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Research Paper

Prevalence and Psychometric Assessment of Stress and Anxiety in College Students

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ABSTRACT

Rationale: Stress and anxiety are prevalent among university students, affecting both mental health and academic performance. **Purpose:** This study aimed to determine the prevalence of stress and anxiety among pharmacy students and examine the connection between perceived stress and quality of life. **Method:** A cross-sectional survey of 80 pharmacy students (B.Pharm and M.Pharm) was conducted using the Perceived Stress Scale (PSS-10) and the World Health Organization Quality of Life Scale (WHOQOL-BREF) questionnaire. Descriptive statistics and mean comparisons were used. **Findings:** The mean PSS score was 20.48, indicating moderate to high stress levels. Study load (56%) and anxiety (49%) were the most common stressors. Quality of life scores were highest in environmental health and lowest in social relationships. **Implications:** Educational institutions should consider implementing targeted stress management interventions to enhance students' overall quality of life.

Keywords: *Anxiety, College students, Perceived Stress Scale, Quality of life, WHOQOL-BREF*

Stress can be defined as an imbalance between demands and the ability to overcome these demands (Lazarus & Folkman, 1984). Stress describes how the body reacts to external changes and also the body's nonspecific response to every demand for change. Excessive stress can cause psychological problems such as depression and anxiety (Waghachavare, Dhumale, Kadam, & Gore, 2013).

Anxiety is the physiological response of the brain to threats, a stimulus that everyone tries to avoid (Beesdo, Knappe, & Pine, 2009). According to earlier research, anxiety symptoms were present in 18.5% of female students and 10.4% of male students (Mancevska, Bozinovska, Tecce, Pluncevik-Gligoroska, & Sivevska-Smilevska, 2008). Students

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frequently experience anxiety disorders arising from various psychosocial factors. They may exhibit maladaptive responses to stressors, particularly when adjusting to new or challenging environments. Moreover, such inaccurate or disproportionate reactions often stem from selective attention to negative environmental cues, distorted information-processing patterns, and overly pessimistic self-evaluations of their own coping abilities. Anxiety disorders can disrupt learning because they impair information processing, reduce concentration, and then weaken memory. While this study examined science students, the findings are applicable to pharmacy students as part of the wider health professions (Jamali et al., 2013).

Numerous factors can cause stress in students, including academic pressures, personal situations, the environment, and economic circumstances (Marshall, Allison, Nykamp, & Lanke, 2008). The extent of stress depends on individual characteristics as well as social and personal resources. It is important to monitor stress because it has been consistently linked to negative impacts on health and quality of life (Misra & Castillo, 2004) and (Ribeiro et al., 2018).

Stress can have a wide impact on the physical health, mental health, and academic performance of university students (Beck, Hackett, Srivastava, McKim, & Rockwell, 1997). Beck *et al*. (1997) found high levels of stress among nursing, medicine, pharmacy, and social work program students, which aligns with findings across health professional education. Other evidence shows that stress during undergraduate study can have long-term effects on graduates when they begin practicing as professionals. For example, a study reported stress-related issues among New Zealand health professionals, which have implications for patient safety (Dowell, Westcott, McLeod, & Hamilton, 2001). Previous research on health profession students has been reported from the United States (Marshall et al., 2008), the United Kingdom (Gallagher et al., 2014), and the United Arab Emirates.

In the present competitive age, the younger generation is increasingly vulnerable to stress, which often results in psychological, physical, and behavioral problems. Taking these factors into account, it is important to understand the stress and emotional adjustments of today's youth. Many studies report a strong relationship between stress and college students, showing that the existence of stress depends on the presence of stressors. Stressors can be defined as anything that challenges an individual's adaptability or stimulates their physical or mental state.

In the present study, academic stress among students has been widely researched. Identified stressors include excessive assignments, poor relationships with peers or lecturers, and family-related problems. The inference of this study is to evaluate various stressors by psychometric scales and students' management strategies for stress, to assess anxiety and quality of life.

METHODS

Participants and Sample Collection

A survey was conducted to evaluate academic stress and quality of life among pharmacy graduates (UG and PG) using a paper-based questionnaire in English.

