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Original Research Article

Comparative study of the prevalence of depression between the XI and XII class students of medical stream from urban schools of Punjab

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ABSTRACT

Background: Adolescence is considered a stressful period due to physical, psychological, sexual changes and is also influenced by maturity. Purpose of this study was to compare the prevalence of depression among XIth and XIIth class students of medical stream in urban schools of Ludhiana, Punjab.
Methods: Present study was Cross-sectional study, conducted in in students, studying in urban schools of Jamalpur area of Ludhiana city. The investigator personally visited all the seven schools and went to both the class XI and XII and administered the study tool to each student of medical stream.
Results: 253 students from medical stream of 11th and 12th class were considered for present study. Almost equal number of students in medical stream were studying in class XI and class XII, with slight over-representation (52.9%) of students in class XI. Majority (71.1%) of the students were females, and about half of the total students were of 16 years of age. Out of total students 84.6% students were suffering from depression with 17.8% having severe depression. Out of 134 students in Class XIth 81.3% had depression while 88.2% of 119 students in class XIIth were depressed, difference was not statistically significant. As the age increases the severity of depression in students also increases. At 15 years of age students suffering from moderate to severe depression is 31% whereas at 18 years of age 57% students were suffering from moderate to severe type of depression. There was a significant difference of prevalence of depression in between males and females, with females (89.4%) outnumbering males (72.6%).
Conclusions: The overall prevalence of depression in our study was 84.6% and it is a prudent reminder of the extreme pressure the adolescent face in this particular age. Compared to other studies the percentage is alarmingly high.

Keywords: Adolescent, Academic, Depression, Performance, Urban Schools

INTRODUCTION

Adolescence is considered a stressful period due to physical, psychological, sexual changes and is also influenced by maturity.[1] It is a crucial phase in life course of a human, and the presence of psychiatric disorders such as depression, anxiety, and stress at this stage of life is a matter of concern. The symptoms of these three disorders can lead to poor academic performance, lack of communication with friends and family members, substance abuse, feeling of abandonment, homicidal ideation, and suicidal tendency.[2,3]

At any given point in time, depressive, conduct, and co-morbid disorders were associated with low social competence and depressive disorder also was associated with low self-esteem.[4] Since the job prospects for students from the science stream is somewhat better than that for students of humanities and commerce, the popular choice for most of the students and their guardians is the

science stream in Class XI. The choice made regarding stream of study is often irrevocable.

Unlike the situation in many Western industrialized countries, in India, it is difficult for a student to switch stream of education after leaving school. This is particularly the case for students specializing in commerce and humanities. These structural factors exacerbate the academic stress experienced by senior high school students. The XIIth class and high school life ends with the second board examination. The performance in the XIIth class final examination is crucial for getting admission into one's preferred stream, college or university. Because of academic stress and failure in examination, a student commits suicide every hour in India raising questions regarding the effects of the school system on the wellbeing of adolescents. Given the said background, purpose of this study was to compare the prevalence of depression among XIth and XIIth class students of medical stream in urban schools of Ludhiana, Punjab.[5]

METHODS

Present study was cross-sectional study, conducted in in students, studying in urban schools of Jamalpur area of Ludhiana city, which is the field practice area of the Department of Community medicine, Christian Medical College, Ludhiana. Study period was of two years, from October 2015 to October 2017 and the data was collected over a three-month period from August 2016 to October 2016. Study was approved by institutional ethical committee. After obtaining the written consent from all the schools included in the study and explaining the objectives to the authorities and briefing the students about the nature of the study, students who gave their consent for participation were covered in the study. The sample size was calculated using Open Epi, Version 3, 253 students in the medical stream were included in the study.

The investigator personally visited all the seven schools and went to both the class XI and XII and administered the study tool to each student of medical stream. The study tool consisted of two different questionnaires. The first one was for eliciting general information from the students and their day-to-day activities and their pass-times. The second tool was PHQ-9 questionnaire. Some of the questions in the first tool had dichotomous responses (yes/no).

