

Research Article

Frequency of Comorbid Depression in Patients with Generalized Anxiety Disorder

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ABSTRACT

Background: Generalized anxiety disorder (GAD) is often comorbid with depression, and the association of this overlap with poorer quality of life, functional impairment, and treatment complexity.

Objective: To examine the prevalence of comorbid depression in GAD patients and its relationship to selected demographic and clinical features.

Materials and Methods: The study was descriptive cross sectional of six months' duration from November, 2025 to April, 2026 in Department of Psychiatry, Dr Ruth KM Pfau Civil Hospital Karachi. The number of patients with GAD (N = 180) were recruited by consecutive sampling between the ages of 18 and 60 who met the criteria of the DSM-5 for GAD. The PHQ-9 was used to measure depression with a score ≥ 10 considered clinically significant. SPSS 26 was used to analyze the data.

Results: The mean age was 37.6 ± 10.8 years; 57.8% were female. 78 (43.3%) patients had comorbid depression. Female gender, longer duration of GAD and previous psychiatric treatment were significantly associated with depression ($p < 0.05$).

Conclusion: Depression is a very common comorbid condition in GAD, and should be screened for routinely in the treatment of anxiety.

Keywords: Generalized Anxiety Disorder, Comorbid Depression, PHQ-9, Prevalence, Cross-Sectional Study.

INTRODUCTION

Generalized anxiety disorder (GAD) is a disabling mental illness that involves ongoing, excessive, and uncontrollable anxiety about many aspects of life. Restlessness, irritability, muscle tension, sleep disturbance, fatigue, and impaired concentration are common with worry. Many patients feel sadness, loss of interest, hopelessness, low energy, impaired functioning, and negative self-appraisal, in addition to anxiety as the main feature. It is now recognized that depression and anxiety frequently co-occur, and that symptoms of one disorder can reinforce symptoms of the other. Studies of the network of people living with HIV have revealed that the symptoms of depression and anxiety can be linked together by certain

"bridge symptoms", which indicates that comorbidity can occur via interacting symptom pathways instead of two separate disorders (1). This overlap is clinically significant not just because of the number of symptoms. Hospital clinicians who had comorbid depression and anxiety had worse quality of life, suggesting that the interaction of these two conditions may have a greater impact on occupational functioning, social relationships, physical health, and life satisfaction than either condition alone (2). Anxiety is also highly common in patients with MDD and is linked to higher severity of illness, longer time to recovery, less response to treatment, and higher functional impairment (3). These observations are important to understand when

thinking about GAD because worry, tension, sleep disturbance, and uncertainty can lead to depression symptoms, and low mood and lack of motivation can make worry more difficult to manage.

Patients with chronic medical conditions often have psychiatric comorbidities. Depression and anxiety were found to be significant in a multicenter study of the prevalence of depression and anxiety among individuals with hypertension in Eastern Ethiopia, highlighting the importance of assessing mental health during regular follow-up (4). Depression, anxiety, and diabetes-related distress were also interrelated and related to sociodemographic and clinical factors among primary care patients with type 2 diabetes in Egypt (5). A similar picture emerges in chronic pain research, since patients with TMJ tend to have other chronic pain conditions, and psychiatric disorders, especially depression, are also present, demonstrating that comorbidity can span the lines between physical and psychiatric pain (6). Sleep disturbance could play a key role in the relationship between anxiety and depression. The network analysis of clinicians who had depressive symptoms revealed strong links between anxiety, insomnia, fatigue, and daytime dysfunction and sleep-related symptoms as potential links between these (7). A meta-analysis of people at clinical high risk for psychosis (CHR) further supports the importance of broad transdiagnostic assessment, as mood and anxiety disorders were common comorbid conditions (8). The results suggest that a single diagnosis approach may underestimate the overall burden of the patient and miss important symptoms.

In chronic disease populations, studies have repeatedly found that stress, anxiety, and depression often co-occur and are linked to adverse health outcomes (9). Mood and anxiety disorders were often found to be psychiatric comorbidities in newly diagnosed focal epilepsy, suggesting that psychiatric comorbidities can occur early in medical care and are not only a result of longstanding illness (10). In addition, a systematic review and meta-analysis of adults with chronic pain also found high rates of depression and anxiety, suggesting that it is important to assess both physical and emotional symptoms rather than treating them separately (11). In low and middle-income countries, mental health comorbidities have been linked to poor quality of life and dysfunction in people with epilepsy,

which further emphasizes the need for early detection (12).

