

Prevalence and factors associated with anxiety disorder in undergraduate students of Peshawar, kpk, Pakistan: a cross-sectional study

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World Journal of Advanced Research and Reviews, 2024, 23(03), 2942–2955

Publication history: Received on 30 July 2024; revised on 24 September 2024; accepted on 26 September 2024

Article DOI: <https://doi.org/10.30574/wjarr.2024.23.3.2756>

Abstract

Background: Anxiety is a widespread mental health concern that impacts a significant portion of the general population. Functional impairment and negative effects on quality of life are associated with it.

Objectives: To assess the prevalence of anxiety among undergraduate students in Peshawar and determine the factors associated with it.

Methodology: A cross-sectional study design was employed and 400 undergraduate students were included in the study from Peshawar, Pakistan. Data was gathered from various institutions located in Peshawar including The University of Peshawar (UOP), the Department of gender studies, the Department of Peace and Conflict Studies, and the Department of pharmacy from The University of Peshawar (UOP), Kabir Medical College, Sardar Begum Dental College (SBDC), Jinnah College for Women (GCW). The Hamilton Anxiety Rating Scale (HAM-A) was employed to analyze the prevalence of anxiety among students. SPSS version 26 was employed to analyze the data. Chi-square was used to find the association between different factors and anxiety. A p-value of less than 0.05 was considered significant.

Results: The mean age of the participants was 20.04±2.26 years. A total of 138 participants (34.5%) were male, while 262 participants (65.5%) were female. The overall prevalence of anxiety among undergraduate students of Peshawar came out to be 50.5%. Anxiety was strongly linked to dissatisfaction with family relationships (p-value = 0.00), dissatisfaction with career goals (p-value = 0.03), and the use of illicit drugs (p-value = 0.02). Additionally, physical discomfort (p-value = 0.00), low self-confidence (p-value = 0.00), and experiencing mental trauma in the past year (p-value = 0.00) were significantly associated with increased anxiety. Furthermore, anxiety was related to experiencing physical trauma (p-value = 0.04) and struggling with comfortable sleep (p-value = 0.00).

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Conclusion: This study demonstrates that anxiety is prevalent among undergraduate students in Peshawar. Developing targeted interventions to alleviate anxiety in this population may be facilitated by addressing these factors.

Keywords: Anxiety; Undergraduate Students; Peshawar; Hamilton Anxiety Rating Scale

1. Introduction

Anxiety is a prevalent mental health issue that affects a large portion of the general population. It is linked to functional impairment as well as negative effects on quality of life. In recent years, there has been a growing concern regarding the mental health of university students. This issue has been fueled by the fact that a wide range of anxiety rates that are not particular have been documented worldwide among undergraduate university students (1). A pooled prevalence of 21% was discovered in a review conducted by Sheldon et al (2), which revealed that both depression and suicide-related outcomes are prevalent among university students. Nevertheless, anxiety is one of the most frequently reported mental health issues that university students encounter (3). Higher education is usually associated with the highest incidence of mental health disorders (4,5); prevalence rates are considerably higher among undergraduate health students (6). In any given year, it is estimated that 12% to 46% of university students experience mental health conditions (4,5). Undergraduate students may experience anxiety due to a variety of factors, such as stress, a lack of social support, including from family and friends, a heavy workload and volume of study, lack of sleep, financial worries, and unfair treatment by teachers and peers, all of which can have an adverse effect on academic performance (4,6,7). Similarly, high rates of mental health disorders among undergraduate health students are also caused by increased workloads and competition, the students' interpersonal interactions with their future patients, a lack of emotional support, a stressful work environment, and limited leisure activities (8,9). During the university years, other circumstances outside of the classroom may also contribute to the development of mental health issues. Among these include negative body image sentiments, emotions of inadequacy on both a personal and professional level, financial difficulties, and the impact of the environment and climate (10,11). Starting college or university is a significant milestone in a student's life. University life is a time of growing responsibilities that mark the start of adulthood. It involves finding a way to juggle academic performance, extracurricular activities, personal and romantic relationships, finances, and, in some cases, part-time work. Researchers have explored these various aspects of university life (12,13). These essential aspects of college and university life require individuals to adapt and find a healthy work-life balance to manage the daily stresses that come with increasing pressures and expectations (14). However, this stage of student life is frequently marked by common mental health issues like anxiety, depression, sleep disturbances, and eating disorders, among others (15).

