Academic Anxiety among Medical Students in College of Medicine at Northern Border University

Eslam Kamal Fahmy[1], Baraah Abu Alsel[2], Naif Ibrahim H. Alanazi[3], Alenezi, Anas Ied A.[4], Nawaf Lafi Ghayyadh Alruwaili[5], Alruwaili, Faisal Kareem S.[6], Mohammed Fahad Alfehaid[7] and Safya Ebraheem Esmaeel[8*]

[1,8]Department of Physiology, College of Medicine, Northern Border University, 91431-Arar, Kingdom Saudi Arabia
[2]Department of Pathology, College of Medicine, Northern Border University, 91431-Arar, Kingdom Saudi Arabia
[3,4,5,6,7]College of Medicine, Northern Border University, 91431-Arar, Kingdom Saudi Arabia

Author Designation: [1,8]Assistant Professor, [2]Lecturer, [3-6]Medical Students, [7]Medical Intern

*Corresponding author: Safya Ebraheem Esmaeel (e-mail: safya.ebraheem@nbu.edu.sa).

Abstract **Objectives:** Younger adulthood is defined as an identity-forming period in which people experience changes in their physical and social selves as well as related to behavior, emotion, socioeconomic status and education. It is proposed that medical students have anxiety associated with the illnesses they are learning about, known as medical student syndrome. In Saudi Arabia's Medical College, Northern Border University, understanding the significant difference in anxiety status based on gender or academic level variables is critical for effective management. This study aimed to examine the occurrence and some of the factors that contribute to anxiety among medical students at the Northern Border University in Arar, Saudi Arabia. **Methods:** A cross-sectional design among 305 participants of medical students in the College of Medicine, Northern Border University, was employed, utilizing convenience sampling. Data were collected through an online questionnaire. **Results:** The findings revealed the most frequent symptoms in the "low" category are numbness or tingling, indigestion, flushed face and lightheadedness with 251, 229, 229 and 228, respectively, with a percent of 82.30%. The overall anxiety levels among students, with the majority experiencing low anxiety (200, 65.57%). Notably, anxiety is common across genders; mild levels seem to be more prevalent in males overall. In addition, 4.5-5 GPA students have the highest percentage of low anxiety. **Conclusion:** The study highlights the multifaceted nature of anxiety, which, though mild for most, can severely impact a vulnerable subset of students. The correlation of anxiety with multiple demographic and academic factors underscores the necessity for nuanced interventions.

Key Words Anxiety, medical students, academic level, Northern Border University, Saudi Arabia, academic stress, mental health interventions, gender-based anxiety

INTRODUCTION

Younger adulthood is defined as an identity-forming period in which people experience changes in their physical and social selves as well as in several domains related to behavior, emotion, reproduction, socioeconomic status and education [1]. Anxiety levels in the community are considered important indicators of mental health [2] Medical school students' cognitive functioning and learning may suffer from high levels of stress, which is a common perception of medical education [3]. Numerous studies have focused on medical students' mental health since it is thought that this is a critical period of psychological challenge for aspiring physicians [4]. Certain aspects of the training may unintentionally harm the participants' mental and emotional health. According to those studies, the prevalence of psychological disorders like anxiety is rising among medical students [5]. Family history of depression, low parental warmth, parental loss before age 18, disturbed family environment and history of conduct disorder are considered as risk factors for anxiety [6].

The American Psychological Association states that the symptoms of anxiety and stress include mental tension, bodily strain and worried thoughts. Anxiety is more linked to situational issues, skeletal muscle tension and autonomic

activation, while stress is more linked to impatience and trouble relaxing [7]. The American Psychological Association (APA) states that women are more likely than men to be impacted [8].