Some groups may be more susceptible to experiencing both anxiety and depressive symptoms. Both conditions were found to be present in significant amounts in pregnant women in post-COVID-19 China, and distress could be affected by social, health, and contextual factors (13). In people with type 2 diabetes, feelings of failure, uncontrollable worry, excessive worry, and difficulty relaxing were found to be associated with each other, diabetes distress, depression, and anxiety, suggesting that shared symptoms can maintain the comorbidity (14). A systematic review of sex and gender differences found that prevalence and comorbidity patterns of anxiety are influenced by biological, psychological, and sociocultural factors and that patient characteristics should be taken into account when estimating depression in people with GAD (15).

Comorbidity does not apply just to traditional clinical populations. In elite athletes and high-performance coaches, psychiatric disorders often co-occurred, suggesting that high achievement and physical fitness are not protective against combined anxiety and depressive disorders (16). Valid screening and diagnostic systems are essential for accurate identification. Citing the need to consider screening results in the context of language and clinical situation, validation in primary care has been supportive of the usefulness of the GAD-7 and GAD-2 in detecting generalized anxiety symptoms (17).

Although there is evidence of overlap between anxiety and depression, few settings have a well-documented prevalence of comorbid depression among patients with GAD. Underestimation of the severity of depression, unmet treatment plans, continued disability, and increased health care utilization are possible consequences of failing to identify depression. Clinician identification of frequency can help guide screening choices and inform integrated interventions to target worry and depression. Therefore, it is important to study comorbid depression in GAD patients to enhance diagnosis, treatment, quality of life, and mental health services.

Objective: To measure the prevalence of comorbid depression in patients with generalized anxiety disorder and to examine the relationship between the presence of comorbid depression and selected demographic

and clinical features in a hospital-based sample at follow-up.

MATERIALS AND METHODS

Study Design: Descriptive Cross-Sectional study.

Setting: The study was carried out at the Department of Psychiatry, Dr Ruth KM Pfau Civil Hospital Karachi.

Study Duration: This study was conducted for six months from November, 2025 to April, 2026.

Sample Size: The sample size of 180 was calculated using OpenEpi with an estimated prevalence of ~30% for thyroid dysfunction in patients with metabolic syndrome (Lakhani et al), 95% confidence interval, and a 6.5% margin of error.

Inclusion Criteria: Patients aged 18 to 60 years old who attended the psychiatry clinic OPD and were diagnosed with generalized anxiety disorder, according to the diagnostic criteria, were included. Patients who were willing to participate and gave informed consent were recruited in a consecutive manner.

Exclusion Criteria: Patients with bipolar disorder, psychotic disorders, substance-use disorders, intellectual disability, severe neurological illness, and serious medical conditions that interfere with psychiatric evaluation were excluded. Pregnant women, patients' already taking antidepressant medication, and those who were unable to understand or complete the assessment questionnaire were also excluded.

Methods: Eligible patients attending the Psychiatry OPD were enrolled by consecutive

sampling after the approval of the institutional ethical review committee. All participants gave informed consent before data collection. A structured proforma was completed for demographic and clinical data such as age, gender, marital status, education, occupation, duration of symptoms of anxiety, and treatment history. A consultant psychiatrist confirmed the diagnosis of generalized anxiety disorder (GAD) based on the criteria of the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. The Patient Health Questionnaire-9 (PHQ-9) was used to assess depression, which was validated. A score of 10 or higher was regarded as "clinically significant depression." The questionnaire was filled out in a private room, with support given as needed. All gathered data were kept confidential and for research only. The data were entered and analyzed using SPSS 26. Frequencies, percentages, means, and standard deviations were computed, and statistical tests were used to assess associations between demographic and clinical variables.

RESULTS

In all, 180 patients with the diagnosis of generalized anxiety disorder were studied. The average age of the subjects was 37.6 ± 10.8 years with a range of 18-60 years. The majority of participants were aged 31-40 years (64, 35.6%) patients). Of the total 104 (57.8%) were females and 76 (42.2%) were males. Most participants were married, and just over half had been suffering from anxiety symptoms for at least a year.

