Original Research Article

A cross sectional study on depression among paramedical students in MES Institute of Paramedical Sciences

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ABSTRACT

Background: Depression is characterized by persistent sadness and a lack of interest or pleasure in previously rewarding or enjoyable activities. It is very important to identify the factors predisposing to depression among paramedical students. The main objective of this study was to assess the prevalence of depression and the factors associated with depression among the paramedical students.

Methods: A cross-sectional study was done among all the 208 paramedical students studying in MES using a predesigned questionnaire along with Beck's depression inventory tool to identify depression. Chi-square test and multivariate regression analysis were used to find the association between variables.

Results: The prevalence of depression was found to be 24.5%. 11.54 % of the total study participants have borderline depression, while 10.58%, 1.92% and 0.48 % had moderate, severe and extreme form of depression respectively. Chi square test showed type of family, course of study, smoking habits, traumatic events in the past, bad interpersonal relationship, concern regarding the future were found to be statistically associated with depression. In multivariate analysis, bad interpersonal relationship between friends and family members (OR=3.13), worrying about the future (OR=6.03) and those who never sought any form of help for mental stress (OR=1.5) were the risk factors identified.

Conclusions: Course selection, type of family they came from, any traumatic events in the past, lack of interpersonal relationship between friends, worrying about the job opportunities after completing the course, not seeking help for mental stress were the factors contributing towards depression.

Keywords: Depression, Prevalence of depression, Traumatic events

INTRODUCTION

Depression is a common mental disorder affecting more than 280 million people worldwide. Globally, an estimation of 3.8% of the population suffers from depression, with 5.0% of adults and 5.7% of individuals above 60 years of age being affected. Depression is characterized by persistent sadness and a lack of interest or pleasure in previously rewarding or enjoyable activities for at least two weeks.[1] Depression is a leading cause of disability around the world and contributes greatly to the global burden of diseases.

Depression is distinct from common mood swings and short emotional responses to challenges in daily life. Depression can be considered as an indicator of mental health. It is one of the most frequent and debilitating disease and considered as chronic mental disorder.[2] Decreased mental health due to depression may lead to loss of sleep and appetite, tiredness, poor concentration and can even lead to suicidal tendencies. Every year, around 700,000 people die by suicide. Among people aged 15 to 29, suicide is the fourth most common cause of death.[1] Depression can occur at any time, but on an average, it first appears during the late teens to mid-

twenties.[3] The person experiences significant difficulty in their personal, familial, social, academic, occupational, and/or other key domains during a depressed episode. A depressive episode lasts at least two weeks and is characterised by a depressed mood which can be sad, irritated, or feeling emptiness or a loss of enjoyment or interest in activities for most of the days.[1] Other signs may include difficulty concentrating, feelings of overwhelming guilt or low self-worth, a lack of hope for the future, suicidal or death thoughts, disturbed sleep, changes in food, and feeling particularly exhausted or low on energy.

Depressive episode can be classified as mild, moderate, or severe depending on the frequency and severity of symptoms, the impact on the person's functioning, and the overall duration of the episode.[1] The aetiology of depression results from complex interactions between social, psychological and biological factors. Physical health and depression are interconnected. Depression can lead to physical inactivity and substance abuse which indirectly increases the risk for diseases like cardiovascular disease, cancer, diabetes, and respiratory illnesses. Paramedical personnel play a vital role in health sector. High level of anxiety and stress among paramedical students may lead to depression and have a detrimental effect on their academic performance. Though there are plenty of studies done on depression among medical students, there are limited studies conducted to assess the depression among paramedical students. Hence, we are conducting this study to find depression among them and assess their mental health status. Early intervention can assist in reducing depression. Institutional based initiatives can also help the students in coping to stress and reduce depression. Parental counselling is quite beneficial in lowering depression among the students. Age-appropriate exercise programmes can be helpful in preventing depression.

A study conducted by Meshkat et al in Mashhad Islamic Azad university in Iran during the year 2007-2008 showed 28.6% of the paramedical students had depression.[4] According to the study conducted by Navideh and Parvin on depression among paramedical students, 20.6% of the students suffered from mild to moderate depression, while 9.9% of the students suffered from moderate to severe depression.[5] Another study conducted showed that 22% of the paramedical students suffered from mild mood disturbances, 4% of the students had borderline clinical depression and 16% of students suffered from moderate depression, while 18% had severe depression.[6] Study conducted in Iran by Hashemi and Ali on the prevalence of depression in students from Yasuj university of medical sciences showed that the paramedical students suffered from depression more than medical students.[7]

The aim of the study was to assess the prevalence of depression and the factors associated with depression among the paramedical students.

