective, generalized anxiety disorder has been associated with specific brain functions, neurotransmitter systems, and genetic contributions. Neurological research has focused on the amygdala, insula, anterior cingulate cortex, and prefrontal cortex because these areas have been linked to the anticipation of aversive stimuli commonly expressed as worry (Schwartz, 2024). Since these areas are involved in metallization and introspective thinking, dysregulation of activity in this region may provide understanding of a patient's inability to stop worrying.

GAD has been linked to specific neurotransmitters, including norepinephrine, serotonin, and gamma-aminobutyric acid (GABA), which are involved in the body's response to stress and the processing of fear and anxiety (Dong et al., 2022; Samaripour, 2025). Also, effective treatment with selective serotonin reuptake inhibitors (SSRIs) has supported the hypothesis that different serotonin pathways and receptors are linked to this anxiety disorder (Dong et al., 2022).

Finally, the biological perspective has provided insight into the role of genetics in GAD. Children with family members diagnosed with an anxiety disorder were found to have a higher risk of developing generalised anxiety (Ask et al., 2021; Katzman, 2009). In fact, genetic influences common to depression are so similar to those of anxiety that the disorders are "virtually indistinguishable at the genetic level" (South & Krueger, 2008, p. 828).

Psychological factors have also been considered in the development and maintenance of generalised anxiety disorders. About 67% of GAD clients have typically been dually diagnosed with a depressive disorder, another anxiety disorder, or substance abuse disorder (Kalin, 2020). Mishra et al. (2023) have suggested three specific causes of GAD, which include a failure to learn certain life-care skills, an internalisation of *toxic opinions* of others, thus diminishing one's self-worth, and internal conflict regarding the expression of feelings. Research on psychological factors has focused on the purpose of worry, issues of control, and emotional avoidance, as well as developmental factors that may lead to the acquisition of this disorder.

Generalised anxiety is characterised by excessive worry. Elaborative worries often imagine catastrophic outcomes about future events. These worries often intensify during adolescence when biological and psychosocial developments are occurring (Frala et al., 2010). Worry is a cognitive response to stress and, in fact, an attempt to address a perceived threat (Scott et al., 2002). However, worry is not easy to stop because it involves worry-related information that is tightly organised and stored in an individual's long-term memory (Paulesu et al., 2010). Studies by Borkevec & Hu (1995) and Newman et al. (2019) have reported that worry reduces physiological arousal and serves as a distraction from more distressing events. Therefore, worrying actually suppresses unwanted bodily activities and, as a result, is negatively reinforced (Feske & Shear, 1999).

Those classified as *low worriers* can stop mental activity on command, whereas *high worriers* are unable to stop worrying. Furthermore, those diagnosed with GAD are unable to recognise the usefulness of ceasing to worry and believe that it is more beneficial to maintain their anxious

state (Newman et al., 2019; Paulesu et al., 2010). The difference between pathological worry and normal preoccupation with worry is quantitative rather than qualitative (Paulesu et al., 2010).

Psychological research has also focused on issues of control in individuals diagnosed with GAD. Research has shown that the more control a person feels over an anxiety-related event, the less they are likely to worry or express other symptoms characteristic of GAD (Frala et al., 2010; Wadsworth et al., 2019). One's perceived control over both external and internal threats, such as affective and somatic reactions, influences an individual's judgment about their ability to manage anxiety-related events (Frala et al., 2010; Wadsworth et al., 2019). Therefore, it is predicted that increased self-efficacy will help reduce anxiety. Cultures or sub-groups who hold an external locus of control are more likely to experience greater anxiety and other symptoms related to GAD. Also, developmental experiences may shape a person's sense of control over threatening events. For example, over-controlling parenting may promote this deficit of personal control (Frala et al., 2010).

Next, researchers have considered a lack of tolerance for uncertainty in the development and maintenance of generalised anxiety disorder. Studies have revealed GAD patients as being more intolerant of uncertainty than other anxiety disorder patients (Lavole et al., 2022). Ambiguous information may be interpreted as threatening by those prone to excessive worry, and increased access to information via the Internet may increase the risk of developing GAD (Lavole et al., 2022). Ultimately, uncertainty is subjective, and what some people consider threatening may not be significant to others.