Measures

Survey Measurements

A structured questionnaire was designed with three main categories.

1. Demographic information – including age, gender, education level, employment status, and marital status.
2. Types of stress – including substance abuse, psychosis, perfectionism, bullying, financial issues, medical conditions, social phobia, self-esteem, difficulties with peers and staff, family issues, lack of support, depression, study load, and anxiety.
3. Practices to control stress – including exercise, spending time with family and/or friends, religion or spirituality, relaxation techniques, and spending time in nature.

Psychometric scales

i) **Perceived Stress Scale (PSS-10):** The PSS is the most widely used psychological instrument for measuring the perception of stress. It measures the degree to which situations in one's life are appraised as stressful. The PSS contains 10 statements (A1–A10), each rated on a 5-point Likert scale (Never = 0, Almost never = 1, Sometimes = 2, Fairly often = 3, Very often = 4). Negatively worded items are reverse scored. The scale assesses stressful experiences during the previous four weeks. Overall scores range from 0 to 40, with higher scores indicating greater perceived stress. The PSS has been widely validated as a reliable measure of stress and reactions to stressful circumstances. It was therefore selected for use in this study (Andreou et al., 2011).

ii) **World Health Organization Quality of Life Scale (WHOQOL-BREF):** The WHOQOL-BREF (Field Trial Version) produces a profile with four domain scores (physical health, psychological health, social relationships, and environmental health) and two individually scored items on overall quality of life and general health. All four domain scores are scaled in a positive direction, meaning higher scores indicate a higher quality of life. The instrument consists of 26 items rated on a 5-point scale. The physical health domain includes facets such as activities of daily living, energy, fatigue, work capacity, and rest. The psychological domain covers positive and negative feelings, self-esteem, and body image. The social domain incorporates personal relationships and social support, while the environmental domain includes financial resources, freedom, safety, and security (Skevington, Lotfy, & O'Connell, 2004). Scoring is carried out by summing items within each domain, producing raw domain scores that vary depending on the number of items. These are then transformed into a 4–20 scale, comparable with the WHOQOL-100. The mean score of items within each domain is used to calculate the final domain score. As per World Health Organization (1996) guidelines, higher scores denote a better quality of life (Skevington SM., 1999).

Procedure

Data were collected using the structured questionnaire administered to participants in paper-based form. Participation was voluntary, and informed consent was obtained. The study period was carried out during January to March 2023.

Statistical Analysis

Statistical analysis was conducted using GraphPad Prism version 5. Results of quantitative variables were reported as mean (M) and standard deviation (SD). Results are expressed as Mean ± SD.

RESULTS

During the survey, a total of 80 responses were collected from both undergraduate and postgraduate students. About 12% of the participants were male, and 88% were female. The

age range was between 18–25 years; 4% were married, and other socio-demographic details are presented in **Table 1**.

Table 1: Socio-demographic Profile (N =80)

Variables	**Mean/ Frequency (%)**
Age	
18-20	10 (12 %)
21-22	52 (65%)
23-25	18 (23%)
Gender	
Male	10 (12%)
Female	70 (88%)
Education	B. Pharmacy-III & IV years; M. Pharmacy
Residential area	In and around Hyderabad
Employment status	
Students	80 (100 %)
Employed	-
Unemployed	-
Others	-
Marital Status	
Single	79 (96%)
Married	1 (4%)

Different stressors were evaluated in the subject respondents who participated in the study. Among various stressors, study load (56%) and anxiety (49%) were the major stressors in their academics. A range of 20-35% of respondents reported other factors like financial issues, social phobia and family issues as remarkable factors, which affect their academic career. The details of various stressors among the participants are shown in **Table 2** and **Figure 2**.

