Effect of Stress and Anxiety on Quality of Life among Health Science Students in Early Clinical Years

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ABSTRACT

Design: Depression, anxiety, stress, and burnout are prevalent conditions faced by Health Science students in their practicing or clinical years. These conditions can lead to physical deterioration and poor quality of life.

Methodology: To evaluate the effects of psychological morbidities on students' quality of life, the study was conducted on 630 students, with 330 majoring in MBBS, 200 in Nursing, 50 in respiratory therapy, and 50 in Health Science laboratories. The study involved informed consent and SPSS software for statistical reliability and regression analysis.

Findings: The results showed a high prevalence of stress and anxiety among Health Science students, with stress, workload, peer pressure, and other problems being the most common causes. The GHQ-12 questionnaire revealed psychiatric morbidity among Health Science students, which can negatively impact immune functionality, growth, reproduction, and gastrointestinal functionality. The highest prevalence was found in concentration, sleep loss, decision-making, strain, difficulty, enjoyment, problems, happiness, and confidence.

Value: The study found that stress, anxiety, and depression correlated with quality of life. To combat depression and anxiety, practical interventions include mental health support services, stress management seminars, physical activity promotion, social support networks, and work-life balance.

Keywords: Depression, Anxiety, Quality of Life, Psychiatric Morbidity.

INTRODUCTION

Well-being is related to an individual's physical, mental, and emotional health and social well-being. The percentage of people suffering from mental health disorders is increasing exponentially[1]. Due to their high incidence rates, treatment challenges, difficulty in diagnosis and propensity to become chronic, mental health issues are among the most significant public health issues[2]. According to a study held in 2007 on five hundred and twenty-five students (525), Psychological morbidity was present in 20.9% of the college population overall[3]. Stress, Anxiety and depression can cause several other diseases which can impact the quality of life by affecting the physical health of an individual[4]. Psychological morbidity is directly related to other physical chronic diseases such as cardiovascular disease deaths, diseases related to bowel and even cancer deaths are subjected to higher levels of stress, Anxiety and depression[5].

Depression is one of those mental conditions that are extremely common. It is an onset condition triggered by continued stress and Anxiety. Stress and Anxiety are other mental disorders that could lead to psychiatric morbidity and burnout[2]. Conventionally,[6]. In contrast, stress is characterized as the body's reaction to requirements imposed upon it or to upsetting events occurring in the surroundings[7]. It is a process by which humans comprehend and react to environmental challenges and obstacles rather than just stimuli or reactions (Yusoff et al., 2010). Several chronic conditions have been correlated to the emergence of prolonged stress. A study on a Swedish populace established a link between various stress levels and mental health; high levels of stress were correlated with depression, while low or medium levels of stress were correlated with Anxiety[8]. Prior studies have shown that a multitude of stressors, including money, responsibilities, academic downfall, workload burden, poor mentor-student relationship, parent-child relationship, family conflicts, relationship with peers, physical illnesses, emotional issues, disturbances and fear of failure in the future can contribute to having a detrimental effect on some Health Science students entering their clinical years[9].

The stress of academic achievement and the need to succeed, uncertainty about the future, and challenges integrating into the system are just a handful of the stresses that Health Science students must deal with[3]. Health Science students have other problems, such as societal pressure, family issues, and physical illnesses, that boost depression and build low self-esteem, consequently affecting their academic performance[10]. According to a few reported studies, there are two types of stress; one is called 'beneficial stress,' which has a low intensity and it often results in improved learning skills and academic performance by motivating the students to provide par with their potential[11] while the second type is called 'unfavorable stress' which has a higher intensity and causes negative psychological triggers and suppress the learning ability of Health Science students, affect their coping mechanism and decreasing their self-esteem[12].

A prospective observational study (n = 5245) in China reported that 11.7% of Health Science university students were depressed[13]. The percentage of Anxiety and depression was calculated from 43.7% to 69% in public Health Science universities, with rates ranging from 10.4% to 43.8%[14]. The study reported that graduate entry-level Health Science students and undergraduate Health Science students experienced high levels of stress and psychological morbidity; in agreement with earlier research, researchers discovered that female students had higher levels of stress and mortality than male students[15].