A final application of the psychological perspective has centred on developmental contributions to the aetiology of GAD. Stressful events may play a role in the development of GAD by creating a chronic sense of apprehension (Taher et al., 2015) and by promoting a sense of the world as threatening. For example, individuals with GAD were more likely to report the death of a parent before age 16 or to have experienced at least one unexpected, major negative life event (Feske & Shear, 1999). Furthermore, experiencing such events after the development of GAD would likely contribute to the maintenance or strengthening of this disorder (Feske & Shear, 1999).

Sociocultural theories concerning GAD also have empirical validation. Research focused on the elderly, gender differences, and the role of relationships has revealed significant influences of society on the development and maintenance of GAD (Rowa et al., 2017). Older adults are likely to have experienced more stressful events, which may have led to the development of GAD. Unemployment, diminished income, changes in living arrangements, and loss of friends and family are potential contributors to the advancement of GAD. (Andreescu & Lee, 2020). Also, the elderly experience more medical illnesses, which have been shown to play a complex role in the development of anxiety in the elderly (Andreescu & Lee, 2020).

A deficiency in healthy interpersonal relationships may also be a predictor of GAD. Clients with GAD have a lack of close friendships and higher rates of dysfunctional relationships with spouses and children (Wang et al., 2015).

3.2.2 Course

While the aetiology of GAD may differ, the course of generalized anxiety proves consistent. The onset of GAD is gradual, and it tends to be a chronic condition with symptoms fluctuating over time and a high rate of relapse (Schwartz, 2024). Although GAD usually begins in adolescence, diagnosis may not occur until later because this disorder is poorly recognized and usually only treated with symptomatic interventions.

Approximately one-third of individuals with GAD will seek medical help to alleviate symptoms. Clients are likely to visit multiple physicians, especially gastroenterologists, before being diagnosed and treated for GAD (Kavelaars et al., 2023; Wittchen, 2002). Often, these individuals seek help from internal medicine or emergency medical care. As a result of the method of care sought, GAD has become one of the most frequent anxiety disorders seen in primary care arenas. It is rarely correctly diagnosed or managed, including pharmacological and non-pharmacological treatments (Horenstein & Heimberg, 2020).

In the past, professionals have questioned the validity of a GAD diagnosis because the diagnosis tends to be vague and often co-occurs with other illnesses (Romanazzo et al., 2022). However, studies (Rogers & Warshaw, 1999; Romanazzo et al., 2022) have supported the classification of GAD as a valid and distinct diagnosis that can occur as either a primary or secondary disorder. Also, continued revisions to the DSM definition of GAD have improved its diagnostic reliability. Currently, the *DSM-5-TR (APA, 2022)* states that individuals must have excessive anxiety or worry for at least six months, plus three or more of six specific symptoms (fatigue, difficulty concentrating, irritability, muscle tension, sleep disturbance, and restlessness. The largest change in the DSM diagnostic criteria has been the six-month requirement, which may result in the exclusion of a significant number of GAD sufferers (Katzman, 2009).

Clinicians should ensure that the disorder is not the result of a substance or medical condition, as in the case of caffeine-induced anxiety. Medical evaluations and awareness of substance contributors to anxiety will help protect against this misdiagnosis (Romanazzo et al., 2022). Another diagnostic guideline for GAD is that it should not be diagnosed if it occurs during an episode of major depressive disorder (MDD). This hierarchy rule was created to bolster diagnostic prudence and help prevent overdiagnosis of

GAD. However, this regulation may be at the cost of important clinical information and may obscure true rates of comorbidity between MDD and GAD (Romanazzo et al., 2022; Schwartz, 2024).