Through extensive research, student and study-related anxiety has been divided into two main categories: test anxiety and social anxiety. Test anxiety is a common experience for many students, causing them to feel fearful and apprehensive when it comes to important assessments like tests, quizzes, and exams (16). This anxiety is usually temporary, occurring only during the assessment phase and then subsiding afterward. Research highlights the importance of test anxiety as a significant factor contributing to academic decline among students, which in turn can have long-term effects on their future careers (17). On the other hand, social anxiety refers to a student's concerns about interacting with others in the academic setting, whether it's with classmates or friends, during extracurricular activities, with teachers, or during presentations. This behavior can result in students missing class lectures and group assignments/discussions, and in more severe cases, completely disregarding the university's attendance policy (18).

A study examined the prevalence of depression, anxiety, and stress among university students in Sialkot, Pakistan. Information was collected through a survey conducted at three universities in Sialkot, using a simple random sampling technique. A total of 500 university students were included in the study, with the levels of depression, anxiety, and stress measured using the DASS-21 scale. A significant number of students reported experiencing depression, anxiety, and stress. The study's findings were applied broadly to anxiety related to studying, without differentiating between social anxiety and test anxiety (19). A cross-sectional study was conducted at Aga Khan University, focusing on a sample of 283 students from various programs including medical school, school of nursing, and midwifery and dental hygiene program. All individuals exhibited stress and anxiety levels that exceeded the established thresholds (20). During the COVID-19 pandemic, a cross-sectional study found that a significant number of nursing students, especially females, hostel residents, and final-year students, experienced a high prevalence (51%) of anxiety and depression. A qualitative analysis has shed light on the difficulties faced by academics during the COVID-19 pandemic. The analysis revealed themes such as a lack of preparedness, a wide range of emotions, and a sense of humility in their submissions. These findings emphasize the importance of implementing targeted interventions and support systems to address these challenges (21). Previous research on mental health issues suggests that students are often required to handle the pressures of future demands, stressors, and increased responsibilities in both academic and social aspects of their lives. This can contribute to mental health problems among university students. The prevalence and frequency of this

phenomenon differ around the world due to a range of factors. At present, mental health problems are widely recognized as a significant public health issue, contributing to a third of global disability (22). It has been observed that Asian countries tend to experience higher levels of depression, anxiety, and stress compared to other nations. A recent study on medical students in India revealed alarming rates of depression, anxiety, and stress, with percentages as high as 51.3%, 66.9%, and 53% respectively (23). Prior studies conducted on university students in Pakistan indicated a significant occurrence of depression and anxiety.

In a study conducted in 2013, it was found that a small percentage of individuals experienced low levels of stress, while the majority reported moderate levels of stress. A smaller portion of participants reported high levels of stress. The study specifically focused on medical college students in Pakistan (24). A study conducted on medical students in Wah, Pakistan revealed a higher prevalence of anxiety (47.7%) compared to depression (35.1%) (25). A study conducted in Karachi, Pakistan revealed that 53.43% of university students were found to be experiencing depression. Female students in the sample displayed a significantly higher level of depression, with 61% reporting symptoms, compared to male students at 38.0% (26). A recent study on medical students in Islamabad revealed alarming rates of depression (40.9%) and anxiety (74.2%) among the participants. 15 Medical students at Nishtar Medical College, Multan were discovered to exhibit elevated levels of anxiety and depression (27). A recent study conducted on medical students in Pakistan found that academic stressors have a profound impact on inspiring learning and fostering a sense of competition among students. However, these stressors can also lead to feelings of helplessness and contribute to anxiety, which can have a negative impact on students' academic performance (28). Over the past few years, there has been a growing recognition of the impact of anxiety disorders on the academic performance and well-being of undergraduate students worldwide. Nevertheless, there is a lack of extensive research and multicenter studies on this matter in Pakistan, specifically in Peshawar. Prior research has primarily concentrated on particular demographics, like students in nursing programs, resulting in a significant lack of knowledge regarding the overall undergraduate population and the various factors that impact them. It is essential to acknowledge and tackle this gap, as undergraduate students encounter distinct stressors that can intensify anxiety. These stressors include academic pressure and social challenges. The purpose of this study is to explore the frequency of anxiety among undergraduate students in Peshawar and analyze the factors linked to this mental health condition.