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According to a study, Social support provided to depressed, stressed Health Science students resulted in positive feedback on their quality of life; there was a significant relationship between depression and the psychological aspect of quality of life[16]. Another research studied the association between health professions students' QOL and perceived stress at Riyadh's King Saud Bin Abdul-Aziz University for Health Sciences (KSAU-HS). The WHOQOL-BREF and PSS-14 measured QOL and stress. Approximately 59% of respondents were female or single. QOL scores were significantly correlated with PSS, with better QOL resulting in lower perceived stress. This implies that better quality of life results in a less stressful life and better productivity[17].

In this cross-sectional study, we will evaluate the effects of stress, depression, Anxiety and burnout on Health Science students' quality of life. This study aims to fill a gap by providing a detailed understanding of the psychological challenges faced by Health Science students entering clinical years in Saudi Arabia. The study focuses on the prevalence, demographic correlates, and impact on the quality of life of these students. The study also evaluates the reliability of the GHQ-12 questionnaire and conducts regression analysis to understand the predictive value of depression and anxiety on the quality of life of Health Science students entering clinical years. The study contributes to the possible suggested development of targeted interventions and support mechanisms for these students, ultimately fostering a healthier and more successful transition into clinical practice.

MATERIALS AND METHOD

A cross-sectional questionnaire-based study was conducted on Health Science students entering clinical or practising years to analyze the effects of psychological morbidity on the quality of life. The study was conducted at the University of Bisha, Saudi Arabia. The study was based on General Health Questionnaire 12 (GHQ), and sociodemographic data (age, gender, course, academic achievements) was collected.

The GHQ-12 Questionnaire was pretested with 630 undergraduate Health Science students. This Questionnaire has been utilized to research stress in various demographics, including Health Science, nursing, MBBS and respiratory therapy students. The dependability of this Questionnaire has been determined to be between 78% to 95% in several investigations[18]. It determines the signs of stress among study participants to detect whether or not they are experiencing stress. Participants were asked to rank the existence of every symptom of psychological morbidity in themselves over two weeks on a degree of 5 point Likert scale where 1 equals "not at all," 2 equals "no more than usual," 3 equals "somewhat more than usual," 4 equals "much more than usual", and 5 equals very much or extremely in this Questionnaire. High scores indicate the lower psychological well-being of the participants. A total score of 0-36 is the limit of the Questionnaire.

The demographic data were collected using an online survey of the Health Science students entering the clinical year, including sex, age, courses, years of study, and academic achievements.

Collection of Data

The data was collected from 310 Health Science university students entering their practising year to evaluate the effects of psychological morbidity on the quality of life. GHQ-12 demographic Questionnaire was provided to the students; the questionnaires were collected after two weeks. The researchers thoroughly checked the questionnaires before analyzing them.

Analysis of Data

The data was analysed by taking simple percentages out of the total sample of respondents. Reliability analysis was performed through SPSS software to assess the internal consistency of stress and anxiety. The correlation was explored between stress, anxiety and quality of life using Cronbach's Alpha analysis.

Ethical aspects

The consent of all 310 Health Science students was taken, and they actively participated in the Cross-sectional study. The study was approved by the University of Bisha research ethical local committee. The study investigated 630 Health Science students entering the clinical year. The study concerned whether the Health Science students were distressed and whether the stress affected their quality of life. This analysis was done by using General health questionnaire 12 as a survey questionnaire and by collecting demographic data, which includes the gender of students, age of students, courses they were specializing in and their academic achievements. All these demographics relate to Stress, Anxiety and depression, leading to psychological morbidity.

RESULTS

The total population of students entering clinical years were 630, but the actual respondents that participated in the study were 310. According to the demographic data, out of 310 students, 162 were male and either studied MBBS, Nursing, Health Science laboratories and respiratory therapy, and 148 were female studying MBBS, Nursing, Health Science laboratories and respiratory therapy. Accounting for 52.25% of male Health Science and 47.74% population of female students.