METHODS

A cross sectional study was done among all the paramedical students studying in MES Paramedical Institute of Medical Sciences Perinthalmanna between February 2023 to March 2023. Students are enrolled in MES paramedical institute for Bachelor of Science in Medical Laboratory Technology (BSc MLT), Diploma in Operation theatre and Anaesthesia technology (DOTAT), Diploma in Cardiovascular technology (DCVT), and Diploma in Medical Laboratory Technology (DMLT) courses. All the paramedical students from the first to the last year of the courses, who gave informed consent were included in the study. Students who were already under treatment for depression were also included in the study. Individuals with significant cognitive impairments that may affect their ability to understand the study's requirements or provide accurate responses were excluded. Individuals with severe physical health conditions that may significantly impact their mental health or confound the study's findings may be excluded. Overall, 208 students satisfying inclusion criteria participated in the study.

A predesigned questionnaire consisting of questions on sociodemographic factors and on possible factors predisposing to depression were used for data collection. All the questions in the questionnaire were explained in simple terms to the study participants before data collection. Beck's depression inventory (BDI) tool was used to find out the proportion of participants having depression. The inventory's advantages include high internal consistency, high content validity, ability to distinguish between participants who are depressed and those who are not, and it is internationally recognised scale.[8] The Beck Depression Inventory (BDI) is a 21-item self-reporting questionnaire for evaluating the severity of depression in normal and psychiatric populations. Twenty-one items were consolidated from those observations and ranked 0-3 for severity. The minimum BDI score is 0 and to a maximum of 63. Those who scored between 1-10 were considered as normal. Scores between 11-16 belongs to mild mood disturbance. 17-20 belonged to borderline clinical depression. Scores between 21-30 represents moderate form of depression. A score between 31-40 belonged to severe depression. Those who scored more than 40 were considered to have Extreme form of depression.

Data was entered using Microsoft-Excel and analysed in SPSS version 26. Data was expressed in either percentage or proportion and the individual association between independent variables and prevalence of depression was calculated using chi square test or fisher test depending on the sample distribution. No missing data were identified. Multivariate logistics regression model was used to calculate adjusted Odds ratio with 95% confidence interval for the significant variables obtained from chi-square test.

RESULTS

The response rate among the participants was 96.3%. The base line characteristics of the study participants is given in Table 1. Most respondents were aged more than 20 (78%). The study population were predominantly females (80%). 21.7 % of the study population were married. Majority of the study participants came from nuclear families (79.3%). Students enrolled in different course is given in Figure 1. 88% of the students responded that they had chosen the course because it was something they were interested in, while the remaining students said their parents had persuaded them to enrol in it. 19% of the student took educational loan for meeting their academic expenditures. 58 % of the students were coming from home and remaining were staying in the hostel or outside for rent. Majority of the students were non-alcoholic and non-smokers (94.7% and 93.2% respectively).

Table 1: Baseline characteristics of study participants.

Variables	Depression present	Depression absent	P value
Age group			
Below 20	8	38	0.24
20 and above.	43	119	
Gender			
Male	11	31	0.84
Female	40	126	
Marital status			
Single	41	122	0.70
Married	10	35	
Type of family			
Nuclear	36	129	
Joint	4	21	0.001
Three generation	10	4	
Single parent	1	3	
Socioeconomic class			
Upper class	12	53	
Upper middle class	26	62	
Middle class	3	21	0.17
Lower middle class	9	1	
Lower class	1	5	
Course enrolled.			
BSc MLT	39	80	
DMLT	8	49	0.01
DOTAT	4	21	
DCVT	0	7	
Did the participants make their own decisions regarding the enrolment of the course?			
Yes	42	141	0.21
No	9	16	
Any loan taken for education?			
Yes	12	27	0.31
No	39	130	
Staying in the hostel?			
Yes	25	65	0.34

Variables	Depression present	Depression absent	P value
No	26	92	
Smoking habits			
Smoker	4		0.715
Non-smoker	47	10	
Drinking habits			
Alcoholic	1	3	0.28
Non-alcoholic	50	154	
Family history of psychiatric illness			
Yes	4	5	0.15
No	47	152	
Any history of unpleasant/traumatic event happened within the last 1 year			
Yes	20	36	0.02
No	31	121	
Involvement in extracurricular activities			
Yes	30	76	0.19
No	21	81	
Interpersonal relationship between friends or family members?			
Good	36	137	
Bad	0	2	0.008
Depends upon the mood	15	18	
Concerned about the future after completing the course			
Yes	46	108	0.002
No	5	49	
Ever sought help for mental stress?			
Yes	17	30	0.03
No	34	127	
Any history of treatment taken for depression?			
Yes	7	5	0.005
No	44	152	
Any current Medication for psychiatric illness?			
Yes	1	3	0.98
No	50	154	