Objectives

To assess the prevalence of anxiety among undergraduate students in Peshawar and determine the factors associated with it.

2. Material and methods

The study design employed in this research was a cross-sectional approach to assess the occurrence of anxiety disorders and determine the factors linked to them among undergraduate students in Peshawar, Pakistan. The study focused on undergraduate students from various universities in Pakistan. Data were gathered from various institutions located in Peshawar:

- Departments of Gender Studies, the Department of Peace and Conflict Studies, and the Department of pharmacy, from The University of Peshawar (UOP).
- Kabir Medical College
- Sardar Begum Dental College (SBDC).
- Jinnah College for Women (GCW).

After taking ethical approval from the university, 400 undergraduate students were chosen to participate in the study. Participants were chosen using a probability sampling technique. The data collection process started in December 2022. The fieldwork began in August 2023. The severity of anxiety symptoms was measured using the Hamilton Anxiety Rating Scale (HAM-A), a well-established instrument for evaluating anxiety levels. Students from the specified departments and institutions were reached out to through official channels and online Google forms. All participants provided their consent before data collection began. The HAM-A was conducted consistently and reliably to ensure accuracy in responses. The Hamilton Anxiety Rating Scale (HAM-A) is a commonly employed and extensively validated instrument for assessing the intensity of a patient's anxiety. The HAM-A assesses 14 parameters and requires approximately 15-20 minutes to conduct the interview and generate the scores. Every item is evaluated using a 5-point scale, with 0 indicating no presence of anxiety and 4 indicating severe anxiety. The data was analyzed using SPSS version 26. Descriptive statistics offered a comprehensive view of the prevalence of anxiety. Chi-square tests were used to investigate the relationships between anxiety and categorical variables, including gender, academic department, and year of study. A p-value of less than 0.05 was considered significant.

3. Results

The mean age of the participants was 20.04 ± 2.26 years. Out of 400, 73 participants were from Kabir Medical College, 50 participants were from Sardar Begum Dental College, 75 participants were from Jinnah College for Women, 147 participants were from the Department of Pharmacy, University of Peshawar, 23 were from the gender study department, 31 participants were from Peace and conflict department, University of Peshawar (Figure 2)