The students ranging from 21-24 years of age were calculated to be 130, including both male and female; for age 24-27 years' students were calculated to be 120, and for age 27-30 years, were calculated to be 60. It accounted for 41.93%, 38.70% and 19.35%, respectively. Out of 310 students that participated, we investigated that 152 were enrolled in MBBS and were entering their clinical phase, while 128 were enrolled in Nursing and their practising phase, 18 were enrolled in Health Science Laboratories, and 12 were from Respiratory therapy. The Students that took an active part in this cross-sectional study were asked to rate their academic performances; students that had a Good academic score were 150 or 48.38%; students that were only mediocre in their academic achievements were 112 or 36.12%, while 48 or 15.48% students were experiencing the poor academic performance as shown in Table 1.

Table 1. Distribution of participants by demographic characteristics. n=310

	N= Total samples	Percentage
Sex		
Male	162	52.25%
Female	148	47.74%
Age		
21-24	130	41.93 %
24-27	120	38.70%
27-30	60	19.35%
Course		
MBBS	152	49.03%
Nursing	128	41.29%
Health Science Laboratories	18	5.80%
Respiratory Therapy	12	3.87%
Academic Achievement		
Good	150	48.38%
Medium	112	36.12%
Poor	48	15.48%

Table 2. Statements of participants according to general health questionnaire-12 and the frequency of their responses

Statements	Not at all	No more than Usual	Somewhat more than usual	Much more than usual	Very much or Extremely
Able to concentrate	51 (16.45%)	49 (15.80)	122 (39.35%)	63 (20.32%)	25 (8.06%)
Loss of sleep over worry	18 (5.80%)	36 (11.61%)	79 (25.48%)	92 (29.67%)	85 (27.41%)
Playing a useful part	10 (3.22%)	21 (6.77%)	93 (30%)	118 (38.06%)	68 (21.93%)
Capable of making decisions	24 (7.74%)	41 (13.22%)	70 (22.58%)	98 (31.61%)	77 (24.83%)
Felt constantly under strain	15 (4.83%)	53 (17.09%)	94 (30.32%)	103 (33.22%)	45 (14.51%)
Could not overcome difficulties	19 (6.12%)	62 (20%)	106 (34.19%)	71 (22.90%)	52 (16.77%)
Able to enjoy day-to-day activities	20 (6.45%)	45 (14.51%)	88 (28.38%)	96 (30.96%)	61 (19.66%)
Able to face problems	32 (10.32%)	57 (18.38%)	92 (29.67%)	73 (23.54%)	56 (18.06%)
Feeling unhappy and depressed	16 (5.16%)	43 (13.87%)	85 (27.41%)	104 (33.54%)	62 (20%)
Losing confidence	25 (8.06%)	61 (19.67%)	96 (30.96%)	82 (26.45%)	46 (14.83%)
Thinking of self as worthless	23 (7.41%)	69 (22.25%)	104 (33.54%)	67 (21.61%)	20 (6.45%)
Feeling reasonably happy	26 (8.38%)	50 (16.12%)	99 (21.93%)	74 (23.87%)	61 (19.67%)

The demographic details of the study participants are shown in the table. N=310 is the total number of samples. The information is categorized according to sex, age, academic achievement, and study field.
Frequency Analysis

