Original Research Article | **Medicine**

Prevalence of Generalized Anxiety Disorder among University Students in Saudi Arabia

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Abstract

Background: Generalized anxiety disorder (GAD) is a psychological illness characterized by excessive worry and physical symptoms such as sweating and fast heartbeat. Understanding the prevalence of GAD among university students is crucial for addressing mental health challenges in this population. ***Objective***: This study aimed to determine the prevalence of generalized anxiety disorder among university students in Saudi Arabia and also to assess levels of depression and stress among them. ***Methods***: A systematic review following PRISMA guidelines was conducted. A comprehensive search was performed in major databases using specific keywords related to anxiety, students, and Saudi Arabia. Studies conducted between 2020-2024, in English, and with free accessible articles were included. Data extraction and synthesis were carried out to analyze relevant findings. ***Results***: The systematic search yielded 41 study papers, with 8 meeting eligibility criteria. Various studies reported high levels of anxiety, depression, and stress among university students in Saudi Arabia, with female students showing higher prevalence rates. Factors such as age, gender, and academic performance were associated with increased anxiety and depressive symptoms. ***Conclusion***: The study revealed a high prevalence of generalized anxiety disorder, depression, and stress among university students in Saudi Arabia, emphasizing the need for interventions and support systems. Early detection and management of anxiety disorders are essential for mitigating the economic and social burden associated with these conditions, especially in the context of the COVID-19 pandemic. Addressing mental health challenges among university students is crucial for promoting overall well-being and academic success.
Keywords: Anxiety, students, generalized anxiety disorder (GAD), prevalence of anxiety, mental health.

INTRODUCTION

Generalized anxiety disorder, GAD, is often described than define as a psychological illness that is characterized by excessive worry. Patients diagnosed with GAD live in expectation of something terrible happening to them regarding money, health, work, or it could be any social appraisal. GAD is usually expressed as physical signs such as sweating, wavering, faintness, or a fast heartbeat, where GAD manifested differently in different situations. Issues such as gender, occupation, socioeconomic status, and education level are some of the paradigms that can be used to understand the philosophies of this disorder. A study conducted in the United Arab Emirates showed that the prevalence rate for anxiety (56%) was higher than that of other disorders such as depression [1].

Patients with GAD often had other disorders, including psychiatric disorders (e.g., major depressive disorder), substance use, and obesity. They may have a history of trauma or family member with GAD. Although the high prevalence of GAD and the burden of untreated patients including but not limited to missing working days, unemployment support, emergency visits because of somatic manifestation. In the United States, costs associated with anxiety disorders were $46.6 billion, 31.5% of total mental illness expenditures. Less than one-quarter of the costs related to anxiety disorders were for direct medical treatment; over three-quarters

Citation: Ahmed Abdullah Alsayed Alhashim *et al* (2024). Prevalence of Generalized Anxiety Disorder among University Students in Saudi Arabia. *Saudi J Med Pharm Sci, 10*(4): 261-266.

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were attributable to lost or reduced productivity. Prompt detection and treatment substantially reduce the economic and social burden of these common and often crippling disorders [2].

Stress and burnout are common among practicing physicians, nurses, and physiotherapists, as well as among medical students. Perceived stress is associated with elevated rates of depression, relationship problems, anxiety, and suicide. Healthcare professionals and medical students who are anxious may not be able to offer as good quality treatment as those who do not experience anxiety [3]. In addition to being a widespread mental health condition, anxiety is also among the most misunderstood.

Globally, about one in three medical students have anxiety—a prevalence rate which is higher than the general population. Quek et al argue that stress or anxiety is an important issue in medical education because it has the potential to impede clinical learning and performance [4]. They found the prevalence of anxiety was 33.8% among medical students globally, which is substantially higher than the general population. Francis et al believe that the effort to destigmatize help-seeking behavior for anxiety, and mental health issues in general, should start with the administrators and leaders of medical schools. Medical students are vulnerable to anxiety due to the nature of their academic life [5].