Comorbidity is a likelihood for those suffering from GAD. Often, GAD is accompanied by somatic issues such as irritable bowel symptoms, chest pain, and hyperventilation, resulting in an excess use of medical services (Romanazzo et al., 2022; Rogers et al., 1999). In addition, up to 90% of people with a history of GAD have other mental disorders, usually depression or anxiety (Rogers et al., 1999; Schwartz, 2024). At least 60% of individuals diagnosed with GAD also suffer from depression (Salcedo, 2018). Studies have linked the diagnostic features of GAD and MDD and concluded that frequent co-occurrence reflects a shared genetic diathesis as well as environmental factors (Curtiss & Klemanski, 2016). Clients with both MDD and GAD are more likely to receive mental health services, take medications, and experience more episodes over a lifetime (Schwartz, 2024; Salcedo, 2018).

Over a lifetime, the symptoms of GAD may change. Over half of individuals with GAD report onset between the ages of 15 and 25 (DeMartini et al., 2019). Symptoms also tend to differ between genders, with girls experiencing an increase in symptoms through adolescence and boys experiencing a decrease (DeMartini et al., 2019). Older adults display different symptoms from younger adults and are likely to experience a decline in severity over time, especially if they seek treatment. Symptoms of anxiety disorders tend to peak during one's thirties and forties (Ansara, 2020). Younger adults may emphasise emotional or mental aspects of GAD; older adults tend to focus on somatic experiences. Misleading detection rates, misdiagnosing, and shifting symptoms may contribute to the difficulty in addressing GAD in older adults (Andreescu & Lee, 2020). The uncertainty as to whether GAD symptoms are alleviated or merely transformed in the course of life causes one to question the potentially chronic nature of this disorder. While some promote GAD as a *lifelong problem* (Gale & Oakley-Browne, 2000), others have concluded that symptoms are treatable and often improve throughout the course of life.

GAD can be resistant to change and difficult to treat, with significant improvement observed in only about 50% of presenting cases (Ansara, 2020). Others see GAD's chronic nature as limited to the first five years but also note that it may last twenty years, along with moderate rates of relapse (Katzman, 2009). Treatment should aim to reduce the core symptoms of GAD to reduce comorbidity among clients (Wittchen, 2002; Schwartz, 2024).

3.2.3 Gender and Diversity Issues

Gender differences seem to influence the prevalence of GAD. Various studies have confirmed that women are twice as likely to suffer from anxiety disorders as men (Farhane-Medina et al., 2022). Women also report earlier onset and more intense symptoms (Hantsoo & Epperson, 2017). Although the cause of this gender imbalance is unknown, various perspectives have sought to explain it.

Meanwhile, from a biological perspective, there is a growing body of research exploring a possible link of females suffering from GAD due to reproductive hormones and cyclical hormonal patterns (Hantsoo & Epperson, 2017; Kundakovic & Rocks, 2022). One should note that the perception of the impact of female hormones on anxiety could have a negative sociocultural impact on women.

In addition to gender, advanced age seems to impact the symptoms of generalised anxiety. First, older adults tend to experience different affective symptoms. For example, rather than overwhelming anxiety, guilt may be the dominant emotion. Also, increases in anxiety may be linked with serious medical conditions such as heart disease (Harvard Mental Health Letter, 2009). Therefore, diagnosis should only precede a full medical evaluation. Some of the stress experienced in older adulthood is normal for that stage of life. Typical stresses may include the loss of independence, the death of a loved one, cognitive or physical decline, and illness (Harvard Mental Health Letter, 2009). These late-life challenges may give rise to realistic or expected worries that should not be labelled as pathological (Wetherell et al., 2003). Wetherell et al. (2003) reported that GAD patients tended to worry more about their health than other older adults and concluded that excessive worry about oneself may provide a pathological basis for diagnosis, whereas worrying about others may be more normative.

Finally, treating the elderly with GAD may differ from traditional treatment interventions. For example, pharmacological interventions may not be the best option for older clients because of the risk of drug interactions and increased sensitivity to side effects due to slower rates of absorption and metabolism (Andreescu, 2025; Hendriks et al., 2024). For those who prefer alternatives to drug treatment, cognitive behavioural therapy has been an effective first-line psychotherapy for treating GAD in older populations. In a recent study, 46% of elderly clients with GAD found symptom relief with CBT (Hendriks et al., 2024).