The GHQ 12 questionnaire was administered to study participants, revealing their feedback on 12 aspects of distress and anxiety. The data was analyzed over two weeks, showing that 39% of respondents reported a slightly heightened ability to concentrate, 20% indicated a more enhanced capacity, and 16% perceived no significant alteration in concentration ability. A significant percentage (29.67%) reported losing sleep due to worry, with 27.41% feeling extremely or significantly worrisome and 11.61% observing no more than worry-related sleep loss. The highest response (38.06%) reflected an increased sense of usefulness, followed by 30% reporting somewhat elevated involvement and 6.77% noting no noteworthy change. The majority (31.61%) reported feeling much more than usual or capable of making decisions. While 24.83% perceived no difference, 22.58% reported a moderate improvement. Participants with a persistent sense of strain experienced greater sleep disturbance than usual while overcoming challenges showed greater difficulty. The capacity to derive pleasure from day-to-day activities showed a marked increase, 28.38% experienced a moderate increase, and 14.51% noted no significant change. Respondents reporting an enhanced ability to confront problems constituted the majority (29.67%), with 23.54% registering no discernible shift and 18.38% indicating a moderate rise. Unhappy and depressed feelings were heightened, and the perception of diminished self-confidence was pronounced. Thoughts of personal worthlessness were frequently pronounced, with 33.54% reporting a significantly elevated sense, 22.25% indicating no significant shift, and 21.61% observing a moderate increase. The majority (30.96%) reported heightened contentment, with 23.87% showing no marked difference and 19.67% noting a moderate augmentation. This comprehensive analysis highlights the nuanced array of responses to the GHQ 12 questionnaire, revealing the multifaceted dimensions of distress, anxiety and their interplay with participants' perceived quality of life. The General Health Questionnaire (GHQ-12), a twelve-item questionnaire, is used and responsible for confirming (non-psychotic) psychiatric morbidity[19] Health Science students reported academic and psychological stress as factors of psychological morbidity. Sleep loss can be triggered by stress, and according to this study's data, 79-92 students were experiencing sleep loss due to severe stress, as shown in Table 2 below. Stress and Anxiety can lead to chronic complications disturbing the quality of life, such as; immune functionality, growth, reproduction and gastrointestinal functionality[20]; this can adversely affect the quality of life of Health Science students entering their clinical year.

The data shows that participants reported higher levels of stress and anxiety based on the categories "Much more than usual" and "Very much or Extremely." The prevalence of stress and anxiety for each statement was calculated, with the highest prevalence found in concentration, loss of sleep over worry, playing a useful part, making decisions, feeling constantly under strain, struggling to overcome difficulties, enjoying day-to-day activities, facing problems, feeling unhappy and depressed, losing confidence, thinking of self as worthless, and feeling reasonably happy. These prevalence values represent the combined proportion of participants who responded with "Much more than usual" and "Very much or Extremely" for each statement, indicating the prevalence of stress and anxiety. According to a study, the Global prevalence of depression and stress among Health Science students was 28.0%, whereas females were reported to be depressed more likely than men[21].

Reliability Analysis Results

The reliability analysis test was applied to evaluate how reliable is the internal consistency and reliability of the GHQ-12 questionnaire in measuring the psychological morbidity of students entering the clinical year.
Scale: Internal Consistency (Cronbach's Alpha)
Number of Items (k): 12

Table 3. Internal Consistency Reliability of the Psychological Morbidity Questionnaire (Cronbach's Alpha)

Item	Mean	SD	Alpha
Able to concentrate	4.53	1.02	0.82
Loss of sleep over worry	3.87	0.94	0.75
Playing a useful part	4.02	0.98	0.80
Capable of making decisions	4.21	1.05	0.77
Felt constantly under strain	3.95	1.00	0.79
Could not overcome difficulties	4.12	1.01	0.76
Able to enjoy day-to-day activities	4.32	0.95	0.78
Able to face problems	3.76	1.08	0.73
Feeling unhappy and depressed	3.98	0.97	0.79
Losing confidence	4.15	1.00	0.75
Thinking of self as worthless	4.07	0.99	0.78
Feeling reasonably happy	4.25	1.03	0.77

Scale (Total)

Cronbach's Alpha: 0.84
We have a scale with 12 statements or questions; for each statement, the table lists the mean, standard deviation (SD), and Cronbach's alpha reliability coefficient when that particular item is removed from the scale (Item Alpha). Again, higher alpha values indicate higher internal consistency for each statement.

The "Scale (Total)" section displays the overall Cronbach's alpha coefficient for the scale with all 12 items considered together. The Cronbach's alpha is 0.84, indicating good internal consistency for the 12-item scale.
Regression Analysis Results

Model Information:

Sample Size (N): 310
Number of Predictors (k): 2
R-squared (R^2): 0.78
Adjusted R-squared (R^2_adj): 0.77

Table 4. Regression Analysis Results for Predicting Psychological Morbidity

Predictor	Coefficient	SE	t-value	p-value
Intercept	2.15	0.30	7.17	0.000
Depression	1.26	0.19	6.63	0.000
Anxiety	0.54	0.25	2.16	0.032

The regression model explains approximately 78% of the variance in the dependent variable ($R^2 = 0.78$). Both depression and anxiety have statistically significant direct effects on students' quality of life entering the clinical year. ($p < 0.001$ for depression and $p = 0.032$ for anxiety).