Table 1. Demographic Characteristics of the Study Participants (N=180)

Characteristic	Frequency	Percentage
Age 18–30 Years	56	31.1%
Age 31–40 Years	64	35.6%
Age 41–50 Years	39	21.7%
Age 51–60 Years	21	11.7%
Male	76	42.2%
Female	104	57.8%
Married	112	62.2%
Unmarried	68	37.8%

The PHQ-9 scores of 78 patients were 10 or higher, and this was considered clinically significant depression. Therefore, the overall

prevalence of comorbid depression in patients with GAD was 43.3%. The other 102 (56.7%) did not meet the study criteria for depression.

Table 2. Frequency and Severity of Comorbid Depression

Depression Category	Frequency	Percentage
No Clinically Significant Depression	102	56.7%

Moderate Depression	43	23.9%
Moderately Severe Depression	24	13.3%
Severe Depression	11	6.1%
Total	180	100.0%

Moderate depression was the most frequent depression category in the patients with comorbid depression (43 of 78 depressed patients). Twenty-four patients were

moderately depressed, and 11 were severely depressed. In Figure 1, the overall distribution of patients is shown based on whether or not they had depression as a comorbid condition.

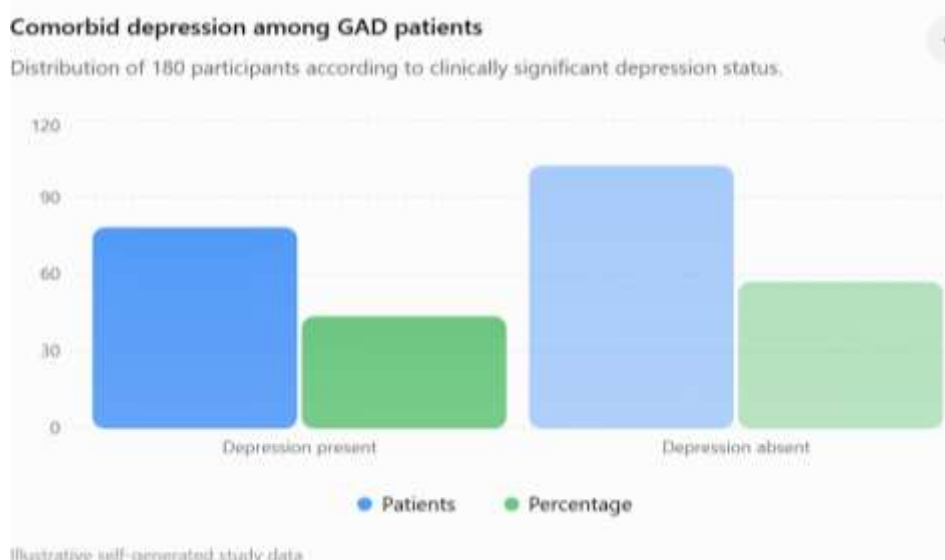


Figure 1. Frequency of Comorbid Depression among Patients with Generalized Anxiety Disorder

Table 3. Association of Depression with Age and Gender

Variable	Depression present	Depression absent	p-value
Male	26 (34.2%)	50 (65.8%)	0.050
Female	52 (50.0%)	52 (50.0%)	
Age 18–30 years	18 (32.1%)	38 (67.9%)	0.227
Age 31–40 years	30 (46.9%)	34 (53.1%)	
Age 41–50 years	20 (51.3%)	19 (48.7%)	
Age 51–60 years	10 (47.6%)	11 (52.4%)	

Comorbid depression was significantly related to the duration of GAD. Among the patients with symptoms of less than one year, 14 (26.9%) had depression, while 33 (57.9%) of

those with a duration of symptoms of more than three years had depression. Depression was also significantly higher in patients with a past psychiatric history.