Table 2: Types of stressors among the respondents

Stressors	**Response Mean/Frequency**
Substance abuse	3 (4%)
Psychosis	9 (11%)
Perfectionism	16 (20%)
Bullying	6 (8%)
Financial issues	26 (33%)
Medical conditions	15 (15%)
Social phobia	23 (29%)
Self -esteem	9 (11%)
Difficulty in dealing with peers and Staff	25 (31%)
Family issues	21 (26 %)
Lack of Support	16 (20%)
Depression	20 (25%)
Study load	45 (56%)
Anxiety	39 (49%)

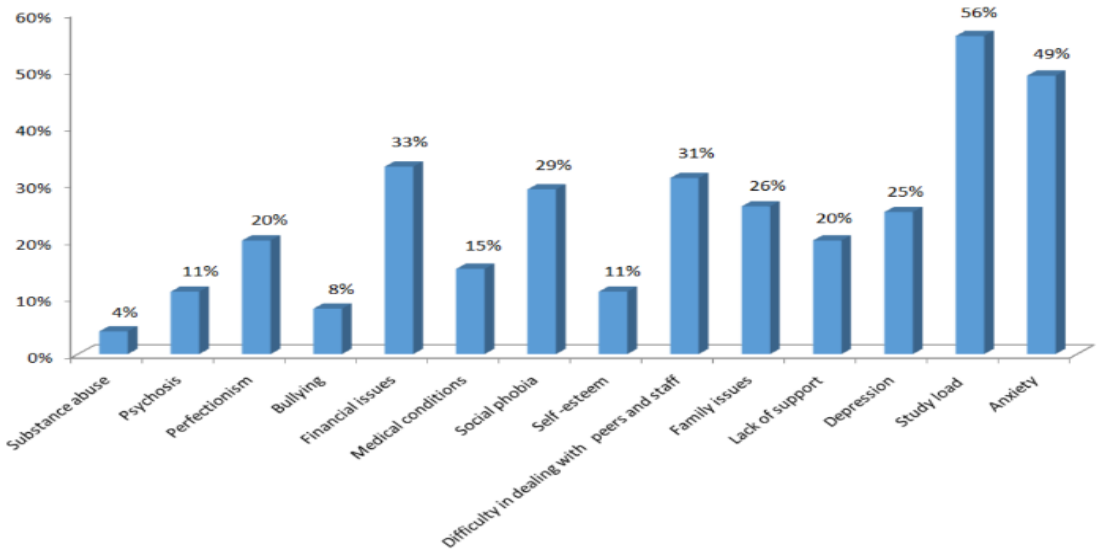

Figure 2: Percentage of stressors among the respondents

A large majority (80%) of participants reported listening to music as their main stress-relief strategy. Spending time with family and friends (63%) was the second most common approach, followed by spending time in nature (51%) and relaxation techniques/meditation (28%). The details are shown in **Table 3** and **Figure 3**.

Table: 3 Types of distresses among the respondents

Distresses	**Response Mean/Frequency**
Exercise	18 (25%)
Spend time with family and/or friends	50(63%)
Relaxation techniques/ meditation	22(28%)
Religion or spirituality	11(14 %)
Spend time in nature	43 (51%)
Counselling	2 (3%)
Listen to music	64(80%)
Others (Please Specify)	11(14%)

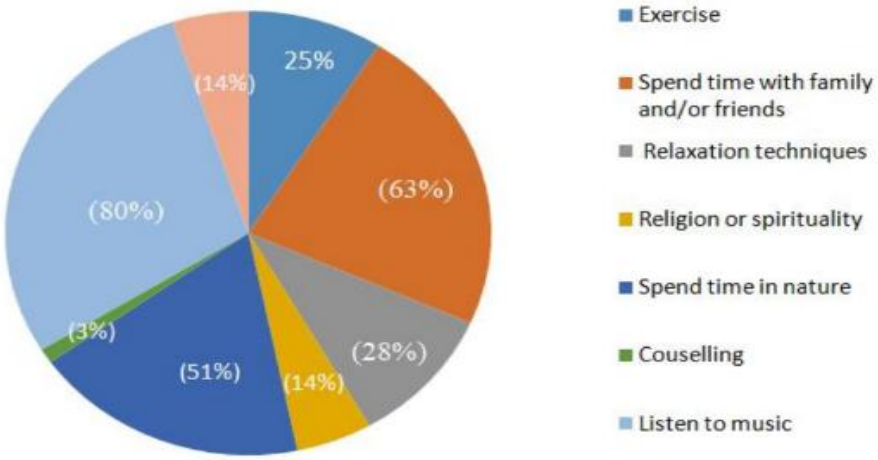

Figure 3 Types of distress among the respondents

Perceived Stress Scale (PSS)-10:

The use of the PSS-10 was appropriate for this population, as it has been widely validated across community and student samples to capture unpredictability, uncontrollability, and overload in daily life (Cohen, Kamarck, & Mermelstein, 1983). In this study, the mean Perceived Stress Scale score was 20.484, which is higher than that of average score (Cohen & Janicki-Deverts, 2012) and consistent with students studying healthcare courses, as shown in Table 4.

Table 4: Mean of the item Perceived Stress Scale (PSS) by students

S.NO	Item	Mean	SD
1	felt upset because of something that happened unexpectedly	2.0875	0.2609
2	felt unable to control the important things in your life	2.325	0.2906
3	felt nervous and stressed	2.512	0.3141
4	felt confident about your ability to handle your personal problems	1.325	0.1656
5	felt that things were going your way	2.087	0.2609
6	could not cope with all the things that you had to do	1.850	0.2313
7	able to control irritations in your life	1.762	0.2203
8	felt on top of things	2.212	0.2766
9	felt angry because things that happened were out of your control	2.487	0.3109
10	felt difficulties were piling up so high that you could not overcome them	1.837	0.2297
Mean Score		20.4845	2.560

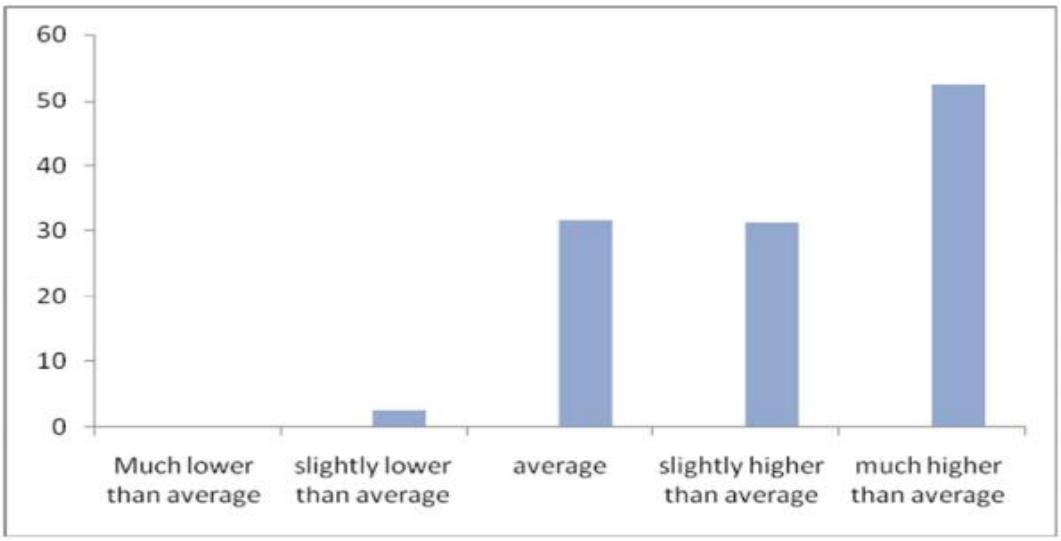

Figure 4: Different scores of PSS-10 among the students

World Health Organization Quality of Life (WHOQOL-BREF):

The mean WHOQOL-BREF score was 54.68 (SD = 16.68). Among the domains, the highest score was reported for Environmental Health (58.91 ± 16.62), while the lowest was for Social Relationships (47.44 ± 23.03). Results are summarized in **Table 5**.