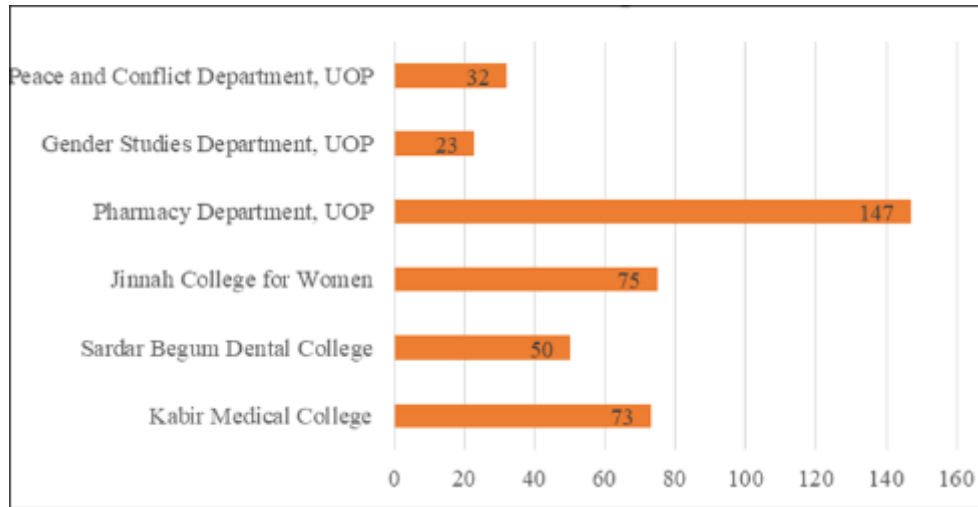


Figure 1 Distribution of Participants

3.1. Demographics of Participants

A total of 138 participants (34.5%) were male, while 262 participants (65.5%) were female. Most participants lived at home, with 267 (66.75%), compared to 133 (33.25%) who resided in a hostel. Out of 200 participants, 47 (11.75%) reported smoking, while 353 (88.25%) were non-smokers. 88 (22%) participants reported that they do not exercise, while 117 (29.25%) exercised rarely, 152 (38%) exercised sometimes, and 43 (10.75%) exercised regularly. A majority of participants, 357 (89.25%), reported never using illicit drugs, while 27 (6.75%) used them rarely, and 16 (4%) used them sometimes. 140 participants (35%) experienced physical discomfort. Out of 200 participants, 96 participants (24%) had a chronic illness. A total of 64 participants (16%) reported a family history of illness. 144 participants (36%) reported to experience the death of a family member. 49 participants (12.25%) reported to experience the death of a classmate. Most participants, 303 (75.75%), reported having comfortable sleep, while 96 (24%) reported to have an uncomfortable sleep. 220 participants (55%) reported sleeping for 7 hours or less, and 180 (45%) slept for more than 7 hours. 59 participants (14.75%) had reported experiencing physical trauma in the past year. 110 participants (27.5%) reported to experience mental trauma in the past year. 79 participants (19.75%) reported to had low self-confidence, 189 (47.25%) had moderate self-confidence, and 132 (33%) had high self-confidence. Participants' academic performance was rated as poor by 16 (4%), good by 185 (46.25%), very good by 129 (32.25%), and excellent by 70 (17.5%). The percentages for the last exam scores were distributed as follows: 15 participants (3.75%) scored 50%, 97 (24.25%) scored 60%, 91 (22.75%) scored 70%, 115 (28.75%) scored 80%, and 82 (20.5%) scored 90%. 271 participants (67.75%) reported that they studied for 4 hours or below, while 129 (32.25%) reported that they studied for more than 4 hours. 269 participants (67.25%) reported a workload of 9 hours or below, and 131 (32.75%) reported a workload of more than 9 hours. 15 participants (3.75%) reported to be highly dissatisfied, 35 (8.75%) were neutral, 120 (30%) were satisfied, and 230 (57.5%) were very satisfied with their relationship with their families. 12 participants (3%) reported being dissatisfied with family income, 19 (4.75%) were neutral, 36 (9%) were satisfied, and 333 (83.25%) were very satisfied with their family income. 12 participants (3%) reported to be highly dissatisfied, 14 (3.5%) were dissatisfied, 89 (22.25%) were neutral, 171 (42.75%) were satisfied, and 114 (28.5%) were highly satisfied with their career goals. 217 participants (54.25%) consumed beef no more than 2 days per week, while 183 (45.75%) consumed it for 2 or more days per week. 188 participants (47%) consumed chicken no more than 2 days per week, and 212 (53%) consumed it for 2 or more days per week. 99 participants (24.75%) consumed vegetables no more than 2 days per week, while 301 (75.25%) consumed them for 2 or more days per week. 89 participants (22.25%) consumed fruits no more than 2 days per week, and 311 (77.75%) consumed them for 2 or more days per week. 16 (4%) participants reported that their father was not alive. 15 participants (3.75%) reported that their mother was not alive (table 1).