Higher education students are likely to encounter various difficult situations during their studies and they frequently have to handle these situations on their own [9]. Research findings indicate that there is a higher prevalence of anxiety, stress and depression among medical professionals compared to the general and non-medical populations [10]. The mental health of aspiring physicians is a crucial concern that warrants careful consideration. Enhancements to medical education, restructuring of current mental health services according to student demand and monitoring of high-risk individuals could all contribute to the preservation and enhancement of mental health [11]. Academic anxiety decreases self-expression, student's fluency, pronunciation accuracy and overall confidence in oral communication [12]. Accordingly, our study tries to answer the following research questions:

- What are the distribution and degree of anxiety among medical students in the College of Medicine at Northern Border University?
- Is there any significant difference in the anxiety status based on gender and/or academic level variables?

Moreover, our study aims to draw the attention of decision-makers to the importance of mental health among medical students and to the limit of available data, this study will be the first study to examine the anxiety among medical students in College of Medicine at Northern Border University.

METHODS

Participants (sample)

A quantitative cross-sectional study among male and female medical students in the College of Medicine, bachelor's Degree of Medicine and Surgery program at Northern Border University. We excluded students outside Northern Border University, Non-medical students and medical students in programs other than the bachelor's degree of Medicine and Surgery. The study lasted 6 months.

Instrument

Data were collected through an online questionnaire. This questionnaire was distributed directly by the researcher through a google form link and QR code.

The questionnaire starts with an introductory section to describe the aim of the study for the subjects of the sample of the study. Then, the questionnaire consists of two parts; the first part includes demographic information, such as gender, age, study year and grade point average (GPA), while the second part includes the self-reporting Beck Anxiety Inventory (BAI) which consists of 21 questions.

Reliability and Validity

This scale was developed of 21 self-reported inventory questions for measuring the severity of anxiety in populations. Beck Anxiety Inventory (BAI) showed high internal consistency (at = 0.92) and test-retest reliability over 1 week, r (81) = 0.75 [13].

The BAI discriminated anxious diagnostic groups (panic disorder, generalized anxiety disorder, etc.) from non-anxious diagnostic groups (major depression, dysthymic disorder, etc). In addition, the BAI was moderately correlated with the revised Hamilton Anxiety Rating Scale, r (150) = 0.51[14].

Ethics Approval of Research

Northern Border University's decision no. (73-24-H), dated May 6, 2024, granted ethical clearance for the study after it was requested from the College of Medicine's Ethical Committee (HAP-09-A-043).

Sample Size and Data Analysis

An estimated 305 medical students of both sexes from Northern Border University's College of Medicine made up the sample using the Raosoft sample size calculator [15]. Data was analyzed using SPSS (version 26). Testing the association was by Chi Square test. Qualitative variables were represented as percentages and numbers (mean, Frequency.. etc.) and showed them in the figures. The chi-square test is used to determine if there is a significant association between categorical variables. For example, it can help assess whether education level is related to the prevalence of anxiety among medical students. P value less than 0.05 is significant.

RESULTS

Table 1 displays the symptoms experienced by respondents; the most frequent symptoms in the "Low" category are Numbness or tingling, Indigestion, Flushed face and Lightheadedness with 251, 229, 229 and 228, respectively.

Table 1: BAI Symptoms and Their Severity Levels (N = 305) categorized by the severity of the symptoms: Low, Moderate and Severe