For different ethnic groups, social stress and discrimination are likely to impact mental disorders (Budhwani et al., 2015). The experiences of individuals from different backgrounds may influence perceptions and interpretations of symptoms, which will influence the development, diagnosis, and treatment of anxiety disorders (Scott et al., 2002). Furthermore, unreliable assessment tools often fail to address concerns specific to minority populations, thereby undermining the validity of evaluations (Budhwani et al., 2015; Scott et al., 2002).

Another minority group that should be mentioned is the LGBTQIA+ community. Most subgroups reported a higher rate of anxiety and comorbidity than the clinical cutoffs (Terales et al., 2025). While this population is often the focus of discrimination, the known causes of this increase require additional research and separate examination of each subgroup. Fortunately, those within this community are more likely to seek the care they require via mental health services.

3.2.4 Treatment

Treatment of generalized anxiety disorder is a significant issue. Only around 28% of GAD clients received adequate drug or therapy treatments (Weisberg et al., 2014; Wittchen, 2002). Furthermore, Inserra et al. (2023) state that over 50% of patients with GAD do not respond to the currently used treatments. The primary goal of adequate treatment is remission, which entails a resolution of impairment and distressing symptoms. Therefore, treatment should aim to reduce anxiety symptoms, minimize functional impairment, and improve the client's quality of life (Szuhany & Simon, 2022; Gale & Oakley-Browne, 2000). To do so, clinicians should consider the client's specific goals and work to meet them by improving troubling symptoms, such as sleep or concentration problems, headaches, or muscle pain (Katzman, 2009).

The challenges in treatment stem from the interaction between cognitive and emotional symptoms, which blur the targets for treatment. It is difficult to treat the mental rituals associated with GAD due to the lack of conscious control over automatic thought processes (Feske & Shear, 1999). Also, as previously discussed, GAD is often diagnosed alongside other disorders such as depression, which has important implications for treatment (Szuhany & Simon, 2022). While popular forms of pharmacotherapy are offered for both GAD and MDD, the rate of impact differs for each diagnosis. Oftentimes, depressive symptoms decline more gradually, and the improvement of anxiety symptoms is unaffected by the improvement of depressive symptoms (Szuhany & Simon, 2022).

3.2.5 Pharmacotherapy

Pharmacological treatments are often preferred for relief, even though studies indicate only a small effect on effectiveness (Carl et al., 2019; Szuhany & Simon, 2022). GAD is often treated with antidepressants such as imipramine, trazodone, venlafaxine, and paroxetine. These treatments are often more effective than other drug options (Garakani et al., 2021). However, side effects may include sedation, confusion, dry mouth, and constipation.

Selective serotonin and serotonin-noradrenalin reuptake inhibitors (SSRIs and SNRIs) are the most popular first-line treatments for generalised anxiety (Garakani et al., 2021; Stein, 2021). Although these medications have a slow onset and may not elicit a response in some clients (Wittchen, 2006; Katzman, 2009), testing has established them as predominantly safe and effective treatments for GAD (Garakani et al., 2021; Stein, 2021). Side effects may include sexual dysfunction, nausea, gastrointestinal problems, and headaches. The adverse effects of SSRIs consist of increased nervousness, vomiting and weight gain, and SNRIs may put a client at risk for potential blood pressure changes or withdrawal symptoms (Katzman, 2009). In the elderly, SSRIs have been associated with an increased risk of bone fractures (Harvard Mental Health Letter, 2009).

Some additional pharmacological options recommended include buspirone, benzodiazepines and pregabalin (Katzman, 2009; Stein, 2021). Buspirone is effective in reducing symptoms of both anxiety and depression. While the onset of therapeutic effects may be slower when compared with benzodiazepines, buspirone offers fewer adverse effects. The major side effects were nausea, dizziness, and fatigue (Gale & Oakley-Browne, 2000). Buspirone may be a better medication option for the elderly because it is less likely to cause side effects or interact with other medications (Harvard Mental Health Letter, 2009).