The intercept term is also statistically significant, indicating a significant intercept value for the model ($p < 0.001$)

DISCUSSION

In this study, more than half of the students entering their clinical year were depressed due to different stressors, as shown in the table. The pressure of practising and implementing the studies on subjects increases the fear of performance in most Health Science students. According to reports, Students in health professions are under higher stress than students from different divisions or faculties, and as a result, their quality of life deteriorates due to the consequences of stress on their physical, Mental and emotional health[22].

In this cross-sectional study, 310 Health Science students were evaluated. The GHQ-12 Questionnaire revealed the negative and positive aspects of medicinal training and its effect on students' quality of life. However, due to workload, Lack of time, Financial issues, Academic performance, inability to concentrate and more factors, the prevalence of stress and Anxiety is higher than normal [23]. Only a small percentage of students showed positive associations. Hence stress, Anxiety, depression and burnout lead to psychological morbidity in Health Science students and affect their quality of life.

Due to long working hours, reiterative clinical rounds, and academia, Health Science students wear themselves out, which causes severe chronic illnesses such as constant headaches, cardiovascular complications, decreased cognitive functionality, insomnia and various other complications [24]. This way of living costs quality of life. As tabulated in Table 2. 79 students were experiencing insomnia somewhat more than usual, while 92 were experiencing more than usual. Table 2-also indicates that 94 students were constantly more than usual under physical or mental strain due to their schedules, while 103 students were much more than usual under constant strain.

A comprehensive evaluation of 13 studies shows that elevated stress levels are linked to lower quality of life and well-being in people pursuing advanced education[25]. Severe despondency and dejection can hamper academic progress, intellectual development, and general health and well-being [26]. In a study conducted in the UK, half of the students were required to explain the most difficult conditions they had encountered while pursuing their Health Science degrees in their clinical year; the students associated difficulty with various factors such as workload, loss of a loved one, financial issues, poor performance[2]. According to research on Health Science students of the University of Ghana, the stress scores were evaluated to be higher in 4th-year students, and quality of life correlates directly to stress and Anxiety[27]. The quality of life is also associated with the student's ability to endure and navigate stress. It is reported that students with very high resilience had significantly greater QoL than those with very low, low, moderately low, moderately high, and high resilience[19]. Depressive disorders were discovered in 49.1% of our Health Science students, following prevalence rates discovered in other developing nations[28]. Academic pressure is a major reason for stress and burnout among Health Science students, and it has been reported in several studies. However, according to one study, strong baseline tension, Anxiety, and despair levels tend to stay significantly higher in the presence of a large exam (Kulsoom & Afsar, 2015), supporting the statement that the stress rate increases significantly when exams are near. This is mainly due to the reason that Health Science students have a fear of failure and Lack of time to prepare. Students typically have a busy schedule that includes work for school and clinical placements, making it unlikely that they will have time for leisure[18]. Increased stress endured by Health Science students may lead to Anxiety, despair, and a general feeling of burnout. Several studies have noted that the most significant stressors in Health Science schools' curricula were those related to exams and academics[29]. Most students relocate away from home to seek higher education, which exposes them to a brand-new environment and places them at risk for stress, depression, and Anxiety[30].

According to a study held in Nigeria, Depression significantly correlated negatively with the year of study, perceived academic success, repeating the same class more than once, and age [30] in their findings while Additionally, there was a strong inverse relationship between Anxiety and age, coffee consumption, perceived academic success, and degree of study. While stress and age, study level, and perceived academic performance were all adversely linked [30].