Table 4. Association of Depression with Clinical Characteristics

Clinical Characteristic	Depression Present	Depression Absent	P-Value
GAD Duration Less Than 1 Year	14 (26.9%)	38 (73.1%)	0.005
GAD Duration 1–3 Years	31 (43.7%)	40 (56.3%)	
GAD Duration More Than 3 Years	33 (57.9%)	24 (42.1%)	
Previous Psychiatric Treatment	50 (52.1%)	46 (47.9%)	0.017
No Previous Psychiatric Treatment	28 (33.3%)	56 (66.7%)	

The results showed that almost 20% of GAD patients had clinically significant depression overall. The frequency of depression comorbidity was associated with female

gender, longer duration of anxiety symptoms, and previous psychiatric treatment.

DISCUSSION

The present study examined the prevalence of depression in 180 people diagnosed with GAD, and revealed that 43.3% had clinically significant depressive symptoms. The result suggests that depression is a frequent psychiatric co-morbidity in GAD patients, with almost 20% potentially needing to be evaluated and treated for both conditions. Co-occurrence of anxiety and depression could be due to similar psychological, biological, and environmental mechanisms. Hopelessness, loss of interest, and low mood can develop over time as a result of worry, sleep problems, fatigue, and difficulty concentrating that can occur with GAD, and impair functioning. Likewise, symptoms of depression can diminish coping skills and enhance negative thinking, further augmenting anxiety. A symptom-network approach has demonstrated that anxiety and depression can be linked via bridge symptoms that sustain both disorders (1).

The rate found in this study is similar to that reported in the general literature, which shows significant overlap between anxiety and depressive disorders. A survey of clinicians in public hospitals revealed a strong association between comorbid anxiety and depression, and a negative impact on quality of life (2). Symptoms of anxiety are also common in patients with major depressive disorder and are associated with increased symptom severity, worse functioning, and more complex clinical management (3). Despite the fact that the populations examined in previous studies are not the same as those with GAD, the results of these studies are consistent with the notion that anxiety and depression are not entirely distinct disorders. Therefore, clinicians should be mindful to assess for depressive symptoms, rather than attributing low mood, fatigue, or decreased concentration to anxiety alone in treating GAD.

The overall prevalence of moderate depression, moderately severe depression, and severe depression in the current study were 23.9%, 13.3%, and 6.1%, respectively. The high proportion of moderate symptoms might suggest that many patients present at a stage when intervention at this point might stop further deterioration. The psychiatric problems have also been noted in individuals with chronic medical conditions such as hypertension and diabetes, where anxiety and depression frequently occur together and lead to worse health outcomes (4,5). Chronic pain populations also show that many physical and psychological conditions often co-occur, and

that the combination results in higher disability than does any individual condition (6). The observations reflect the need for integrated care, especially since if depression is not treated, patients with GAD may be less likely to follow treatment, less likely to be able to function in daily life, and more likely to use health services.

One of the primary ways that generalized anxiety can lead to depression is through sleep disturbance. Patients with GAD often have trouble sleeping, often interrupted, early morning waking, and poor sleep quality due to worry. Chronic sleep loss can lead to fatigue, irritability, cognitive dysfunction, and decreased emotional stability. Important relationships were found between anxiety and insomnia in network analysis of clinicians with depressive symptoms, indicating that sleep-related symptoms may link the two conditions (7). Multiple psychiatric diagnoses in other high-risk groups also warrant a transdiagnostic framework in which clinicians examine general symptom clusters rather than a single diagnostic category (8).

In the present study, females were more prone to depression than males, with 50.0% of females and 34.2% of males experiencing depression. This difference was not statistically significant but could be due to biological, psychological, and sociocultural factors. In certain environments, females could be more likely to be exposed to caregiving duties, interpersonal stress, financial dependence, and less social support. There are also hormonal differences and influences on emotional processing and help-seeking that can impact recognition of symptoms. Chronic disease patients have also been found to have high levels of stress, anxiety, and depression (9). In addition, sex and gender-related differences studies indicate that rates and patterns of psychiatric comorbidities, as well as anxiety prevalence, could be different depending on interacting biological and social factors (15). However, the gender finding should be viewed with caution due to the larger number of female than male participants.