Benzodiazepines have a rapid onset, which is accompanied by a long-term risk of dependence (Hirschtritt et al., 2021). Associated dangers of this medication include industrial and road traffic accidents, as well as a negative impact on nursing newborns, among others (Gale & Oakley-Browne, 2000). Discontinuing use after a period greater than three months may be challenging as clients experience irritability, insomnia, and anxiety. Adding cognitive behavioural therapy to the withdrawal process in order to ease symptoms may increase positive outcomes. When working with elderly clients, finding the lowest effective dose and regularly monitoring side effects is essential for treatment (Harvard Mental Health Letter, 2009).

Another recommended drug in the second-line treatment options for GAD is pregabalin. This drug increases the body's GABA levels and tends to have a rapid onset (Ansara, 2020). To the client's benefit, pregabalin does not bind to plasma proteins, does not inhibit liver enzymes, leading to tolerance, and is not associated with drug-drug interactions. In a meta-analysis by Cardoner et al. (2025) examining the efficacy of pregabalin treatment for GAD, there were significant reductions in scores for the Hamilton Anxiety Rating Scale. However, because it must be administered two or three times a day, clinicians often observe low compliance rates.

In comparison to the first-line treatments of SSRIs, SNRIs, and benzodiazepines, pregabalin demonstrated fewer adverse side effects (Cardoner et al., 2025). The side effects of pregabalin include dizziness, fatigue, weight gain, and swelling (Ansara, 2020). Due to its cost-effectiveness, there is also promise in using pregabalin as a treatment method.

Recently, the Food and Drug Administration has granted breakthrough therapy status for lysergide d-tartrate (LSD) (de Quevedo, 2024). Researchers are suggesting that LSD may offer longer-lasting benefits and treat more chronic cases of GAD. The benefits are reportedly occurring even after the first dose (Holze et al., 2024). Research is still ongoing to determine if the combination of LSD and psychotherapy will be the new standard of treatment. Another recent pilot study suggested the potential benefits of dietary counselling plus omega-3 supplements as a treatment option (Aucoin et al., 2025).

SSRIs have been established as the first-line pharmacotherapy for children with SNRIs, with SSRIs as the second line of choice (Miller, 2025; Stefánsdóttir et al., 2022). The FDA has approved only the SNRI duloxetine for children, and only for those 7 years and older (Miller, 2025). When treating children, it is recommended to continue medication for a year after remission in order to allow the child to experience anxiety-provoking experiences without anxiety. All clients, especially child clients, should avoid abruptly ending medications and risking withdrawal effects (Miller, 2025; Stefánsdóttir et al., 2022).

3.2.6 Psychotherapy

Psychological interventions are often encouraged as the first option in treatment, and also in addition to drug therapy. A meta-analysis in 2019 (Carl et al., 2020) indicated that "psychotherapy showed a medium to large effect size while medication only showed a small effect size" (p.18). This type of treatment helps to modify information processing and support maintenance of treatment gains (DeMartini et al., 2019; Newman et al., 2022). While there are many techniques and therapeutic approaches on the market, cognitive-behavioural therapy (CBT) seems to be the most widely used non-pharmacological intervention (Carl et al., 2020; DeMartini et al., 2019), but it does not work for everyone. Older adults may not find CBT as beneficial as younger adults (Newman et al., 2022).

CBT is an empirically supported approach with significant success rates and can be integrated with a variety of other techniques (DeMartini et al., 2019; Newman et al., 2022; Stefan et al., 2019). CBT therapy involves identifying underlying faulty belief systems and replacing them with more rational ones. Psycho-educational approaches can help clients understand their anxiety and empower them to learn skills to actively cope with symptoms (DeMartini et al., 2019). Usually, CBT requires ten to sixteen sessions. During these sessions, clients may be asked to imagine anxiety-provoking situations, followed by the application of various coping techniques to successfully interrupt the cyclical nature of their worry and improve their comfort and empowerment in those situations (DeMartini et al., 2019). Specifically, CBT for GAD involves self-monitoring, cognitive restructuring, relaxation training, and imagery rehearsal of coping skills. Often, the result of CBT is increased internal locus of control and greater self-efficacy, especially when approaches such as mindfulness, emotion regulation therapy, motivational interviewing, and interpersonal therapy are used (DeMartini et al., 2019; Newman et al., 2022).