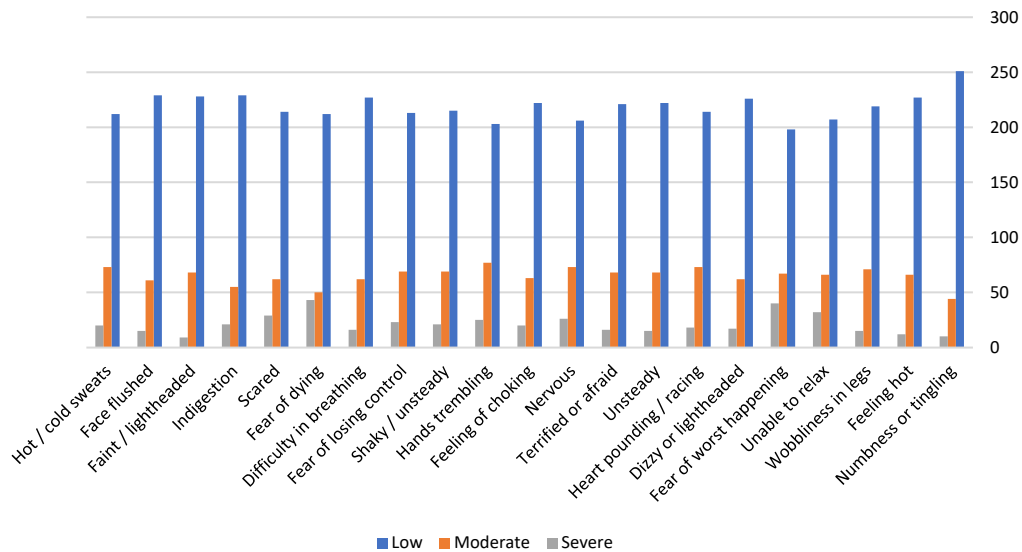| Symptom	Low	Moderate	Severe	Total
Numbness or tingling	251	44	10	305
Feeling hot	227	66	12	305
Wobbliness in legs	219	71	15	305
Unable to relax	207	66	32	305
Fear of the worst happening	198	67	40	305
Dizzy or lightheaded	226	62	17	305
Heart pounding / racing	214	73	18	305
Unsteady	222	68	15	305
Terrified or afraid	221	68	16	305
Nervous	206	73	26	305
Feeling of choking	222	63	20	305
Hands trembling	203	77	25	305
Shaky/ unsteady	215	69	21	305
Fear of losing control	213	69	23	305
Difficulty in breathing	227	62	16	305
Fear of dying	212	50	43	305
Scared	214	62	29	305
Indigestion	229	55	21	305
Faint/ lightheaded	228	68	9	305
Flushed face	229	61	15	305
Hot /cold sweats	212	73	20	305

Figure 1: Bar Chart for Symptoms

Table 2: Percentages of BAI Symptoms (Low, Moderate, Severe) (N: 305)

Signs / Symptoms	Low (%)	Moderate (%)	Severe (%)
Numbness or tingling	82.30%	14.43%	3.28%
Feeling hot	74.43%	21.64%	3.93%
Wobbliness in legs	71.80%	23.28%	4.92%
Unable to relax	67.87%	21.64%	10.49%
Fear of worst happening	64.92%	21.97%	13.11%
Dizzy or lightheaded	74.10%	20.33%	5.57%
Heart pounding / racing	70.16%	23.93%	5.90%
Unsteady	72.79%	22.30%	4.92%
Terrified or afraid	72.46%	22.30%	5.25%
Nervous	67.76%	24.01%	8.22%
Feeling of choking	72.79%	20.66%	6.56%
Hands trembling	66.56%	25.25%	8.20%
Shaky / unsteady	70.49%	22.62%	6.89%
Fear of losing control	69.84%	22.62%	7.54%
Difficulty in breathing	74.43%	20.33%	5.25%
Fear of dying	69.51%	16.39%	14.10%
Scared	70.16%	20.33%	9.51%
Indigestion	75.08%	18.03%	6.89%
Faint /lightheaded	74.75%	22.30%	2.95%
Flushed face	75.08%	20.00%	4.92%
Hot /cold sweats	69.51%	23.93%	6.56%

Table 3: Level of Anxiety (N = 305)

Level of Anxiety	Frequency	Percent
Low Anxiety	200	65.57%
Moderate Anxiety	93	30.49%
Severe Anxiety	12	3.94%
Total	305	100%

Table 4: The Relation between Gender and Level of Anxiety (N = 305)

Gender	Low Anxiety (%)	Moderate Anxiety (%)	Severe Anxiety (%)	Total (%)
Male	133 (68.56%)	54 (27.84%)	7 (3.61%)	194 (63.61%)
Female	67 (60.36%)	39 (35.14%)	5 (4.50%)	111 (36.39%
Total	200 (65.5%)	93 (30.4%)	12 (4.1%)	305 (100%)

About Moderate symptoms, it was higher in Hands trembling which has 77 participants. On the other hand, severe symptoms were mostly seen in Fear of dying and Fear of worst happening which have 43, 40 respectively.

