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Original Research Article

Gender differences in depression, anxiety, stress and quality of life among paramedical students

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ABSTRACT

Background: Understanding the gender differences in depression, anxiety, stress and quality of life among paramedical students with special reference to the Indian context. To study the gender differences in depression, anxiety, stress and quality of life among paramedical students. The present study followed a cross-sectional study design and was conducted at a private medical university in Ghaziabad, Uttar Pradesh, India.
Methods: Purposive sampling technique was used to collect data from 218 paramedical students. Standardized tools General Health Questionnaire, Depression Anxiety Stress Scale and World Health Organization Quality of Life BREF were administered as physical forms. Ethical clearance and informed consent were obtained. Descriptive statistics (frequencies, mean and standard deviation) along with inferential statistics of t-test and Chi Square test were computed in the current study, to understand the gender difference in variables of study.
Results: Stress showed a statistically significant difference between male and female participants (χ^2=11.151, p=0.025 significant) with females scoring a higher score as compared to males. No statistically significant difference were shown in depression, anxiety and quality of life between the genders despite slight score differences.
Conclusions: There is a gender difference as well as a relationship between depression, anxiety, stress and quality of life among paramedical students. These findings suggest the importance of how mental health differs in terms of gender and how it affects the quality of life among the students, specifically with reference to the Indian context.

Keywords: Anxiety, Depression, Gender difference, Quality of life, Stress

INTRODUCTION

The health of all people is fundamental to the attainment of peace and security and is dependent on the fullest co-operation of individuals and states. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion and political belief, economic or social condition.[1] According to the World Health Organization, health is defined as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity".[2] The extension to all people of the benefits of medical, psychological and related knowledge is essential to the fullest attainment of health. In 1986, the World Health Organization made further clarifications by stating that health is "A resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities." This means that health is a resource to support an individual's function in wider society, rather than an end in itself.[3] A healthful lifestyle provides the means to lead a full life with meaning and purpose and the global population and economic growth, the advancement of science and technology and the ever increasing interconnectedness of the world have brought about enormous societal changes along with unprecedented progress, but also multiple and complex challenges affecting the health of billions of people

worldwide.[4] The latest World Bank/World Health Organization revealed an alarming stagnation in the progress towards providing people everywhere with quality, affordable and accessible healthcare. More than half of the world's population is still not covered by essential health services and 2 billion people face severe financial hardship when paying out-of-pocket for the services and products they needed.[5]

Mental health is a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well and contribute to their community. It is an integral component of health and well-being that underpins our individual and collective abilities to make decisions, build relationships and shape the world we live in. The World Health Organization (WHO) conceptualizes mental health as a "state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully and is able to make a contribution to his or her community".[6]

Mental health is a major concern worldwide and if we evaluate developments in the field of mental health, the pace appears to be slow. Dr. Brock Chisholm, the first Director-General of the World Health Organization, in 1954, had presciently declared that "without mental health there can be no true physical health." More than 60 years later, the scenario has not altered substantially. About 14% of the global burden of disease is attributed to neuropsychiatric disorders. The burden of mental disorders is likely to have been underestimated because of inadequate appreciation of the inter-play between mental illness and other health disorders.[7] There are several reasons why students suffer from poor mental health such as bullying, peer pressure, family issues, toxic relationships, lack of sleep, poor diet and lack of exercise. In most cases students are usually overburdened with academics and assignments. The amount of stress this causes will definitely have a negative impact on their mental health.

On the other hand, some students tend to be very competitive and sometimes want to outshine everyone else. Thus, they would feel pressured to get good grades even at the expense of their friends or not doing the assignment themselves. Such students often develop depression due to increased stress levels.[8] Mental health problems can affect many areas of students' lives, reducing their quality of life, academic achievement, physical health and satisfaction with the college experience and negatively impacting relationships with friends and family members.