Interpretation of total score

Score: Depression Severity
1-4: Minimal depression / Normal
5-9: Mild depression
10-14: Moderate depression
15-19: Moderately severe depression
20-27: Severe depression

Data was collected and compiled using Microsoft Excel, analyzed using SPSS 23.0 version. Frequency, percentage, means and standard deviations (SD) was calculated for the continuous variables, while ratios and proportions were calculated for the categorical variables. Difference of proportions between qualitative variables were tested using chi- square test or Fisher exact test as applicable. P value less than 0.5 was considered as statistically significant.

RESULTS

253 students from medical stream of 11th & 12th class were considered for present study. Almost equal number of students in medical stream were studying in class XI and class XII, with slight over-representation (52.9%) of students in class XI

Table 1: Class-wise distribution of students.

Class	Number of students	%
XI	134	52.9
XII	119	47.1

Majority (71.1%) of the students were females, and about half of the total students were of 16 years of age.

Table 2: Age and gender distribution of students.

Age in years (%)	Gender		
	Male (%)	**Female (%)**	**Total (%)**
15	11 (15.1)	18 (10.0)	29 (11.5)
16	36 (49.3)	85 (47.2)	121(47.8)
17	17 (23.3)	67 (37.2)	84 (33.2)
18	09 (12.3)	10 (5.6)	19 (7.5)
Total	73 (100)	180 (100)	253(100)

Out of total students 84.6% students were suffering from depression with 17.8% having severe depression.

Table 3: Distribution of students according to grading of depression in PHQ-9 Classification.

Grading of depression (PHQ-9 Score)	No. of subject	%
Normal (PHQ-9 Score < 5)	39	15.4
Mild depression (PHQ-9 Score 5-9)	97	38.3
Moderate depression (PHQ-9 Score 10- 19)	72	28.5
Severe depression (PHQ-9 Score ≥ 20)	45	17.8

Out of 134 students in Class XIth 81.3% had depression while 88.2% of 119 students in class XIIth were depressed. Though the difference of levels of depression between two classes was not very significant. Mann-Whitney U test for independent samples was done on the

variables and the association between the two was not found to be significant (p value = 0.436).

Table 4: Depression in class XI and XII.

Class	Normal	Mild	Moderate	Severe	Total
	N (%)	N (%)	N (%)	N (%)	N (%)
XI	25 (18.7)	42 (31.3)	38 (28.4)	29 (21.6)	134 (100)
XII	14 (11.8)	55 (46.2)	34 (28.6)	16 (13.4)	119 (100)
Total	39 (15.4)	97 (38.3)	72 (28.5)	45 (17.8)	253 (100)

Percents: (Row) Mann-Whitney U test, P-value = 0.436

Table 5: Depression according to age.

Age in Years	Normal	Mild	Moderate	Severe	Total
	N (%)	N (%)	N (%)	N (%)	N (%)
15	06 (20.7)	14 (48.3)	07 (24.1)	02 (6.9)	29 (100)
16	17 (14.0)	43 (35.5)	33 (27.3)	28 (23.1)	121 (100)
17	14 (16.7)	33 (39.3)	25 (29.8)	12 (14.3)	84 (100)
18	02 (10.5)	07 (36.8)	07 (36.8)	03 (15.8)	19 (100)
Total	39 (15.4)	97 (38.3)	72 (28.5)	45 (17.8)	253 (100)

Chi^2= 7.349 df (9) p= 0.6008

Table 6: Depression according to gender.

Gender	Normal	Mild	Moderate	Severe	Total
	N (%)	N (%)	N (%)	N (%)	
Male	20 (27.4)	30 (41.1)	12 (16.4)	11 (15.1)	73
Female	19 (10.6)	67 (37.2)	60 (33.3)	34 (18.9)	180
Total	39 (15.4)	97 (38.3)	72 (28.5)	45 (17.8)	253

Percent's: (Row Chi^2= 15.395; df (3) p= 0.0015

As the age increases the severity of depression in students also increases. At 15 years of age students suffering from moderate to severe depression is 31% whereas at 18 years of age 57% students were suffering from moderate to severe type of depression.

There was a significant difference of prevalence of depression in between males and females, with females (89.4%) outnumbering males (72.6%).