Table 5: The Relation between GPA and Level of Anxiety (N = 305)

GPA	Low Anxiety (%)	Moderate Anxiety (%)	Severe Anxiety (%)	Total (%)
Less than 3	21 (56.76%)	15 (40.54%)	1 (2.7%)	37 (12.13%)
3-3.5	15 (50.0%)	13 (43.33%)	2 (6.67%)	30 (9.84%)
3.5-4	29 (50.0%)	26 (44.83%)	3 (5.17%)	58 (19.02%)
4-4.5	55 (64.71%)	25 (29.41%)	5 (5.88%)	85 (27.87%)
4.5-5	80 (84.21%)	14 (14.74%)	1 (1.05%)	95 (31.15%)
Total	200 (65.57%)	93 (30.49%)	12 (3.93%)	305 (100%)

Table 2 presents the percentage of respondents who reported their symptoms as low, moderate, or severe. Most symptoms are reported as "Low," with percentages ranging from 64.92% for Fear of worst happening to 82.30% for Numbness or tingling. Moderate and severe symptoms are less frequent but still notable. The Fear of dying has the highest percentage of severe symptoms (14.10%), indicating that for a smaller proportion of students, anxiety can manifest as severe fear-related symptoms. This table shows that, while mild symptoms are predominant, a portion of the student population suffers from more intense anxiety symptoms.

Figure 1 bar chart provides a visual comparison of the severity levels across different symptoms. It clearly shows that symptoms such as Feeling hot, Wobbliness in legs and dizziness or lightheaded are more frequently reported as mild or low-level, while symptoms like Fear of dying and Unable to relax have more moderate to severe cases.

Table 3 presents the overall anxiety levels among students, with the majority experiencing Low Anxiety (65.57%), followed by Moderate Anxiety (30.49%) and Concerning Level of Anxiety (3.94%). These results suggest that while a significant portion of the students had some experiences of some level of anxiety, most of it is mild. However, the presence of concerning anxiety levels indicates a need for targeted mental health support for those severely affected.
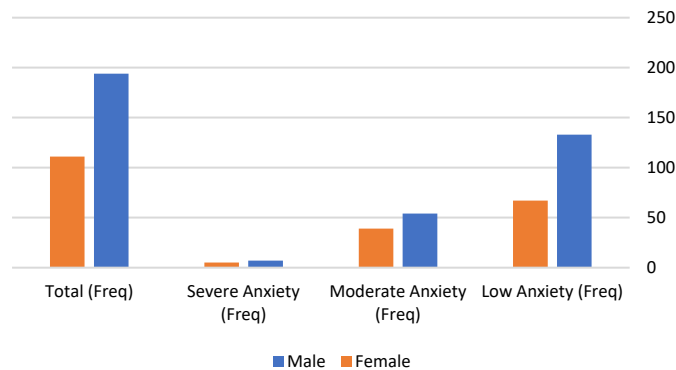
Figure 2: The Relation between Gender and Level of Anxiety

Table 6: The Relation between Family Income and Level of Anxiety (N = 305)

Family Income (SAR)	Low Anxiety (%)	Moderate Anxiety (%)	Severe Anxiety (%)	Total (%)
Less than 3000	16 (43.24%)	16 (43.24%)	5 (13.51%)	37 (12.13%)
3000-5000	17 (50.0%)	17 (50.0%)	0 (0.0%)	34 (11.15%)
5000-7000	27 (69.23%)	12 (30.77%)	0 (0.0%)	39 (12.79%)
7000-10000	28 (71.79%)	9 (23.08%)	2 (5.13%)	39 (12.79%)
More than 10000	112 (71.79%)	39 (25.0%)	5 (3.21%)	156 (51.15%)
Total	200 (65.57%)	93 (30.49%)	12 (3.93%)	305 (100%)

Table 7: The Relation between Academic Year and Level of Anxiety (N = 305)