These issues can also have long-term consequences for students, affecting their future employment, earning potential and overall health. Mental health problems can affect a student's energy level, concentration, dependability, mental ability and optimism, hindering performance.[9] Epidemiological surveys have consistently documented significantly higher rates of anxiety and mood disorders among women than men and significantly higher rates of externalizing and substance use disorders among men than women. The latter asserts that gender differences in the prevalence of mental disorders are due to differences in the typical stressors, coping resources and opportunity structures for expressing psychological distress made available differentially to women and men in different countries at different points in history.[10] Mental illness affects everyone. But not everyone experiences mental disorders the same way. More and more, researchers are trying to find out why disparities exist and what those differences mean for treatment and outcomes. "Historically, sex, gender and age differences have been grossly understudied in health in general," says McLean's R. Kathryn McHugh, PhD.[11]

The gender difference in depression has been reviewed by Christine Kuehner. She identifies potential risk factors such as the influence of sex hormones, women's blunted hypothalamic–pituitary–adrenal axis response to stress, girls' and women's lower self-esteem and higher tendency for body shame and rumination, higher rates of interpersonal stressors, experienced violence, childhood sexual abuse and, on a societal level, lack of gender equality and discrimination.[12] A study conducted by Suresh, A., et al, (2023) conducted a cross-sectional study among 208 paramedical students supported the findings of this research study. They have used Beck's depression inventory tool to identify the severity of depression and found that the prevalence of depression had borderline, moderate, severe and extreme form of depression respectively. 78% of the sample were females with depression (40) and 22% were males with depression.[13] Raja et al conducted a study among paramedical and medical students at a private medical college hospital and research centre in South India. Perceived stress scale (PSS); and the depression, anxiety and stress scale - 21 (DASS-21) questionnaire was used.

The prevalence of anxiety among the study participants was 43%. Prevalence was higher among females (44%) than males (39%).[14] Shivam et al conducted a study among medical and paramedical students in Swami Vivekananda Subharti University, significantly emphasising the gender-based differences in stress levels. The stress was assessed by using Kessler 10-item psychological distress scale (K10) along with a pretested socio-demographic and preventive variables. 46 (16.1%) paramedical students were suffering from severe stress. The female students had higher stress as compared to male students.[15] Ashraf et al examined life satisfaction and psychological stress levels among male and female allied health college students, a comparative study.

The study found that female students reported significantly higher scores on the satisfaction with life scale (SWLS) compared to their male counterparts ($p<0.05$). This suggests that, despite experiencing higher stress levels, female students may have better coping mechanisms or

social support networks that contribute to greater life satisfaction as compared to the males.[16] There are limited researches which focuses on paramedical students as a distinct group with respect to depression, anxiety, stress and quality of life. There is inconsistent data on how gender plays a role and how their expectations influence mental health outcomes with respect to Indian demographics. The quality of life associated with these factors have less been studied in regard with the paramedical students. Since the dynamics of medical sciences are evolving day by day, therefore there is a constant need to have recent studies associated with these factors. This study was conducted to address the gender difference in depression, anxiety, stress and quality of life among the paramedical students.

METHODS

The current study used a cross-sectional design and was conducted over a one-year period at Santosh Deemed to be University, Ghaziabad, Uttar Pradesh, India to study the gender difference in depression, anxiety, stress and quality of life among paramedical students and how there is a relationship of depression, anxiety and stress with quality of life among male and female participants. A total of 218 participants were selected using a purposive sampling method and students from different paramedical courses were selected to participate for this study.

Study procedure

Data was collected from 218 paramedical students from a private medical college in Ghaziabad, Uttar Pradesh, India. The participants were asked to read and sign a consent form, provided in both Hindi and English, before answering the questionnaires.

Inclusion criteria

The study included both male and female participants who were 18 years of age or older, currently enrolled as paramedic students and provided consent to participate in the study.

Exclusion criteria

Individuals who had previously received psychiatric treatment and differently-abled individuals were excluded from participation in the study.

Questionnaires/ tools

After participants provided written consent and filled the preliminary identification data sheet for the demographic details, the following tools were filled.