Table 1 Demographics of Participants

Demographics of Participants		Frequency	Percentage
Gender	Male	138	34.5
	Female	262	65.5
Living Place	Home	267	66.75
	Hostel	133	33.25
Smoking	Yes	47	11.75
	No	353	88.25
Exercise	No	88	22
	Rarely	117	29.25
	Sometimes	152	38
	Regularly	43	10.75
Use of illicit Drugs by Students	Never	357	89.25
	Rarely	27	6.75
	Sometimes	16	4
Physical Discomfort	Yes	140	35
	No	260	65
Chronic Illness in Students	Yes	96	24
	No	304	76
History of Illness in Students' Family	Yes	64	16
	No	336	84
Death of Family Member of Student	Yes	144	36
	No	256	64
Death of Classmate of Student	Yes	49	12.25
	No	351	87.75
Comfortable Sleep	Yes	303	75.75
	No	96	24
Sleep Duration of Students	7 Hours or Less	220	55
	More than 7 Hours	180	45
Physical Trauma Experienced by the Student in the last one year	Yes	59	14.75
	No	343	85.75
Mental Trauma Experienced by the Student in the Last one Year	Yes	110	27.5
	No	290	72.5
Students Self Confidence	Low	79	19.75
	Moderate	189	47.25
	High	132	33
Students Academic Performance	Poor	16	4

	Good	185	46.25
	Very Good	129	32.25
	Excellent	70	17.5
Students Last Exam Percentage	50%	15	3.75
	60%	97	24.25
	70%	91	22.75
	80%	115	28.75
	90%	82	20.5
Study Hours	4 Hours or Below	271	67.75
	Above 4 Hours	129	32.25
Work Load from Institution (in hours)	9 Hours or Below	269	67.25
	More than 9 Hours	131	32.75
Satisfaction with Family Relationships	Highly Dissatisfied	15	3.75
	Neutral	35	8.75
	Satisfied	120	30
	Very Satisfied	230	57.5
Satisfaction with Family Income	Dissatisfied	12	3
	Neutral	19	4.75
	Satisfied	36	9
	Very Satisfied	333	83.25
Satisfaction with Career Goals	Highly Dissatisfied	12	3
	Dissatisfied	14	3.5
	Neutral	89	22.25
	Satisfied	171	42.75
	Highly Satisfied	114	28.5
Beef Consumption by Students Per Week	No consumption or less than 2 days	217	54.25
	Consumption for 2 or more than 2 days	183	45.75
Chicken Consumption by Students Per Week	No consumption or less than 2 days	188	47
	Consumption for 2 or more than 2 days	212	53
Vegetables Consumption by Students Per Week	No consumption or less than 2 days	99	24.75
	Consumption for 2 or more than 2 days	301	75.25
Fruits Consumption by Students Per Week	No consumption or less than 2 days	89	22.25
	Consumption for 2 or more than 2 days	311	77.75
Father Alive	Yes	384	96
	No	16	4
Mother Alive	Yes	385	96.25
	No	15	3.75

3.2. Outcomes of Hamilton Anxiety Rating Scale

Overall, out of 400 participants, 202(50.5%) participants undergraduate students reported to have anxiety. It was reported that, in Kabir Medical College, out of 73 participants, 33 (45.2%) participants were found to have anxiety, in Sardar Begum Dental College out of 50 participants, 26(52%) participants were reported to have anxiety. Out of 75 participants from Jinnah College for Women, 43(57.3%) participants had anxiety. From different departments of Peshawar University, 66(44.9%) participants from the department of Pharmacy had anxiety, 14(60.9%) participants from the department of gender studies had anxiety, 20(62.5%) participants from the Peace and conflict department reported to have anxiety (Table:2)