Family history of psychiatric illness were present in 4.3% of the students. The study population was asked about any history of unpleasant event that occurred within the last 1 year to identify post traumatic depression (PTSD). 27% of the study population responded with a history of PTSD. More than half of the participants were involved in extracurricular activities. 83.2% of study participants had a good interpersonal relationship between friends or family members. It was found that 74% of the students are worried about their future, specifically the job opportunities after finishing the course. 35% of the students were not satisfied with the academic training they were provided in the institution. 21.6% of the participants had sought help for coping mental stress in the form of medications, counselling from professionals or teachers, meditations, yoga etc. 5.7% of the respondents gave the history of treatment taken for

depression. 2% of the study participants were taking medication for psychiatric illness.

Table 2: Bivariate and multivariate binary logistic regression analysis.

Variables	Unadjusted value odds ratio (aOR)	P value	Adjusted odds ratio	P value
Type of family				
Nuclear	1		1	
Joint	7.5	0.12	0.84	0.79
Three generation	0.84	0.87	10.7	0.001
Single parent	0.571	0.66	4.07	0.352
Course enrolled.				
BSc MLT	1		1	
DMLT	0.33	0.01	0.49	0.14
DOTAT	0.39	0.10	0.36	0.14
DCVT	0.01	0.99	0.02	0.9
Any history of unpleasant/traumatic event happened within the last 1 year.				
No	1		1	
Yes	2.1	0.02	1.9	0.11
Interpersonal relationship between friends or family members?				
Good	1		1	
Bad	3.17	0.004	3.13	0.01
Depends upon the mood	0.01	0.9	0.01	0.9
Concerned about the future after completing. the course				
Yes	1		1	
No	4.1	0.004	6.03	0.004
Ever sought help for mental stress?				
Yes	1		1	
No	2.01	0.05	1.5	0.35
Any history of treatment taken for depression?				
No	1		1	
Yes	4.8	0.01	3.2	0.12

Association between the independent variables and prevalence of depression was found out using chi-square and Fisher exact test depending on the sample distribution. P value ≤0.05 (95% confidence interval) was taken statistically significant. Type of family (P=0.001), course enrolled (P=0.01), smoking habits (P=0.011), history of any unpleasant event in last 1 year (P=0.02), interpersonal relationship between family members or friends (P=0.006), concern regarding their future after graduation (P=0.003), not seeking any form of help for combating mental stress (P=0.05) and history of treatment taken for depression (P=0.01) was found to be statistically significant.
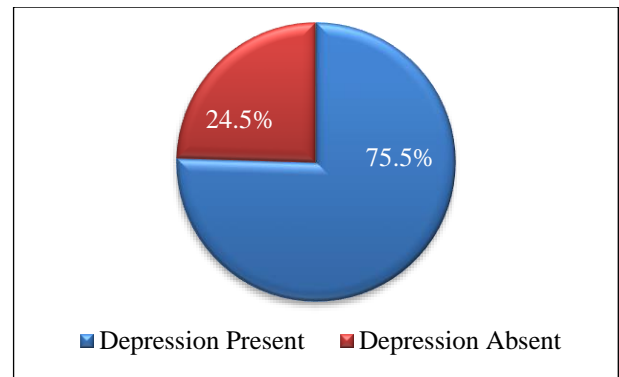

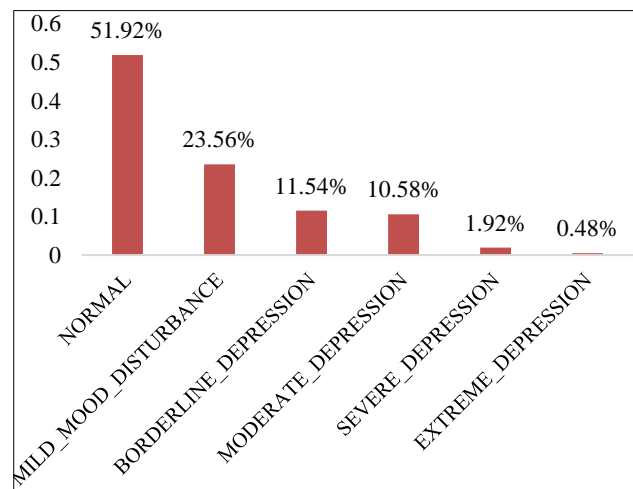**Figure 1: Prevalence of depression among the paramedical students.**

Figure 2: Graph illustrating categorization of depression n=208.

The prevalence of depression among the paramedical students was found to be 24.5% using the Becks Depression Inventory (BDI) scale (Figure 1). The depression was further categorized into mild, borderline, severe, and extreme forms (Figure 2). We made numerous adjustments to the confounding variables. Logistic regression was performed to find out the relationship between the independent variables with prevalence of depression with 95% confidence interval (Table 2).