General health questionnaire

A 12-item screening tool for psychiatric disorders and mental health, developed by David Goldberg (1972). It assesses depression, anxiety, social dysfunction etc., with high reliability (Cronbach's alpha>0.80). Scoring uses binary (0-0-1-1) or Likert-type (0-1-2-3) methods, with higher scores indicating distress. Takes about 5 minutes to complete and is validated across cultures.[17]

Depression, anxiety, stress scale

Developed by Lovibond and Lovibond (1995), this tool contains 42 items to assess depression, anxiety and stress, each domain containing 14 questions each. Scoring uses Likert-type (0-1-2-3) with a reliability of 0.70. It takes about 5 to 10 minutes to complete.[18]

World health organization quality of life BREF

The WHOQOL-BREF is a 26-item instrument. It is self-report questionnaire that assesses a person's perception of their health and quality of life over the past two weeks. It was developed by the World Health Organization in 1996 with a reliability of 0.91 and takes about 10 to 15 minutes to complete.[19]

Ethical considerations

Institutional ethical approval was obtained. Written informed consent was collected from all participants.

RESULTS

The research was conducted with the aim of assessing the gender difference and the relationship of depression, anxiety, stress with quality of life among male participants and female participants. For this purpose, the data collected were entered in Microsoft Excel and analysis was done using SPSS 23. T-test was used to assess the gender difference and Chi Square test was used to assess the relationship between the variables and gender. Since this research study is based on gender difference, equal distribution of the sample size was taken into consideration. 109 male participants and 109 female participants were selected on the basis of random sampling for data collection.

Majority of the respondents fall under the age group 18-20 (124; 56.9%) followed by>22 (48; 22.0%) and then 21-22 (46; 21.1%). Majority of the data were collected from Bachelors of Physiotherapy with a response rate of 64 (29.4%) followed by G.N.M with a response rate of 62 (28.9%) and Bachelors of Occupational Therapy with response rate of 38 (17.4%).

Majority of the female and male participants had normal level of depressive symptoms. Although no statistically significant relationship was observed, female participants scored a higher severity score as compared to male participants. Majority of the female participants had moderate levels of anxiety and majority of the male participants had normal levels of anxiety. Although no statistically significant relationship was observed, female

participants scored a higher severity score as compared to male participants. Majority of the female participants had moderate levels of stress and majority of males had normal levels of stress.

There is a statistically significant relationship and it can be observed that females scored a higher stress level as compared to male participants. Majority of male and female participants had moderate level of quality of life. Although there is no statistically significant relationship, females scored a higher level of quality of life, as compared to male participants.

An independent samples t-test was conducted to examine gender differences in levels of depression, anxiety, stress and quality of life (as measured by the WHOQoL-26) among male and female participants (N=109 in each group). After the analysis of the data, statistically significant difference was observed in the domain of stress.

Table 1: Tabular representation of the total number and percentage of respondents in terms of age.

Age (in years)	Frequency (N)	%
18–20	124	56.9
21–22	46	21.1
>22	48	22.0
Total	218	100.0

Table 2: Tabular result of the total number and percentage of respondents in terms of course.

Paramedical course	Frequency (N)	%
B.Sc. Nursing	30	13.80
Bachelors of occupational therapy	38	17.40
Bachelors of optometry	24	11.00
Bachelors of physiotherapy	64	29.40
G.N.M	62	28.40
Total	218	100.00

Table 3: Tabular representation of depression severity by gender.

Domains	Female (%) (n=109)	Male (%) (n=109)	Total (%) (n=218)
Mild	17 (15.6)	25 (22.9)	42 (19.3)
Moderate	30 (27.5)	23 (21.1)	53 (24.3)
Normal	39 (35.8)	42 (38.5)	81 (37.2)
Severe	19 (17.4)	17 (15.6)	36 (16.5)
Extreme severe	4 (3.7)	2 (1.8)	6 (2.8)

χ^2=3.337, p=0.503 → Not significant.

Table 4: Tabular representation of anxiety severity by gender.

Domains	Female (%) (n=109)	Male (%) (n=109)	Total (%) (n=218)
Mild	12 (11.0)	20 (18.3)	32 (14.7)
Moderate	34 (31.2)	27 (24.8)	61 (28.0)
Normal	24 (22.0)	30 (27.5)	54 (24.8)
Severe	28 (25.7)	16 (14.7)	44 (20.2)
Extreme severe	11 (10.1)	16 (14.7)	27 (12.4)

χ^2=7.669, p=0.105 → Not significant

Table 5: Tabular representation of stress severity by gender.