Stress is a particularly important issue in education because it has the potential to impede learning and performance. Some studies also support that nursing students suffer from stress in their clinical practice The US National Institute of Mental Health indicates anxiety disorder symptoms can be classified by feelings of restlessness, fatigue, and difficulty maintaining focus. Anxiety disorders have the highest prevalence compared with other common mental health disorders, with a lifetime prevalence of over 15%. For example, anxiety disorders are the most common mental health problem in the US, affecting 40 million adults or 18% of the population each year. However, the prevalence of anxiety disorders in the Middle East remains less known, including in the United Arab Emirates (UAE) [6].

Study Objectives:
This study primarily aimed to determine the prevalence of generalized anxiety disorder among university students in Saudi Arabia.

It also aimed:
1. To assess the levels of depression and stress among university students in Saudi Arabia.
2. To investigate the association between demographic factors (such as age, gender, and living arrangements) and the prevalence of anxiety and depressive symptoms among university students.

3. To explore the impact of academic performance on the mental health of university students in Saudi Arabia.
4. To examine the differences in the prevalence of anxiety and depressive symptoms between male and female university students in Saudi Arabia.

METHODOLOGY
Following PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, this systematic review was carried out.

Study Design and Duration
This systematic review began in February 2024.

Search Strategy
A comprehensive search was carried out using four major databases, PubMed, SCOPUS, Web of Science, and Science Direct, in order to find the relevant literature. We searched just in English and took into account the unique requirements of each database. The relevant studies were found by converting the following keywords into PubMed Mesh terms; "anxiety, students, generalized anxiety disorder (GAD), prevalence of anxiety, mental health, and Saudi Arabia." The Boolean operators "OR," "AND," and "NOT" matched the required keywords. Among the search outcomes were human trials, publications with full text in English, and freely downloadable materials.

Selection Criteria
We considered the following criteria for inclusion in this review:
- Studies that summarized the Prevalence of generalized anxiety disorder among university students in Saudi arabia
- Studies conducted between 2018-2024.
- Only human subjects.
- English language.
- Free accessible articles.

Data Extraction
Rayyan (QCRI) was used twice to verify the search method's output. The researchers added inclusion/exclusion criteria to the combined search results in order to evaluate the relevance of the titles and abstracts. The reviewers gave each paper that met the inclusion criteria a thorough inspection. The authors talked about ways to resolve conflicts. The approved study was uploaded using an already-created data extraction form. The authors extracted data about the study titles, authors, study year, city, participants, gender, type of participants, prevalence of the two most frequent blood groups, and main outcomes. A separate sheet was created for the risk of bias assessment.

Strategy for Data Synthesis
By assembling summary tables using information from relevant studies, a qualitative

assessment of the research's findings and components was given. After gathering the data for the systematic review, the most efficient way to use the information from the included study articles was chosen.

Risk of Bias Assessment

The ROBINS-I risk of bias assessment technique for non-randomized treatment trials was used to evaluate the quality of the included studies. Confounding, research participant selection, intervention classification, divergence from intended interventions, missing data, outcome assessment, and choice of the reported result were the seven assessed themes.