Table 2 Prevalence of Anxiety (HAM-A) in Undergraduate Students

Included Universities	Total Students	UG Students with Anxiety	Percentage (%)
Kabir Medical College	73	33	45.2
Sardar Begum Dental College	50	26	52
Jinnah College for Women	75	43	57.3
Pharmacy Department, UOP	147	66	44.9
Gender Studies Department, UOP	23	14	60.9
Peace and Conflict Department, UOP	32	20	62.5
Total	400	202	50.5

3.3. Factors associated with Anxiety

There was a significant relationship between anxiety and satisfaction with family relationships (p-value= 0.00). Participants who were highly dissatisfied with their family relationships were more likely to experience anxiety. No significant relationship was found between anxiety and gender (p-value=0.26). The living place of students did not show a significant association with anxiety (p-value =0.64). Satisfaction with household income did not significantly relate to anxiety(p-value=0.22). There was a significant association between anxiety and satisfaction with career goals (p-value=0.03). Participants who were highly dissatisfied with their career goals were more likely to experience anxiety. Smoking was not significantly associated with anxiety (p-value=0.11). Exercise status was approaching significance with anxiety (p-value=0.05). This suggests a potential but not definitive link between exercise levels and anxiety. A significant relationship was found between anxiety and the use of illicit drugs (p-value=0.02). Students who never used illicit drugs were less likely to experience anxiety. There was a significant association between physical discomfort and anxiety (p-value=0.00). Participants who experienced physical discomfort were more likely to have anxiety. Self-confidence level is significantly related to anxiety(p-value=0.00). Students with low self-confidence were more likely to experience anxiety. No significant relationship was found between anxiety and a family history of mental illness (p-value=0.48). Academic performance did not show a significant association with anxiety, (p-value=0.51). The percentage of the last exam did not significantly relate to anxiety (p-value=0.08). There was no significant relationship between anxiety and the number of study hours (p-value=0.49). The workload from the institution showed an approaching significance with anxiety (p-value=0.06). A significant association was found between anxiety and experiencing physical trauma (p-value=0.04). Students who experienced physical trauma were more likely to have anxiety. There was a significant relationship between anxiety and mental trauma experienced in the past year (p-value=0.00). Students who experienced mental trauma were more likely to experience anxiety. The death of a family member did not significantly relate to anxiety (p-value=0.52). There was no significant relationship between anxiety and the death of a classmate (p-value=0.33). A significant association was found between anxiety and comfortable sleep (p-value=0.00). Students who did not have comfortable sleep were more likely to experience anxiety. The duration of sleep did not significantly relate to anxiety (p-value=0.59).

Table: 3 Factors Associated with Anxiety in Undergraduate Students

Association of Variables with Anxiety		Anxiety		Chi-Square	P-Value
		Yes	No		
satisfaction with family relationship	highly dissatisfied	7	8	18.381	0.00
	neutral	8	27		
	satisfied	50	69		
	very satisfied	132	98		
gender of student	male	73	64	1.277	0.23
	female	124	138		
living place of the student	Home	133	267	0.214	0.64
	Hostel	69	132		
satisfaction with household income	dissatisfied	3	9	4.369	0.22
	neutral	8	11		
	satisfied	15	20		
	highly satisfied	171	162		
satisfaction with career goals	highly dissatisfied	5	7	11.189	0.03
	dissatisfied	4	10		
	neutral	37	52		
	satisfied	82	89		
	very satisfied	69	44		
Smoking	yes	18	29	2.614	0.11
	no	179	173		
student's exercise status	no exercise	33	55	7.742	0.05
	rarely	57	60		
	sometimes	85	67		
	regularly	22	20		
use of illicit drugs by students	never	185	172	8.338	0.02
	rarely	7	20		
	sometime S	5	10		
physical discomfort	yes	48	92	19.642	0.00
	no	149	110		
student's self-confidence level	low	25	54	12.403	0.00
	moderate	101	88		
	high	71	60		
history of mental illness in the Family	yes	29	35	0.503	0.48
	no	168	167		