In this study, Authors have evaluated Health Science students entering their clinical years by providing them with a standard questionnaire (GHQ12) provided online, frequencies were assessed for the responses given by respondents, and results showed that participants reported higher levels of stress and anxiety in various aspects of their quality of life. The highest prevalence was found in concentration, sleep loss, decision-making capacity, constant strain, difficulty overcoming difficulties, enjoyment of daily activities, problem-solving ability, feelings of unhappiness and depression, loss of confidence, self-worthlessness, and happiness. Although not all students experiencing depression or anxiety reported feeling unhappy, some reported feeling reasonably happy despite experiencing such experiences. The study emphasizes the importance of addressing mental health concerns and implementing supportive interventions to improve the quality of life for these students. Statistical analysis was also done on the data collected. A reliability test for assessing the internal consistency of the Questionnaire was analysed, whereas a regression analysis test was also applied to find a relation between the direct and indirect variables.

Statistical analysis results of the study have focused on accessing the impact of stress, depression and anxiety on the quality of life of health science students entering clinical years. The study analyzed responses to the General Health Questionnaire (GHQ-12), which measures psychological morbidity related to distress and anxiety. The results showed that many participants experienced higher stress and anxiety levels, such as concentration, sleep, decision-making, coping with difficulties, and feelings of unhappiness and worthlessness. This indicates that stress and anxiety were prevalent among health science students during the pandemic. The study also explored the impact of stress and anxiety on the quality of life of health science students, revealing distress and anxiety in areas related to concentration, sleep disturbances, decision-making abilities, coping with stress, enjoyment of daily activities, and emotional well-being. The psychometric properties of the GHQ-12 questionnaire, including mean, standard deviation, and Cronbach's alpha coefficient, indicated good internal consistency, enhancing the reliability of the Questionnaire in assessing psychological morbidity. The regression analysis showed that stress and anxiety are directly related to quality of life, implying that quality of life can drastically decrease when an individual shows signs of depression and anxiety.

Depression and anxiety among students can be cooped by some practical interventions that have been reported to notice positive student results. Some suggestive interventions for students are implementing mental health support services within the campus so that students have easy access to support, and students can better manage stress, increase mood, and improve psychological well-being by utilising mental health support services, stress management seminars, physical activity promotion, social support networks, and work-life balance[31]. These services give students a secure setting to vent their emotions, acquire helpful coping mechanisms, and engage in leisure activities. Encouragement of flexible study schedules, interests, and activities can also aid in keeping a healthy work-life balance[31,32].

CONCLUSION

This cross-sectional study assessed the relationship between stress, Anxiety, depression and quality of life. It is evident from the results of the study that Health Science students had higher levels of stress, depression and anxiety in various aspects of their lives. Due to various problems, including subpar academic performance, a heavy workload, a lack of free time, financial difficulties, and loss of loved ones, Health Science students starting their clinical year were experiencing psychological morbidity. The GHQ12 scale revealed both positive and negative effects of the previously mentioned factors on quality of life. The Cronbach's alpha test indicated the direct relation between depression and anxiety on quality of life. The Authors have suggested interventions such as mental health support services, stress management seminars, physical activity promotion, social support networks, and work-life balance. Further future research is required to assess these interventions' impact and outcome on students with depression and anxiety.

Strengths

• Utilising a standard GHQ12 questionnaire with proven reliability for measuring psychological morbidity.
• The large sample size (n=310) provided with four different departments enhances the robustness of the study.
• Detailed statistical analysis provides valuable insights into the prevalence of stress and anxiety among health science students.
• Including psychometric properties assessment, such as Cronbach's alpha, ensures the Questionnaire's internal consistency.

• Suggestions of interventions make the study complete.

Limitations

• The interventions were suggested and not tested on the participants, the results of which can be evaluated in future research implications.

Research contribution

This study contributes to shedding light on the situation health science students must go through to fit into the norms and expectations of their peers, friends and family. The study evaluated the prevalence of depression and anxiety in several aspects of the student's life, indicative of an increasing percentage of depression and anxiety and its effect on the quality of life.

Practical implications

• The results highlight the necessity of early treatments to address mental health issues among health science students entering clinical years.
• Educational institutions can create comprehensive well-being initiatives prioritising stress reduction, mental health care, and a positive work-life balance.

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Ethical approval

Ethical approval was taken from the local permanent committee of bioethics research, University of Bisha. UB-RELOC approved this study with a reference number (UB-RELOC H-06-BH-087/ (0704.23).

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