Bivariate logistic regression analysis showed that students enrolled in DMLT course (OR=0.33 P=0.01) had low depression compared to BSc MLT students. Students with history of any unpleasant or traumatic events within 1 year were at more risk of developing depression. (OR=2.1 P=0.02). Students who had bad interpersonal relationship between friends or family members were also likely to develop depression (OR=3.17 P=0.004). Other risk factors identified were concern regarding their future after graduation (OR=4.1 P=0.004), not seeking help for mental stress (OR=2.01 P=0.05), history of any psychiatric illness. (OR=4.8 P=0.01).

In multivariate analysis, three generation family has 10.7 times more risk of developing depression (OR 10.7, P=0.001) when compared to nuclear family. Bad interpersonal relationship between friends and relative was found to be a risk factor for developing depression. (aOR=3.13 P=0.01). Those students who were worried regarding the job opportunities after graduation were more likely to develop depression. (a OR=6.03, P=0.004).

DISCUSSION

In this study the depression was predominantly observed among females, consistent with the previous studies.[5,6,9] However, in an Iranian study depression was more prevalent among male students. [10] Study conducted by Bazrafshan et al showed no significant association between depression and gender.[11] Study conducted by Azizi et al showed marital status was found to be associated with depression.[5] No such relation observed in this study. Standard of living, religious affiliation, and whether parents were still alive had no significant impact on depression scores.[5] The selection of course was found to be an important factor predisposing to depression. Severe depression was seen in students enrolled in laboratory technician course. Similar results were obtained from previous research.[5,6] In a study conducted by Ramazani et al, statistical association was also found between depression and study semester.[12] Any unpleasant event or post-traumatic stress occurred within the last 1 year was found to be significantly associated with depression, as in other studies.[5,13,14]

Previous study suggested that financial constraints, lack of extracurricular activities, religious beliefs were found to be predisposing causes of depression, but no such associations were found in our study.[5] Concern regarding the future is a risk factor for developing depression identified in this study, similar to the finding from a study conducted by Azizi et al.[5] Academic satisfaction and interpersonal relationship between the friends and family helps in reducing depression.[5] In this study, we found out that those who maintained a better relationship with friends and family had low depression rates.

Prevalence of depression was found to be 24.5%. Among the students having depression, 47% have borderline depression, 43% with moderate depression, 8% have severe depression and the remaining 2% have very severe depression. According to the study conducted by Nasiri et al, 9.9% of the students experienced moderate to severe depression, and 20.6% of the students experienced mild to moderate depression.[5] Study conducted by Azizi et al showed that 22% of the students suffered from mild mood disturbances, 4% of the students had borderline clinical depression and 16% of students suffered from moderate depression, while 18% had severe depression.6 A study conducted by Ramazani showed that 11.5% of paramedical students suffered from stress, 61% from anxiety and 30.3% suffered from depression.[12]

Study conducted by Hadavi et al showed that the prevalence of depression among paramedical students working in laboratory Sciences, Operating room, Radiology, Anesthesia Department, Emergency Medicine and Midwifery were 44%, 39.3%, 39.1%, 35.2%, 31.6% and 24%, respectively.[10] Study conducted by Bazrafshan et al among paramedical students revealed that depression and internet addiction were significantly correlated.[11] According to study conducted by Othieno et al in Kenya, severe depression was present in 5.6% of the population overall, while moderate depressive symptoms were present in 35.7% of people. First-year paramedical students, married students, economically backward students, and students living outside campus all had significantly higher rates of depressive disorder. Year of study, academic performance, religion, and students who had smoking and drinking habits were the additional factors that were strongly linked to depression levels.[15]

There are only a limited number of studies conducted to assess depression among paramedical students. We made numerous adjustments for the confounding variables. This study does have some limitations. This cross-sectional study relied on participants' self-reported symptoms, which may not be accurate. BDI scale was used to determine the presence of depression, which is only a tool for screening and not a confirmatory measure for diagnosing depression.

CONCLUSION

There were 24.5% of paramedical students are suffering from any form of depression. Course selection, type of family they came from, any past unpleasant event that occurred within the last 1 year, lack of interpersonal relationship with family or friends, worrying about the job opportunities after completing the course were the factors found to be contributing towards depression. Seeking help for mental stress was found to be protective against depression. Interventions like spreading awareness on depression, maintaining healthy relationship with others, counselling to the parents regarding early identification of symptoms of depression, proper career guidance and peer counselling could do a lot to reduce the depression. More research is required to find out the risk factors predisposing to depression among the paramedical students and how to reduce them. Such data could be used to implement strategies for combating depression.

ACKNOWLEDGEMENTS

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