student's academic performance	poor	5	11	2.331	0.51
	good	92	93		
	very good	64	65		
	excellent	36	33		
student's last exam percentage	50%	3	12	8.206	0.08
	60%	56	41		
	70%	45	46		
	80%	54	61		
	90%	39	42		
student's study hours	4 or below 4hours	137	134	0.471	0.493
	above 4 hours	60	68		
work load from institution in hours	9 or below 9	124	145	3.547	0.06
	above 9 hours	73	57		
physical trauma experienced by student in last one year	yes	21	36	4.178	0.041
	no	176	166		
mental trauma experienced by student in last one year	yes	38	72	13.359	0.00
	no	159	130		
death of a family member of student	yes	68	76	0.417	0.52
	no	129	126		
death of a classmate of student	yes	21	28	0.949	0.33
	no	176	174		
comfortable sleep of student	yes	168	135	18.576	0.00
	no	29	67		
duration of sleep	7 or less than 7 hours	106	114	0.279	0.59
	more than 7 hours	91	88		

4. Discussion

The main objective of this study was to analyze the prevalence of anxiety among undergraduate students in Peshawar and determine the factors associated with it. The study concluded that 50.5% of undergraduate students taken from four renowned institutes in Peshawar, Pakistan were suffering from anxiety. The current study concluded that many factors are associated with anxiety in undergraduate students. Anxiety was found to have a significant association with satisfaction in family relationships. Individuals who expressed significant dissatisfaction with their family relationships had a higher likelihood of experiencing feelings of anxiety. In a similar vein, there was a significant association between career goal satisfaction and anxiety. Individuals who expressed significant dissatisfaction with their career aspirations were found to be more prone to experiencing feelings of anxiety. There was a significant association between students using illegal drugs and experiencing anxiety. Students who abstained from using illegal drugs were less prone to anxiety.

There was a significant association between physical discomfort and anxiety. Individuals who encountered physical discomfort had a higher likelihood of developing anxiety. In addition, there is a significant relationship between self-confidence levels and anxiety. Students who have low self-confidence are more prone to experiencing anxiety. Experiencing physical trauma in the past year was found to be closely linked to anxiety. Individuals who went through such trauma were more prone to experiencing anxiety. There was a significant association between mental trauma and anxiety in the past year. Students who went through mental trauma were more prone to experiencing anxiety.

Furthermore, anxiety was found to have a strong association with comfortable sleep. Students who struggled to get a good night's sleep were more prone to feelings of anxiety.

Students all over the world have been found to have increased rates of morbidities, which have been linked to mental health problems such as stress, anxiety, and depression. It is therefore possible for it to be deemed a subject of inquiry among the researchers who are more interested in the mental health and welfare of the student sample. There are substantial data that demonstrate the presence of anxiety among the students in Peshawar, Pakistan, according to the current research. The findings of this study were validated by the fact that the participants' response rate was one hundred percent (19). These findings of the current study are in line with those of several other investigations that have been carried out in Pakistan as well as in international locations. A survey that was conducted on medical students in Karachi recently revealed that 72 percent of them suffer from anxiety (29). Another study that was carried out in Karachi in 2019 on medical students in their final year found that students attending private colleges had higher levels of anxiety and tension, whereas students attending government colleges had higher levels of depression when compared to private college students (30). The findings of the current study are supported by additional information taken from recent studies conducted on undergraduate students in Pakistan. Considering that the prevalence of depression in the current sample is 75%, anxiety is 88.4%, and stress is 84.4%, this is higher than the prevalence of depression among undergraduate students of physiotherapy in Pakistan, which is 48.0%, anxiety is 68.54%, and stress is 53.2% (31). The findings of the current study are supported by additional research that was carried out on medical and dentistry students in Pakistan. The outcomes of this research showed that a high incidence of these psychological morbidities was observed among these students. Among these students, the prevalence of anxiety was also the highest, coming in at 41.9%, surpassing both the prevalence of depression and stress (32).