There was a strong correlation between the length of time with GAD and depression. Twenty-six. 9% of patients with anxiety for less than 1 year had comorbid depression, whereas 57.9% of patients with anxiety for more than 3 years had comorbid depression. This pattern implies that chronic exposure to unmanageable worry and impairment in functioning may make one more susceptible to depression. Those with

chronic GAD may have relationship, school, work, money, and physical health issues. A history of treatment failure or delayed psychiatric treatment may further lead to a sense of helplessness. In epilepsy and other chronic diseases, psychiatric comorbidity has been linked to poorer quality of life and increased overall disease burden (10,12). Likewise, the prevalence of depression and anxiety in adults with chronic pain shows that chronic pain can have a long-term impact on emotional health (11).

The history of previous psychiatric treatment was also significantly related to depression. Over half of the patients with a treatment history also had a comorbid depression diagnosis compared to one-third of the patients with no treatment history. This could be because the patients who were already treated were those with more severe, recurrent, or persistent anxiety. Alternatively, previous management may have been directed primarily at anxiety symptoms, and depressive symptoms may not have been identified or addressed. In a network study of people with diabetes, certain symptoms were found to be associated with psychological distress, anxiety, and depression (14), such as feeling failure, worrying too much, and not being able to relax. The identification of these overlapping symptoms can have a positive impact on the treatment planning process for each individual. The findings have important clinical implications. Depression screening should be a routine part of the evaluation of all patients with GAD, especially females, patients with chronic symptoms, and those with a history of psychiatric treatment. The Patient Health Questionnaire-9 has been validated to detect depression, and the GAD-7 can be used to assess the severity of anxiety in clinical practice (17). But screening tools must be used in addition to a detailed clinical interview. Psychotherapy, medications, sleep interventions, psychoeducation, and ongoing assessment of functional improvement may be needed.

There were a number of limitations to this study. The cross-sectional design did not enable the determination of the direction of the relationship between anxiety and depression. The study took place in one hospital, which may not be representative of other hospitals. Selection bias may also have been introduced in the sampling method, and depression was measured with a screening questionnaire, not a structured diagnostic interview. Despite these

limitations, the study shows that there is a significant comorbid depression burden among patients with GAD, and that a comprehensive psychiatric evaluation is important to enhance clinical outcomes and quality of life.

CONCLUSION

The study participants with generalized anxiety disorder were often comorbid with depression (43.3%). This study shows that depression is an important clinical issue in people with chronic anxiety symptoms. Depression was more prevalent in females, patients with longer duration of generalized anxiety disorder, and those with a psychiatric treatment history. Therefore, for all patients with generalized anxiety disorder, it is important to routinely screen for depressive symptoms as part of their assessment and follow-up. Early identification could aid in the development of integrated treatment plans, minimize the severity of symptoms, enhance adherence to treatment, and prevent additional functional decline. The integration of validated screening tools and comprehensive psychiatric assessments could lead to more accurate diagnoses and better outcomes for patients. These results should be confirmed in additional multicenter, longitudinal studies with larger sample sizes and formal diagnostic interviews and should be used to establish causal relationships and to specify the optimal treatment of GAD in patients with depression.

REFERENCES

1. Liu X, Wang H, Zhu Z, Zhang L, Cao J, Zhang L, Yang H, Wen H, Hu Y, Chen C, Lu H. Exploring bridge symptoms in HIV-positive people with comorbid depressive and anxiety disorders. *BMC Psychiatry*. 2022 Jul 5;22(1):448.
2. Jin Y, Sha S, Tian T, Wang Q, Liang S, Wang Z, Liu Y, Cheung T, Su Z, Ng CH, Xiang YT. Network analysis of comorbid depression and anxiety and their associations with quality of life among clinicians in public hospitals during the late stage of the COVID-19 pandemic in China. *Journal of Affective Disorders*. 2022 Oct 1;314:193-200.
3. Hopwood M. Anxiety symptoms in patients with major depressive disorder: commentary on prevalence and clinical implications. *Neurology and Therapy*. 2023 Apr;12(Suppl 1):5-12.
4. Abdisa L, Letta S, Nigussie K. Depression and anxiety among people with hypertension on follow-up in Eastern