Academic Year	Low Anxiety (%)	Moderate Anxiety (%)	Severe Anxiety (%)	Total (%)
1st Year	34 (72.34%)	11 (23.40%)	2 (4.26%)	47 (15.41%)
2nd Year	63 (61.17%)	37 (35.92%)	3 (2.91%)	103 (33.77%)
3rd Year	44 (80.0%)	11 (20.0%)	0 (0.0%)	55 (18.03%)
4th Year	21 (75.0%)	7 (25.0%)	0 (0.0%)	28 (9.18%)
5th Year	38 (52.78%)	27 (37.5%)	7 (9.72%)	72 (23.61%)
Total	200 (65.57%)	93 (30.49%)	12 (3.93%)	305 (100%)

Table 4 and Figure 2 suggest that while anxiety is common across genders, mild levels seem to be more prevalent in males overall. While moderate and severe seems to be more common in females. This might reflect either a greater exposure to anxiety-inducing factors or differences in reporting and coping mechanisms between genders.

Table 5 shows that 4.5-5 GPA students have the highest percentage of Low anxiety. While Moderate symptoms were highest in (3.5-4) GPA. The severe symptoms were highest in (3-3.5). The relation between GPA and anxiety in this table shows that Low anxiety levels tend to happen more often in Higher GPA, while moderate and severe anxiety tend to occur more often in Lower GPA.

Table 6 shows that the relationship between family income and anxiety levels reveals that students from families with lower incomes (less than 3000) have a slightly higher prevalence of anxiety, with 13.51% experiencing Severe Anxiety. In contrast, students from higher income brackets (more than 10000) report fewer cases of anxiety, with 71.79% reporting Low Anxiety and only 3.21% experiencing Severe Anxiety. This suggests a potential correlation between financial stability and lower anxiety levels, where students from wealthier backgrounds may experience less stress related to economic pressures, leading to lower levels of anxiety.

Table 7 shows the distribution of anxiety across different academic years. Students in their 3rd Year report the highest levels of Low Anxiety (80%) and experience no cases of Severe Anxiety. However, students in their 5th Year show a higher prevalence of Severe Anxiety (9.72%) and lower levels of Low Anxiety (52.78%). These results suggest that students in the earlier stages of their basic/clinical academic journey may have more anxiety.

DISCUSSION
The findings from these tables reveal critical patterns regarding anxiety symptoms and their association with demographic features, academic year, GPA, gender and socioeconomic factors among students. While the majority of students report low anxiety symptoms 200 (65.57%), a significant proportion experiences moderate 93 (30.49%) to severe anxiety 12 (3.94%), 54 (27.84%) of male Students experienced moderate levels of anxiety, compared to 39 (35.14%) in females. Students with severe levels of anxiety were 7 (3.61%) male students to 5 (4.50%) female students. This is consistent with another study that reported that females are more likely to be affected than males [16]. Symptoms such as fear of dying 212 (69.51%), fear of losing control 213 and inability to relax 207 (67.87%). These symptoms emphasize the interplay between physical and

emotional dimensions of anxiety, with fear-based manifestations dominating the severe category. Males appear to report higher levels of mild anxiety 133 (68.56%), but females exhibit a greater prevalence of moderate 39 (35.14%) and severe anxiety 5 (4.50%), suggesting possible gender-related differences in the perception, experience, or reporting of anxiety. These findings align with existing literature, which suggests that females are more likely to experience anxiety disorders, potentially due to biological, psychological and social factors [8].

Academic performance also emerged as a significant factor. Students with GPAs 3-3.5 13 (43.33%) and 3.5-4 26 (44.83%) exhibited the highest levels of moderate anxiety, while those with GPAs between 3-3.5 2 (6.67%) had the highest rates of severe anxiety. This pattern highlights the academic stress faced by students within the average performance range, who may struggle to meet expectations or maintain their academic standing. Similarly, family income was identified as a critical determinant of anxiety [17]. Students from lower-income families demonstrated higher levels of moderate 16 (43.24%) and severe anxiety 5 (13.51%), likely attributable to financial pressures and reduced access to mental health resources or coping mechanisms. Conversely, students from higher-income families reported lower anxiety levels 112 (71.79%), suggesting that financial stability may act as a protective factor against anxiety. Socioeconomic factors were similarly significant, as students from lower-income families exhibited higher levels of moderate and severe anxiety consistent with studies that revealed that financial constraints can contribute to stress by limiting access to mental health resources, increasing the burden of academic and social responsibilities and exacerbating uncertainty about the future. Conversely, students from higher-income families reported lower levels of anxiety, suggesting that financial stability provides a protective buffer against stressors [18,19].