There is other very recent evidence from other countries that is also compatible with the findings that are being presented in the current study. According to the findings of a study conducted in 2019 on medical students in Jordan, the students were experiencing psychological and emotional difficulties (33). Among medical university students in Malaysia, the prevalence of stress was found to be 46.9%, anxiety was found to be 76.2%, and depression was found to be 60.2% correspondingly (34). Among university students, a high degree of prevalence of stress was found to be 62.4%, anxiety was found to be 64.3%, and depression was found to be 60.8%, according to another study that was conducted in Egypt and found to be comparable with the current findings. Once again, anxiety was the most common issue, with the highest rate of 64.3% in this particular sample (35). Following the findings of a study conducted on medical students in India, it was discovered that fifty percent of the students attending universities in India were impacted by mental health issues (23).

The prevalence of anxiety is increased by 26% when there are troubles in the family (36). A similar finding was reported by Obregón-Morales (2020), who demonstrated that the likelihood of experiencing depression was enhanced by a factor of more than two times when one was a member of a dysfunctional family (37). According to the findings of Shao et al. (2020), psychological symptoms of depression and anxiety were found to be connected with social support and family functioning (38). This might be explained by the fact that social support from family members is essential for coping with depression, and dysfunctional families would not be prepared to provide this support, which would increase the number of students who experience depressive symptoms (39,40). These findings are also in line with the findings of the current study.

A lack of physical exercise was found to be associated with increased feelings of both anxiety and depression, according to a study conducted by De Souza and colleagues (2021) (41). Although the data were gathered during the COVID-19 pandemic, another study (42) indicated that there was no significant association between physical activity and sadness or anxiety. This is even though the data were collected during the pandemic, which suggests that other factors may have played. It has been suggested that adults should engage in regular physical activity to reduce their probability of developing depression (43). Exercising causes physiological changes, such as higher endorphin levels and the maintenance of mitochondrial function and of the neurotransmitters serotonin, dopamine, and noradrenaline, which contribute to enhanced mood and decreased stress (44,45). This is supported by the fact that exercise induces these physiological changes. All these findings also support the findings of the current study. The findings of the current study are further supported by the findings of another study that demonstrated that the psychological consequences of physical or mental abuse can have a significant impact on mental health until adulthood. Furthermore, these consequences are a significant social problem that must be taken into consideration when dealing with mental health disorders which are prevalent among students (46,47).

Limitations

One of the limitations of this study is its cross-sectional design, which limits the ability to determine causality between anxiety and its related factors. Instead of providing longitudinal data, it only offers a snapshot of the situation. In addition, the use of multiple research centers might lead to selection bias as a result of differences in institutional environments and student demographics. This could potentially impact the applicability of the findings to a wider population of undergraduate students in Peshawar

5. Conclusion

Ultimately, this study reveals a prevalent level of anxiety among undergraduate students in Peshawar, as a substantial 50.5% of the participants reported experiencing notable levels of anxiety. The findings suggest that various factors are closely connected to this mental health issue. It is worth mentioning that feelings of discontent in family relationships and career aspirations, coupled with previous encounters of physical and emotional distress, are closely linked to increased levels of anxiety. In addition, feelings of physical discomfort, a lack of self-confidence, and difficulties with sleep can intensify levels of anxiety. Illegal drug use was also found to be a contributing factor to anxiety. The findings emphasize the complex nature of anxiety in students and emphasize the importance of specific interventions that address various aspects of their lives, such as family, career, psychology, and lifestyle. These interventions can help reduce anxiety and improve the mental well-being of undergraduate students.

Compliance with ethical standards

Disclosure of conflict of interest:

In compliance with the ICMJE uniform disclosure form, all authors declare the following: **payment/services information:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** all authors have declared that they have no financial relationships at present or within the previous 3 years with any organizations that might have an interest in the submitted work. **Other relationships:** all authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

Statement of ethical approval

The local institutional review board deemed the study exempt from review.

Statement of informed consent

Informed consent was obtained from all the institutions from which data was collected including all participants in this study.

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