More number of students who couldn't concentrate on the subject were suffering from moderate to severe depression (64%). Out of 253 students 95% students were satisfied with the stream they chose while 5% students were not satisfied and in those 5% students the severity of depression was more. Among 253 students 55% students like the way they were being taught the subject while 45% didn't like the way of teaching. Among 253 students 91.3% students didn't want to change the stream. Out of 253 students 60.9% observed change in their appetite over past two weeks. Out of 253 students 78.7 % experienced change in sleep patterns.

Post answering of the phq-9 questions difficulty level in routine activities. It is seen that 66.8% students experienced somewhat difficulty while doing their routine day to day activities.

Table 7: Distribution of students according to satisfaction in their stream.

Questions	Response	
	Yes	No
Ability to concentrate	187 (73.9 %)	66 (26.1 %)
Satisfaction with the stream	241 (95 %)	12 (5 %)
Satisfaction with teaching methods	139 (55 %)	114 (45 %)
Feel like changing the stream	22 (8.7 %)	231 (91.3 %)
Time for recreational activities	122	131
Liking extra-curricular activities	237 (94 %)	15 (5 %)
Change in appetite in past two weeks	154 (60.9 %)	99 (40.1 %)
Change in sleep patterns over the period of two weeks	199 (78.7 %)	54 (21.3 %)
Do you feel capable of taking decisions on your own?	176 (69.6 %)	77 (30.4 %)

Table 8: Difficulty level in routine activities post answering of PHQ-9 questionnaire.

Difficulty level in routine activity	Number of students	Percentage
Not-difficult	39	15.4
Somewhat-difficult	169	66.8
Very-difficult	38	15.0
Extremely-difficult	7	2.8
Total	253	100

DISCUSSION

Depression is a substantial and largely unrecognized problem among adolescents that warrants an increased need and opportunity for identification and intervention at the high school level. The present study revealed a substantial prevalence of depression in medical stream students of urban schools of Ludhiana i.e., out of total students included in the study 84.6% students were suffering from different grades of depression with 17.8% suffering from severe depression.

The current study reported that as the age increases the severity of depression in students also increases, these results were similar to Lamba et al who reported that highest psychiatric illnesses were in those who were 17 (20.4%) followed by 16 (15.2%) and 15 (14%) years of age respectively highest psychiatric illnesses were in the age group of 15 to 17 years.[6] Trivedi, et al. reported that depression was detected among a significant number (P = 0.012) of adolescents (ages 14 and 15 years).[7] The lower percentage of depression in the above-mentioned studies could be because these studies didn't take into account the educational component plus the stress of approaching board examinations and finally the most important was the stress, anxiety and relatively tough standards of the subject.

Out of the total 253 medical stream students studying in urban schools of Ludhiana. The overall prevalence of depression was observed to be 84.6% while Ranney et al. found that among 624 adolescents (88% response rate) meeting eligibility criteria, 22.8% (n=142) screened positive for depressive symptoms.[8] This huge difference between this study and our study was because of the fact that they took adolescents of all ages while in our study we took into account only the students of classes XI and XII of medical stream.

Till date, Indian studies reported prevalence rates of psychiatric disorders among children ranging from 2.6 to 35.6 percent. Bansal PD and Barman R.[9] Showed that among 982 students, 199 (20.2%) had psychiatric morbidity. Lamba et al found that out of total 257 respondents with response rate of 84%. Prevalence of psychiatric morbidity was 14.8% (38 cases).[6] Ahmad et al found the prevalence of the overall psychosocial problems to be 17.9%.[10]

Verma et al reported a study in which 321 students of class XII of various boards which included the state board and I.C.S.E board apart from C.B.S.E board.[11] The only difference in this study and our study was that the prevalence of depression was lower (40.49%) in their study than the prevalence that came out in our study (88.2%) the probable cause of higher prevalence in our study was because that in our study the subjects were of classes XI and XII only the medical stream in schools of C.B.S.E. board while the above-mentioned study had students of different streams in different schools affiliated with three different boards.