The progression of anxiety across academic years is another key finding, second-year students reported higher levels of mild anxiety 37 (35.92%), which may be attributed to the stress of transitioning to university life, adjusting to academic expectations and forming new social connections. By contrast, fifth-year students exhibited a higher prevalence of severe anxiety 7 (9.72%), likely reflecting the compounded stress of academic workload, career uncertainty and preparation for post-graduation responsibilities. Interestingly, third and fourth years students reported the lowest levels of severe anxiety 0 (0.00%), possibly reflecting a temporary period of adjustment and relative stability in their academic journey. Similarly, other studies revealed that age was also significantly associated with higher anxiety levels [20,21,22]. The academic year also plays a dynamic role, with second-year students reporting higher levels of mild anxiety, potentially due to the adjustment challenges during early

university life. Fifth-year students exhibited a higher prevalence of severe anxiety, reflecting the compounded pressures of advanced academic workloads and uncertainties about career pathways. Interestingly, third-year students reported the lowest severe anxiety levels, possibly indicating a period of adjustment and temporary stability in their academic trajectory.

Key factors influencing anxiety include gender, academic performance (GPA), socioeconomic status and academic year. While male students reported more overall anxiety, female students showed higher rates of moderate and severe anxiety, consistent with global data suggesting women are more susceptible to anxiety disorders due to hormonal, psychological and social influences [23]. Academic performance also emerged as a critical determinant, with students in the GPA range of 3-4 being disproportionately affected by moderate anxiety, while severe anxiety was most prevalent among those with GPAs between 3-3.5 [24,25]. This pattern reflects the heightened pressure faced by students with average academic performance, who may grapple with meeting expectations and securing academic success.

These findings underscore the need for targeted mental health interventions tailored to specific risk factors and subgroups. Interventions should prioritize addressing severe anxiety symptoms, particularly fear-based manifestations, which were most strongly associated with high anxiety levels. Programs aimed at supporting students from lower-income families, those with moderate GPAs and those in high-stress academic years (such as the first and fifth years) are crucial. Additionally, gender-sensitive approaches that consider the unique challenges faced by female students should be incorporated into mental health strategies [26].

Overall, these results highlight the importance of fostering a supportive academic environment that promotes mental health awareness and provides accessible resources for stress management. Incorporating resilience-building activities, stress-reduction techniques and peer support systems into university programs could help mitigate anxiety levels. Furthermore, regular screening for anxiety symptoms, coupled with early intervention and professional counseling services, may play a vital role in preventing the progression of mild anxiety into more severe forms. By addressing these factors, academic institutions can create a healthier and more conducive environment for student success and well-being.

These findings call for the implementation of comprehensive mental health programs within academic institutions, tailored to the specific needs of diverse student subgroups. Programs should address the unique challenges faced by students with average GPAs, those from lower-income families and those in high-stress academic years. Gender-sensitive interventions that account for the heightened

vulnerability of female students are also essential. Additionally, the results highlight the importance of targeted support for managing severe anxiety symptoms, particularly fear-based manifestations such as fear of dying and losing control.

To mitigate anxiety levels effectively, institutions should prioritize fostering a supportive academic environment that reduces stress and promotes psychological well-being. This can be achieved by integrating stress management workshops, resilience training and peer support networks into university programs. Regular screening and early intervention for anxiety symptoms can help prevent the escalation of mild anxiety into severe forms, while professional counseling services can provide individualized support for affected students.

CONCLUSIONS

This study provides substantial insights into the prevalence, symptoms and contributing factors of anxiety among students. These symptoms highlight the multifaceted nature of anxiety, which, though mild for most, can severely impact a vulnerable subset of students. The correlation of anxiety with multiple demographic and academic factors underscores its complexity and the necessity for nuanced interventions.