Within the CBT framework, various behavioural techniques can be used to impact somatic symptoms and physical reactions to anxiety. These techniques include imaginal or in vivo exposure, relaxation exercises, and other coping skills to manage the physical sensations and thoughts associated with GAD (Newman et al., 2022; Stefan et al., 2019). Virtual reality and relaxation techniques allow GAD clients to learn to relax in response to a self-generated cue (Malbos et al., 2025). Many of these techniques seek to help clients *increase their tolerance of both emotional arousal and uncertainty* (Feske & Shear, 1999). As a result, clients should be able to engage in important activities without being distracted by worries or resorting to avoidance behaviours, and these results should be both significant and durable.

Technological advances have paved the way for computer-based virtual options to help treat clients via internet-delivered CBT (iCBT). A meta-analysis indicated iCBT was equally effective as traditional CBT and bibliotherapy (Zhang et al., 2022). The proven effectiveness of internet- or computer-based interventions is bolstered by the increased availability and cost savings this mode of treatment provides. The field of mental health continues to address concerns, including an inability to express empathy, provide support, or address interpersonal issues.

Among others, an additional therapeutic approach, Acceptance and Commitment Therapy (ACT), continues to be explored for its efficacy in treating GAD and promoting mental wellness (Viskovich et al, 2020). ACT treatment involves the client accepting their current experience, including any automatic thoughts, without judgment, committing to a healthier response or thought process, and taking an action step. This approach empowers the client to create an action plan and can include utilising specific coping skills, with the therapist's teaching and support (Dewane, 2008). Metacognitive therapy (Walczak et al., 2019), which targets the actual worry processes, has also shown promise as a treatment technique.

Because GAD symptoms may often be expressed somatically, some clients gain symptom relief from adding physical activity and bodywork components to their treatment plan. Exercise, yoga, and progressive muscle relaxation techniques are examples of such therapeutic activities (Zhang et al., 2022). In addition, clients with GAD benefit from mindfulness-based interventions, which teach clients to self-regulate and be present in the moment. The use of mindfulness-based techniques may span from paediatrics to older adulthood and include practices such as medi-

tation, breathing exercises, and grounding (Bhattacharya et al., 2023).

4. IMPLICATIONS AND CONTRIBUTIONS

4.1 Implications of the Review Study

This study has important implications for clinical practice and mental health service development in addressing Generalized Anxiety Disorder. Early screening and comprehensive assessment in primary care settings are essential, given that many individuals initially present with physical complaints rather than explicit anxiety symptoms. The findings also underscore the importance of individualized, multimodal treatment planning that integrates pharmacological interventions (e.g., SSRIs or SNRIs) with evidence-based psychotherapies such as Cognitive Behavioural Therapy. Considering high comorbidity rates, particularly with depressive disorders, clinicians should adopt a holistic diagnostic framework to improve treatment outcomes. Furthermore, the growing availability of digital interventions, including internet-based CBT, offers promising opportunities to expand access to care, especially for underserved populations.

4.2 Contributions of the Review to the Literature

This article contributes both theoretically and practically to the literature on Generalised Anxiety Disorder by synthesizing current evidence on its aetiology, clinical features, and treatment options. Theoretically, it integrates bio-logical, psychological, and sociocultural perspectives to provide a comprehensive understanding of the disorder across the lifespan. In practice, it consolidates empirical findings on pharmacological and psychotherapeutic interventions, offering a concise reference for clinicians, counselors, and researchers seeking evidence-based approaches. By highlighting recent developments and gaps in treatment strategies, this study also provides a foundation for future research aimed at improving prevention, early intervention, and culturally responsive therapeutic models.

5. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

5.1 Limitations of the Review Study

This study has several limitations. First, as a narrative review of Generalized Anxiety Disorder, it relies on previously published literature, which may introduce publication bias and limit the comprehensiveness of the findings. Second, variations in diagnostic criteria, assessment instruments, and sample characteristics across studies reduce the comparability of results. Third, although treatment approaches such as Cognitive Behavioural Therapy and pharmacotherapy are discussed, the review does not provide a meta-analytic quantification of effect sizes, which may limit the precision of conclusions regarding comparative effectiveness. Additionally, cultural and regional differences in the manifestation and treatment response of GAD are not fully explored, potentially restricting the generalizability of the implications.

5.2 Recommendation for Future Research Directions

Future research should prioritise longitudinal and cross-cultural studies to understand better the developmental trajectory and sociocultural influences of Generalised anxiety disorder. Randomised controlled trials comparing multimodal interventions including pharmaco-therapy, face-to-face psychotherapy, and digital-based treatments are needed to determine optimal treatment combinations. Further investigation into personalised and precision-based approaches, including biological markers and individual differences in treatment response, would also enhance clinical outcomes. Moreover, expanding research on digital mental health platforms and culturally adaptive interventions may improve accessibility and effectiveness, particularly in low-resource and underserved communities.

6. CONCLUSION

Generalised Anxiety Disorder represents a persistent and complex mental health condition that significantly affects psychological well-being and daily functioning. Individuals experiencing GAD often report continuous and excessive worry accompanied by various somatic symptoms such as fatigue, sleep disturbances, irritability, and difficulty concentrating. These physical manifestations frequently overlap with other medical conditions, making accurate diagnosis challenging in clinical practice. Consequently, early identification and comprehensive assessment are essential to ensure that individuals receive appropriate psychological and medical support.

Advances in research have contributed to a better understanding of the aetiology, symptom patterns, and treatment approaches for GAD. Current evidence indicates that a combination of pharmacological treatment and psy-chological intervention, particularly Cognitive Behavioural Therapy, remains one of the most effective strategies for managing symptoms and improving long-term outcomes. In addition, emerging approaches such as mindfulness-based interventions and integrative therapeutic models have demonstrated promising results as complementary treatments that can enhance emotional regulation, reduce worry, and support overall psychological resilience.

Despite these developments, GAD management still faces several challenges, including variability in treatment response and symptom persistence in some individuals. Therefore, future efforts should focus on developing more personalised and culturally sensitive treatment strategies that take into account clients' social, cultural, and environ-

mental contexts. Continued research is also necessary to identify underlying mechanisms of the disorder, improve preventive interventions, and expand the range of effective therapeutic options so that individuals with GAD can achieve better mental health outcomes and improved quality of life.

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All authors discussed the results, contributed to the final manuscript, and approved the final version for publication. David A. Scott: Conceptualization, Methodology, Validation, Formal analysis, Data Curation, Writing - Original Draft. Emily Bebber: Conceptualization, Writing - Review & Editing. Kaitlynne Bizoukas: Conceptualization, Writing - Review & Editing. Thomas Hudgins; Conceptualization, Writing - Review & Editing. Michelle G. Scott: Conceptualization, Writing - Review & Editing

Declaration of GenAI Usage in Scientific Writing

The authors declare that generative artificial intelligence (GenAI) tools were used solely to support the writing process of this manuscript. Specifically, AI-assisted language tools were utilised for grammar checking, sentence refinement, clarity improvement, and general language editing. The authors carefully reviewed, revised, and validated all AI-generated suggestions to ensure accuracy, originality, and compliance with academic standards. All instances of Generative AI usage in this article were conducted by the authors in accordance with the IJCP GenAI Tool Usage Policy, with the authors assuming full responsibility for the originality, accuracy, and integrity of the work.

Conflict of Interest Statement

The authors have no conflicts of interest to declare. All co-authors have seen and agree with the contents of the manuscript, and there is no financial interest to report. We certify that the submission is original work and is not under review at any other publication.

Informed Consent Statement

The author declares that this study is a literature review and does not involve human participants, personal data, or any other subjects. Therefore, written and verbal informed consent is not required. The entire study process was conducted in accordance with academic ethical standards, upholding scientific honesty, integrity, and the ethical use of legitimate sources.

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