Domains	Female (%) (n=109)	Male (%) (n=109)	Total (%) (n=218)
Mild	9 (8.3)	20 (18.3)	29 (13.3)
Moderate	43 (39.4)	26 (23.9)	69 (31.7)
Normal	37 (33.9)	49 (45.0)	86 (39.4)
Severe	15 (13.8)	11 (10.1)	26 (11.9)
Extreme severe	5 (4.6)	3 (2.8)	8 (3.7)

χ^2=11.151, p=0.025 → Significant

Table 6: Tabular representation of quality-of-life levels by gender.

Domains	Female (%) (n=109)	Male (%) (n=109)	Total (%) (n=218)
Low	11 (10.1)	13 (11.9)	24 (11.0)
Moderate	59 (54.1)	71 (65.1)	130 (59.6)
High	37 (33.9)	24 (22.0)	61 (28.0)
Very high	2 (1.8)	1 (0.9)	3 (1.4)

$\chi^2(3)=4.378$, $p=0.223 \rightarrow$ Not significant

Table 7: Tabular representation of t-test summary of the psychological variables.

Variables	Levene's F	Sig. (F)	t	df	Sig. (2-tailed)	Mean diff	Std. error	95% CI lower	95% CI upper
Depression	0.026	0.873	1.207	216	0.229	1.248	1.033	-0.789	3.284
Anxiety	0.843	0.360	0.540	216	0.590	0.523	0.969	-1.388	2.433
Stress	0.000	0.996	2.430	216	0.016	2.633	1.084	0.497	4.769
WHOQoL26	3.897	0.050	1.447	216	0.149	2.165	1.496	-0.784	5.114

DISCUSSION

Based on the results, a statistically significant difference in stress levels has been observed between male and female paramedical students. Although no statistically significant differences were found in depression, anxiety and quality of life, it can be observed through the tabular representations that the scores in depression and anxiety are higher among the female participants as compared to the male participants and the scores in the quality of life indicates low scores among the male participants as compared to the female participants. Overall, we can conclude by saying that there is a relationship as well as a gender difference in depression, anxiety, stress and quality of life among the paramedical students with stress showing a statistically significant difference between the two groups, i.e., male and female. Similar findings were observed in studies conducted by Kamthan et al and Ashraf et al with respect to gender differences in stress and quality of life.[15,16]

Compared to the cross-sectional study conducted by Suresh et al and Raja et al this study also showed slight gender differences in depression, anxiety and stress, with female participants having slightly higher scores than male participants, although no statistically significant gender differences were observed despite having similar sample sizes as other studies.[13,14] Based on these findings, the null hypothesis (H0) that there would be no significant difference between male and female paramedical students with regard to depression, anxiety, stress and quality of life is rejected and alternative hypothesis (H1) that there would be a significant difference between male and female paramedical students with regard to depression, anxiety, stress and quality of life, is accepted as gender difference was observed.

Limitations of present study were that since it's a cross-sectional design, the causality cannot be established between the variables, even though statistically significant differences were observed. The study uses self-report measures, which, despite their reliability, may lead to certain biases like social desirability and self-enhancement, which may affect accuracy. Additionally, since the sample is based on one medical institution, the generalization to other medical institutions will be limited.

CONCLUSION

This study highlights a gender difference among paramedical students as well as a relationship of the psychological variables with gender. A student struggling with their mental health or diagnosed with a mental health disorder may have trouble paying attention, remembering and problem-solving. They may also have trouble meeting classroom expectations. Mental health also affects a student's attendance and even graduation rates. Mental health issues such as depression, anxiety and stress are prevalent concerns among students across various educational disciplines, including those in medical and paramedical fields. These psychological challenges can significantly affect students' quality of life, academic performance and overall well-being. Furthermore, the limited existing research in this area calls for more in-depth, longitudinal studies to examine the lasting effects of mental health on students' well-being and to assess the long-term effectiveness of support initiatives. Such efforts are crucial not only for students' personal and academic success but also to ensure their preparedness for future professional demands.

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