In conclusion, this study emphasizes the need for a multifaceted approach to mental health care that addresses the diverse causes and manifestations of anxiety. By implementing tailored interventions and creating a nurturing academic culture, institutions can reduce the psychological burden on students, enhancing their overall academic performance, emotional well-being and long-term success. Future research should explore longitudinal patterns of anxiety among students and evaluate the effectiveness of targeted mental health initiatives in reducing anxiety prevalence and severity.

Acknowledgments

Informed Consent Statement
We declare that informed consent was obtained from all subjects.

Conflict of Interest
All authors have no conflict of interest.

REFERENCES

[1] Alvi, Tabassum *et al.* "Depression, anxiety and their associated factors among medical students." *Journal of the College of Physicians and Surgeons Pakistan*, vol. 20, no. 2, 2010, pp. 122-126. https://pubmed.ncbi.nlm.nih.gov/20378041/

[2] Givens, Jane L., and Jennifer Tjia. "Depressed medical students' use of mental health services and barriers to use." *Academic Medicine*, vol. 77, no. 9, September 2002, pp. 918-921. http://dx.doi.org/10.1097/00001888-200209000-00024..

[3] Abdulghani, Hamza M, *et al.* "Stress and its effects on medical students: A cross-sectional study at a college of medicine in Saudi Arabia." *Journal of Health, Population and Nutrition*, vol. 29, no. 5, November 2011,. http://dx.doi.org/10.3329/jhpn.v29i5.8906.

[4] Ngo-Thi, Thuy-Trinh *et al.* "Medical Student Syndrome" in Vietnamese psychology students." *Medical Science*, vol. 25, no. 111, 2021, pp. 1061-1070. https://www.discoveryjournals.org/medicalscience/current_issue/v25/n111/A6.htm

[5] Mofatteh, Mohammad (2020). "Risk factors associated with stress, anxiety, and depression among university undergraduate students." *AIMS Public Health*. Vol. 8, no. 1, December 2020, pp. 36-65. http://dx.doi.org/10.3934/publichealth.2021004.

[6] Blanco, Carlos, *et al.* "Risk factors for anxiety disorders: Common and specific effects in a national sample." *Depression and Anxiety*, vol. 31, no. 9, February 2014, pp. 756-764. http://dx.doi.org/10.1002/da.22247.

[7] Liu, Yuguo, *et al.* "The relationship between test anxiety and emotion regulation: The mediating effect of psychological resilience." *Annals of General Psychiatry*, vol. 20, no. 1, September 2021,. http://dx.doi.org/10.1186/s12991-021-00360-4.

[8] Mclean, Carmen P., *et al.* "Gender differences in anxiety disorders: Prevalence, course of illness, comorbidity and burden of illness." *Journal of Psychiatric Research*, vol. 45, no. 8, August 2011, pp. 1027-1035. http://dx.doi.org/10.1016/j.jpsychires.2011.03.006.

[9] Kwon, Soo Jin, *et al.* "Difficulties faced by university students with self-reported symptoms of attention-deficit hyperactivity disorder: A qualitative study." *Child and Adolescent Psychiatry and Mental Health*, vol. 12, no. 1, February 2018,. http://dx.doi.org/10.1186/s13034-018-0218-3.

[10] Mirza, Ahmad A., *et al.* "Depression, anxiety and stress among medical and non-medical students in Saudi Arabia: An epidemiological comparative cross-sectional study." *Neurosciences*, vol. 26, no. 2, April 2021, pp. 141-151. http://dx.doi.org/10.17712/nsj.2021.2.20200127.

[11] Quek, Travis Tian Ci, *et al.* "The global prevalence of anxiety among medical students: A meta-analysis." *International Journal of Environmental Research and Public Health*, vol. 16, no. 15, July 2019,. http://dx.doi.org/10.3390/ijerph16152735.