Table 5: Mean of WHOQOL-BREF domains

Quality of Life dimension		Minimum	Maximum	Mean	Std. deviation
Domain I	Physical Health	17.85	75.1	53.721	11.61
Domain II	Psychological Health	8.3	91.6	58.655	15.465
Domain III	Social relationships	8.3	91.6	47.443	23.027
Domain IV	Environment	15.6	96.8	58.910	16.617
				54.682	16.68

DISCUSSION

This study focused on the experience of stress and quality of life among pharmacy students The average PSS score was 20.48 (SD = 2.56). The majority of students scored above the average on the PSS-10, indicating moderate to high stress levels. This aligns with findings from a previous study among final-year pharmacy students in Indonesia, which reported a mean PSS score of 29.87 (Kristina et al., 2020).

Based on the WHOQOL-BREF results, the average quality of life score was 54.68 (SD = 16.68). This suggests that pharmacy students at GRCP generally experience a fairly good quality of life, though this value is lower than that reported among Universitas Gadjah Mada students (63.62 ± 9.94; Kristina et al., 2020).

Students in the health sector are known to report a lower quality of life compared to the general population due to heavier academic demands, including activities such as preparing case reports. For example, Jamali et al. (2013) found that medical students had lower health-related quality of life, and these findings are relevant to other health professional students, including pharmacy students. Among the stress triggers identified in this study, coursework and workload ranked highest, followed by final-year projects, financial concerns, and family-related issues. Similarly, a study among pharmacy students in Malaysian universities reported that examinations and workload were the most common stressors, followed by projects or theses, financial problems, and environmental stressors (Alshagga et al., 2015).

The results of this study align with international findings that academic stress is a global concern. Misra & Castillo (2004) reported that international students experience greater academic stress compared to American students, emphasizing that academic demands, cultural adaptation, and social support systems strongly influence perceived stress levels. These findings further support the need for institutional interventions that consider both academic and non-academic stressors in academic education.

When comparing students across degree levels, master's and doctoral students reported that final projects, finances, and family responsibilities were the most significant stressors. In our study, students primarily managed stress by listening to music and spending time with family and friends. Spending time in nature and practicing meditation were also common coping strategies. Interestingly, 4% of students reported seeking psychological counseling to cope with stress.

In terms of quality-of-life domains, the lowest mean score was observed in the Social Relationships domain (47.44 ± 23.03), followed by the Physical Health domain. Low social relationship scores may be linked to increased time spent on the internet and social media platforms (e.g., Facebook, WhatsApp, Twitter), which can reduce direct social interaction. The relatively low Physical Health scores, which include items related to fatigue, stamina,

rest, daily activities, and work capacity, may reflect the heavy workload and limited rest time faced by students. These findings highlight how academic demands can drain stamina and negatively affect daily functioning.

The findings of this study are consistent with previous research. A systematic review by Ribeiro et al. (2018) found a negative relationship between stress and quality of life in college students, with higher stress associated with poorer physical and mental health. Similarly, Marshall et al. (2008) reported high stress and low health-related quality of life among pharmacy students, with stress and QOL negatively correlated. A study in Ghana also found a significant negative correlation between stress and different domains of quality of life among pharmacy students (Opoku-Acheampong et al., 2017). Collectively, these studies emphasize the need for both personal and institutional strategies to mitigate stress and improve pharmacy students' quality of life, while encouraging adaptive stress management strategies.

This study had several limitations. First, a convenience sampling method was used, which limits generalizability to the wider population. Second, the WHOQOL-BREF instrument, while widely validated, is a generic tool and may not capture comorbidities or specific factors affecting students. Third, the quality-of-life measurement was restricted to the past month, which may not reflect longer-term experiences, given that quality of life perceptions are influenced by changing conditions. Finally, the PSS is also a generic instrument that measures stress over the previous month; it does not capture stress specific to pharmacy students or long-term stress experiences.

CONCLUSION

The present study found significant negative correlations between stress levels and quality of life among pharmacy students. These results highlight the importance of integrating mental health support and stress management strategies into pharmacy education. Educational institutions should review and strengthen curricula, with particular attention to reducing excessive academic workload and fostering coping mechanisms, in order to enhance students' overall well-being. By prioritizing mental health, pharmacy programs can produce graduates with a higher quality of life, better resilience, and stronger academic and research capabilities.

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Conflict of Interest

The author(s) declared no conflict of interest.

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