In our study there was a significant difference in prevalence of depression between males and females, with females (89.4%) outnumbering males (72.6%) (X2= 15.395 df (3) p= 0.0015). Saluja et al. have also reported that a higher proportion of females (25%) reported depressive symptoms than males (10%).[12]

Trivedi, et al found that girls were significantly more depressed (P=0.016) and further found that out of 392 students they found that 88 (22.45%) students were depressed.[7] There were 27 (6.9%) students with borderline depression, 35 (8.9%) with moderate depression, 16 (4.1%) with severe depression, 10 (2.6%) with extreme depression, and mood disturbances among 71 (18.1%). These studies corroborate the findings of our study which also show a high significance of females being more depressed than male adolescents.

Secondary education is an important phase of student life, from individual, as well as social point of view. During the last phase of adolescence, a number of entrance examinations come up to get seats in the desired field according to their liking this is a very common factor which leads to stress, anxiety and also depression in certain adolescents who are not able to achieve their goals even after trying multiple times of these adolescents the percentage of above-mentioned factors is highest amongst class XII students because of the approaching board and various entrance examinations. Out of the total 253 medical stream students 134 students in Class XIth (81.3%) had depression while (88.2%) of 119 students in class XIIth were depressed. Though the difference of levels of depression between two classes was not very significant.

Our study shows that prevalence of depression in class XII students is more than class XI, as also shown by other studies mentioned below. One possible explanation for the higher rate of depression could be the perceived stress of approaching board examination of class XII, as this period is most crucial and decisive in determining one's future academic and professional career. Verma et al. reported that prevalence of depression was more in class XII students i.e., out of 321 students 40.49% students were mildly depressed, while 19% had major depression.[11] Kumar et al. reported findings supported by previous Indian studies that depression, Anxiety and

Stress were all significantly higher among the 12th class as compared to class 11th.[13] Bhasin et al. found that scores in the three domains i.e., depression, anxiety and stress to be remarkably correlated.[14] Depression (p=0.025), Anxiety (0.005) and Stress (p<0.001) were all significantly higher among the 'board classes' and it was found to have an inverse relationship with the academic performance of the students. Urmila et al., compared scores of depressions obtained in Class XI and compared with scores obtained in 12th for both boys and girls which was found statistically not significant.[15]

Adolescents who participated in recreational activities reported low levels of depressed mood compared to adolescents not participating in such activities. In our study we found that out of the 253 students, 131 were not carrying out any recreational activities and 90% of them were suffering from one or other type of depression. According to our study the students who carried out recreational activities had lower levels of depression which showed that carrying out recreational activities had a protective effect to counter depression and this was statistically significant.

Dhoundiyal et al. found that there is dire need of working upon a conducive environment by all stakeholders to promote the overall development of adolescents. Reaching out to adolescents, while addressing issues like understanding themselves, their minds and bodies, and handling the social pressures, etc. could be organized in formal as well as non-formal school setting and outside it too. Participatory techniques such as role plays, street plays, folk dances, music, puppetry, posters, exhibition, slogan writing, etc. could be used extensively in this regard. Chauhan et al. found that the extra-curricular activities seemed to keep depression away among the study subjects as more than half of the study subjects (54.4%) were involved in outdoor sports like football, badminton and basketball or indoor sports like chess and table tennis.[17] Nearly two-thirds of study subjects (32.1%) participate in music, dance, art and dramatics.

The primary objective of this study was to determine the prevalence of depression among class XI and class XII students of medical stream and to compare the prevalence between the two classes. Based on the identified factors, proactive steps should be taken at school and community levels to ensure healthy school and family environments. Emphasis should also be on information, education and communication activities to ensure recognition of even mild symptoms of depression and their early treatment. Further studies are needed to explore attitude of students, parents and teachers towards mental health problems on large scale.

CONCLUSION

The overall prevalence of depression in our study was 84.6% and it is a prudent reminder of the extreme pressure the adolescent face in this particular age. Compared to other studies the percentage is alarmingly high. This is higher than those reported by several national, regional and international studies. Higher prevalence of depression in our study may be due to the fact that only medical stream students were chosen and these students are under more stress because of the upcoming competitive exams and more taxing syllabus. In similar studies, poor academic performance was one of the risk factors associated with depression, this may be due to the unrealistic expectation the students had about themselves and from their parents.

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