[12] Mccurdy, Bethany H., *et al.* "Impact of anxiety and depression on academic achievement among underserved school children: Evidence of suppressor effects." *Current Psychology*, vol. 42, no. 30, September 2022, pp. 26793-26801. http://dx.doi.org/10.1007/s12144-022-03801-9.

[13] Beck, Aaron T., *et al.* "An inventory for measuring clinical anxiety: Psychometric properties.." *Journal of Consulting and Clinical Psychology*, vol. 56, no. 6, January 1970, pp. 893-897. http://dx.doi.org/10.1037//0022-006x.56.6.893.

[14] Muntingh, Anna DT, *et al.* "Is the beck anxiety inventory a good tool to assess the severity of anxiety? a primary care study in the netherlands study of depression and anxiety (NESDA)." *BMC Family Practice*, vol. 12, no. 1, July 2011,. http://dx.doi.org/10.1186/1471-2296-12-66.

[15] Raosoft, *Sample size calculator*. 2024. http://www.raosoft.com/samplesize.html.

[16] Almadani, Ahmad H., *et al.* "Comparison of depression and anxiety in first- versus non-first generation saudi medical students: A cross-sectional study." *Medicine*, vol. 103, no. 30, July 2024,. http://dx.doi.org/10.1097/md.0000000000039115.

[17] McLean CP, Asnaani A, Litz BT, Hofmann SG. (2011).Gender differences in anxiety disorders: prevalence, course of illness, comorbidity and burden of illness. J Psychiatr Res. Aug; 45(8):1027-35. doi: 10.1016/j.jpsychires.2011.03.006.

[18] Deng, Yuwei, *et al.* "Family and academic stress and their impact on students' depression level and academic performance." *Frontiers in Psychiatry,* vol. 13, June 2022,. http://dx.doi.org/10.3389/fpsyt.2022.869337.

[19] Hamilton, Hayley A., *et al.* "Debt stress, psychological distress and overall health among adults in ontario." *Journal of Psychiatric Research,* vol. 111, April 2019, pp. 89-95. http://dx.doi.org/10.1016/j.jpsychires.2019.01.008.

[20] Ryu, Soomin, and Lu Fan. "The relationship between financial worries and psychological distress among U.S. adults." *Journal of Family and Economic Issues,* vol. 44, no. 1, February 2022, pp. 16-33. http://dx.doi.org/10.1007/s10834-022-09820-9.

[21] Ramón-Arbués, Enrique, *et al.* "The prevalence of depression, anxiety and stress and their associated factors in college students." *International Journal of Environmental Research and Public Health,* vol. 17, no. 19, September 2020,. http://dx.doi.org/10.3390/ijerph17197001.

[22] Wahed, Wafaa Yousif Abdel, and Safaa Khamis Hassan. "Prevalence and associated factors of stress, anxiety and depression among medical fayoum university students." *Alexandria Journal of Medicine,* vol. 53, no. 1, March 2017, pp. 77-84. http://dx.doi.org/10.1016/j.ajme.2016.01.005.

[23] Muñoz, Ismael G., and Alexis R. Santos-Lozada. "Educational attainment and psychological distress among working-age adults in the united states." *SSM - Mental Health,* vol. 1, December 2021,. http://dx.doi.org/10.1016/j.ssmh.2021.100003.

[24] Farhane-Medina, Naima Z., *et al.* "Factors associated with gender and sex differences in anxiety prevalence and comorbidity: A systematic review." SAGE Publications, *Science Progress,* vol. 105, no. 4, October 2022,. http://dx.doi.org/10.1177/00368504221135469.

[25] Samreen, Sana, *et al.* "Prevalence of anxiety and associated factors among pharmacy students in Saudi Arabia: A cross sectional study." *BioMed Research International,* vol. 2020, no. 1, January 2020,. http://dx.doi.org/10.1155/2020/2436538.

[26] Lee, Jungmin, *et al.* "Stress, anxiety, and depression among undergraduate students during the COVID-19 pandemic and their use of mental health services." *Innovative Higher Education,* vol. 46, no. 5, April 2021, pp. 519-538. http://dx.doi.org/10.1007/s10755-021-09552-y.