- Ethiopia: a multi-center cross-sectional study. *Frontiers in Psychiatry*. 2022 Nov 11;13:853551.
5. Sayed Ahmed HA, Fouad AM, Elotla SF, Joudeh AI, Mostafa M, Shah A, Shah J, Mohamed SF. Prevalence and associated factors of diabetes distress, depression and anxiety among primary care patients with type 2 diabetes during the COVID-19 pandemic in Egypt: a cross-sectional study. *Frontiers in Psychiatry*. 2022 Jun 3;13:937973.
6. Kleykamp BA, Ferguson MC, McNicol E, Bixho I, Arnold LM, Edwards RR, Fillingim R, Grol-Prokopczyk H, Ohrbach R, Turk DC, Dworkin RH. The prevalence of comorbid chronic pain conditions among patients with temporomandibular disorders: a systematic review. *The Journal of the American Dental Association*. 2022 Mar 1;153(3):241-50.
7. Cai H, Zhao YJ, Xing X, Tian T, Qian W, Liang S, Wang Z, Cheung T, Su Z, Tang YL, Ng CH. Network analysis of comorbid anxiety and insomnia among clinicians with depressive symptoms during the late stage of the COVID-19 pandemic: a cross-sectional study. *Nature and Science of Sleep*. 2022 Dec 31;14:1351-62.
8. Solmi M, Soardo L, Kaur S, Azis M, Cabras A, Corsi M, Fausti L, Besana F, Salazar de Pablo G, Fusar-Poli P. Meta-analytic prevalence of comorbid mental disorders in individuals at clinical high risk of psychosis: the case for transdiagnostic assessment. *Molecular Psychiatry*. 2023 Jun;28(6):2291-300.
9. Vadakkiniath IJ. Prevalence and correlates of stress, anxiety, and depression in patients with chronic diseases: a cross-sectional study. *Middle East Current Psychiatry*. 2023 Dec;30(1):66.
10. Kanner AM, Saporta AS, Kim DH, Barry JJ, Altalib H, Omotola H, Jette N, O'Brien TJ, Nadkarni S, Winawer MR, Sperling M. Mood and anxiety disorders and suicidality in patients with newly diagnosed focal epilepsy: an analysis of a complex comorbidity. *Neurology*. 2023 Mar 14;100(11).
11. Aaron RV, Ravyts SG, Carnahan ND, Bhattiprolu K, Harte N, McCaulley CC, Vitalicia L, Rogers AB, Wegener ST, Dudeney J. Prevalence of depression and anxiety among adults with chronic pain: a systematic review and meta-analysis. *JAMA Network Open*. 2025 Mar 7;8(3).
12. Tsigebrhan R, Derese A, Kariuki SM, Fekadu A, Medhin G, Newton CR, Prince MJ, Hanlon C. Co-morbid mental health conditions in people with epilepsy and association with quality of life in low- and middle-income countries: a systematic review and meta-analysis. *Health and Quality of Life Outcomes*. 2023 Jan 20;21(1):5.
13. Yang H, Pan Y, Chen W, Yang X, Liu B, Yuan N, Zhang X. Prevalence of and relevant factors for depression and anxiety symptoms among pregnant women on the eastern seaboard of China in the post-COVID-19 era: a cross-sectional study. *BMC Psychiatry*. 2023 Aug 7;23(1):564.
14. McInerney AM, Lindekilde N, Nouwen A, Schmitz N, Deschênes SS. Diabetes distress, depressive symptoms, and anxiety symptoms in people with type 2 diabetes: a network analysis approach to understanding comorbidity. *Diabetes Care*. 2022 Aug 1;45(8):1715-23.
15. Farhane-Medina NZ, Luque B, Tabernero C, Castillo-Mayén R. Factors associated with gender and sex differences in anxiety prevalence and comorbidity: a systematic review. *Science Progress*. 2022 Oct;105(4):00368504221135469.
16. Åkesdotter C, Kenttä G, Eloranta S, Håkansson A, Franck J. Prevalence and comorbidity of psychiatric disorders among treatment-seeking elite athletes and high-performance coaches. *BMJ Open Sport & Exercise Medicine*. 2022 Mar 29;8(1).
17. Vrublevska J, Renemane L, Kivite-Urtane A, Rancans E. Validation of the generalized anxiety disorder scales (GAD-7 and GAD-2) in primary care settings in Latvia. *Frontiers in Psychiatry*. 2022 Oct 6;13:972628.