RESULTS
Search Results

After 30 duplicates were removed, the systematic search produced 142 study papers in total. 71 of the 112 studies that underwent title and abstract screening were eliminated. Ultimately, forty-one papers were screened for full-text assessment; Twenty-four were excluded due to the incorrect population type, and nine were excluded for incorrect research outcomes. This systematic review had eight study papers that met the eligibility criteria. An overview of the procedure used to choose studies is provided in **Figure 1.**
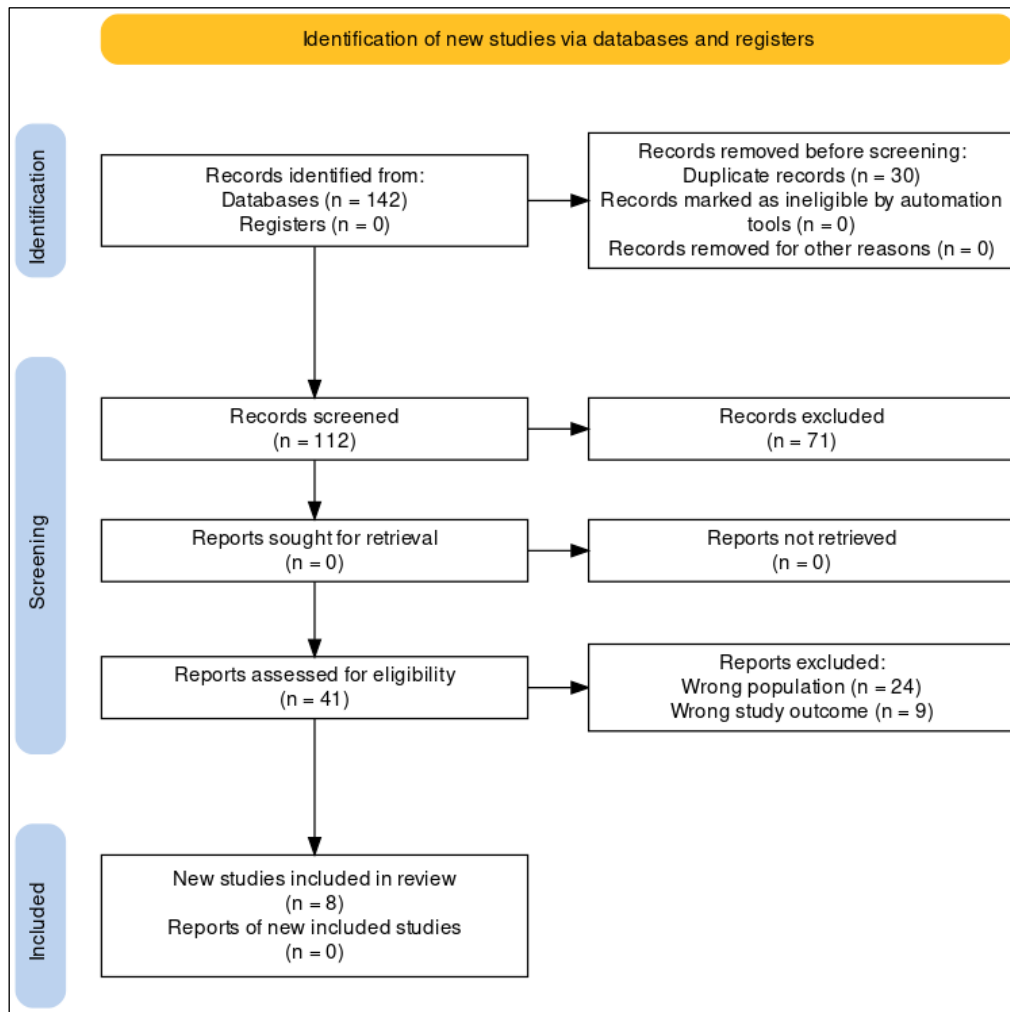

Figure 1: PRISMA flowchart that the study selection procedure is summed up in

Table 1: Sociodemographic characteristics of the included participants

Author	Country	Study design	Participants (n)	Age (years)
Michael Otim *et al.,* [7]	Saudi arabia	cross-sectional survey	187	18-25
Mansour I Alsoghair *et al.,* [8]	Saudi arabia	cross-sectional study	411	20-23
Sana Samreen *et al.,* [9]	Saudi arabia	cross-sectional study	170	18-30
Ibrahim Alasqah *et al.,* [10]	Saudi arabia	cross-sectional study	453	18-25
Wejdan M. Al-Johani *et al.,* [11]	Saudi arabia	cross-sectional study	5896	NM
Nouf A AlShamlan *et al.,* [12]	Saudi arabia	cross-sectional study	523	22-23
Athari Almutairi *et al.,* [13]	Saudi arabia	An online cross-sectional survey	278	22.45 (±1.57)
Alshehri, Abdullah *et al.,* [14]	Saudi arabia	cross-sectional study	182	NM

Table 2: Clinical characteristics and outcomes of the included studies

Study name	Year of publication	Key findings	Conclusion
Prevalence of Generalised Anxiety Disorders Among Clinical Training Students at the University of Sharjah	[2021]	The mean score for state anxiety was 47.24 ± 1.31 and the mean score for trait anxiety was 46.82 ± 1.21. These scores indicated a high level of anxiety among students undertaking clinical training. Overall, 63% of the sample were classified as having high state anxiety, and 62% had high trait anxiety.	The study shows clinical training students experience high levels of state and trait anxiety. It is necessary to address this issue to improve the conditions. It may also be necessary to implement strategies to enable students with anxiety to perform well in clinical training.
Prevalence of Depression and Anxiety Among Qassim University Students During the COVID-19 Pandemic	[2023]	The prevalence of depression and anxiety was 40.6% and 29.4%, respectively. Females had higher levels of depression and anxiety than men ($p < 0.001$). The College of Arabic Language and Social Studies (CALSS) had the highest prevalence of depression and anxiety (42.9% and 30.6%, respectively).	There was a high post-pandemic prevalence of depression and anxiety among the students at Qassim University. Our findings demonstrate the need for psychological intervention programs for the students of Qassim University.
Prevalence of Anxiety and Associated Factors among Pharmacy Students in Saudi Arabia: a Cross-Sectional Study	[2020]	The prevalence of anxiety among pharmacy students was 49% (83 students); 44 students (25.9%) had mild anxiety, while 24 (14.1%) students had moderate anxiety, and 15 (8.8%) severe anxiety. There were statistically significant differences in anxiety scores according to faculty type ($p = 0.2$) and nutritional status ($p = 0.4$).	The study revealed that half of the pharmacy students suffered from anxiety incidence during their studies at the university. However, the majority of them are experiencing mild to moderate. This may have a significant impact on academic performance and necessitates special attention.
Sociodemographic determinants of depression, anxiety, and stress immediately after the COVID-19 pandemic: a cross-sectional study among university students in Saudi Arabia	[2023]	The mean scores for Depression, Anxiety, and Stress, were 10.70, 11.18, and 10.40, respectively. At least 18% of the students reported experiencing moderate-to-severe levels of Depression, Anxiety, and Stress. The study showed that the feminine gender was associated with higher Depression, Anxiety, and Stress scores.	Students in the current study described experiencing higher levels of Depression, Anxiety, and Stress during the COVID-19 pandemic. The findings of the present study can help universities take targeted measures to address the impact of a pandemic like COVID-19 on students' mental health.
Social anxiety disorder SAD and its associated factors: a cross-sectional study among medical students, Saudi Arabia	[2022]	The prevalence of SAD was almost 51%. While 8.21% and 4.21% had reported severe and very severe SAD, respectively. Older age students were at lower risk of developing SAD ($OR = 0.92$, 95% $CI = 0.89 - 0.96$). In contrast, females ($OR = 1.13$, 95% $CI = 1.01 - 1.26$), students enrolled in private colleges and colleges implementing non-problem-based learning ($OR = 1.29$, 95% $CI = 1.09 - 1.52$ and $OR = 1.29$. 95% $CI = 1.15 - 1.46$ respectively) were at higher risk. A significant elevated risk of SAD was found among students who had previously failed	SAD is prevalent among the sampled population, and different associated factors were identified. Current results could raise the awareness of faculty members and healthcare providers towards early detection and management of these cases.

Study name	Year of publication	Key findings	Conclusion
Anxiety and Its Association with Preparation for Future Specialty: A Cross-Sectional Study Among Medical Students, Saudi Arabia	[2020]	The prevalence of anxiety symptoms as measured by the GAD-7 was found to be 31.7%. Of these, 14.3% had severe symptoms. Only 4.4% students went to a healthcare professional and were diagnosed with psychiatric problems. Logistic regression analysis revealed that the odds of anxiety was higher among females and students who had perceived psychological problems. However, students' grade point average (GPA) and perceived readiness for their future specialty were not statistically significant with anxiety symptoms.	Anxiety was highly prevalent among clinical-year medical students included in this study. This urges periodic mental health screening, proper diagnosis of high-risk individuals in medical schools, and early interventions through confidential access to mental health services.
Prevalence of Anxiety among Qassim university female medical students during Covid-19 Pandemic in Saudi Arabia	[2022]	The prevalence of anxiety among study participants was 26.8% (n=48); 31 (17.3%) participants had moderate and 17 (9.5%) had severe anxiety. The overall median anxiety score was 11 (IQR=21). In the younger age group (18-22 years), those who perceived their academic performance as 'poor or fair, and those living alone or with relatives and friends had higher anxiety scores, and the differences were statistically significant at $p=0.042$, $p=0.018$, and $p=0.01$, respectively.	Anxiety among female medical students during the COVID-19 pandemic was high. Mental health services including counseling and mental health education in universities are recommended.
The prevalence of depressive and anxiety symptoms among first-year and fifth-year medical students during the COVID-19 pandemic: a cross-sectional study.	[2023]	Depressive symptoms (52.9% versus 35.8%, p = 0.020) and anxiety symptoms (35.6% versus 26.3%, p = 0.176) were higher in the first-year students than in the fifth-year students. Approximately 19.2% of the students were worried about acquiring COVID-19, 49.4% were worried about academic performance, and 30.8% were feeling sad, depressed or anxious during the COVID-19 pandemic.	Medical students have an alarmingly high prevalence of depressive and anxiety symptoms, which might have been negatively impacted by the COVID-19 pandemic. There is a need for a special mental health program targeting new and current medical students.

DISCUSSION

Experiencing occasional stress and tension is a normal part of life. However, individuals with anxiety disorders often experience excessive and continual fear and worry about various situations, including daily life situations. Often, anxiety disorders, such as Generalized Anxiety Disorders involve repeated episodes of sudden feelings of excessive anxiety and fear or terror that can cause panic attacks. The National Health Service (NHS) defines Generalized Anxiety Disorder as a long-term condition. It makes you feel anxious about a wide range of conditions. For those with Generalized Anxiety Disorder, anxiety is felt most days and difficulty feeling relaxed. It can cause both mental and physiological signs, such as: feeling restless or worried, trouble concentrating or sleeping, and dizziness [15]. The general cause of generalized anxiety disorder is not fully understood. Anxiety disorders develop from a complex set of risk factors, including genetics, brain chemistry, personality, and life events. According to the previously mentioned studies, Michael Otim *et al.,* reported that the mean score for state anxiety was 47.24±1.31 and the mean score for trait anxiety was 46.82±1.21. These scores indicated a high level of anxiety among students undertaking clinical training. Overall, 63% of the sample were classified as having high state anxiety, and 62% had high trait anxiety. Consistently, Mansour I Alsoghair *et al.,* revealed that there was a high post-pandemic prevalence of depression and anxiety among the students at Qassim University with prevalence of depression and anxiety was 40.6% and 29.4%, respectively. Sana Samreen *et al.,* reported similar results among the studied pharmacy students. On the other hand, Ibrahim Alasqah *et al.,* reported that the mean scores for Depression, Anxiety, and Stress among university students in Saudi Arabia, were 10.70, 11.18, and 10.40, respectively. Moreover, Wejdan M. Al-Johani *et al.,* [2022], reported that the prevalence of SAD was almost 51%. While 8.21% and 4.21% had reported severe and very severe SAD, respectively. Additionally, Nouf A

AlShamlan *et al.,* [2020], revealed that Anxiety was highly prevalent among clinical-year medical students included in this study with 14.3% had severe symptoms. Furthermore, Athari Almutairi *et al.,* [2022], reported that Anxiety among female medical students during the COVID-19 pandemic was high with 26.8% (n=48); 31 (17.3%) participants had moderate and 17 (9.5%) had severe anxiety. Alshehri, Abdullah *et al.,* [2023], reported similar results among medical students with depressive symptoms (52.9% versus 35.8%, p = 0.020) and anxiety symptoms (35.6% versus 26.3%, p = 0.176) were higher in the first-year students than in the fifth-year students.

CONCLUSION
In conclusion, the study conducted among university students in Saudi Arabia revealed a high prevalence of generalized anxiety disorder, depression, and stress among the participants. Female students were found to have higher levels of anxiety and depression compared to male students. Various factors such as age, gender, academic performance, and living arrangements were associated with higher levels of anxiety and depressive symptoms. The study highlights the urgent need for interventions and support systems to address the mental health challenges faced by university students, particularly in the context of the COVID-19 pandemic. Early detection and appropriate management of anxiety disorders are crucial in reducing the economic and social burden associated with these conditions.

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