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Original Research Article

Prevalence and risk factors associated with depression among higher secondary school students residing in a boarding school of North Kerala, India

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ABSTRACT

Background: Depression is very common among higher secondary school students. This study is to determine the prevalence of depressive symptoms in higher secondary school students in a boarding school of North Kerala; to identify associated risk factors; to compare the prevalence depression between those attending and not attending additional tuition class for competitive exams.
Methods: This cross sectional observational study was conducted among 130 students residing in a boarding school of North Kerala during the period 2014-2015. CES-DC scale was used to measure the prevalence of depression. All of them were reassessed after 1year of entering the school with the same scale.
Results: The prevalence of clinically significant depression was seen in 57.7% and the prevalence was more in those attending the tuition class (p=0.0068). Depression was more in girls and still higher in girls who attended the tuition classes (p=0.035). There was significant correlation between the prevalence of depression and stream of subjects selected (p=0.001), previous academic achievement (p=0.01). The scores of depressions didn't show any statistically significant difference after one year of stay in boarding school.
Conclusions: Severity of depression correlates with academic stress especially in boarding schools. Stress of competitive exams definitely more in higher secondary students and is one of the important cause for depression in them. Adolescents are not acquiring enough coping skills to overcome depression. Enhancing the coping strategies and the rescheduling of the educational system are the most important factors for prevention of these symptoms.

Keywords: Adolescent, Coping skills, Depression, Students

INTRODUCTION

Depression is a common mental health problem among adolescents and its prevalence varies across countries and studies with a life time prevalence rate of 20-25%.[1] The prevalence is rising substantially throughout teenage which could be due to pronounced biological and social changes.[2] It's difficult sometimes to distinguish between signs and symptoms of depression from occasional bad mood. The risk factors associated with depression have to be identified because it can help in prevention and control of this subdued disease.[3] Girls are more likely than boys to experience depression.[4] The strong female predisposition may be due to hormonal changes attributed to puberty which sensitize the brain to adverse effects of stress.[5] Academic matters are the most important cause of chronic stress among teens throughout the world, and may lead to mental health problems like depression and suicidal ideation.

There is an increasing concern regarding study pressure and its relationships with mental health problems among

school children and adolescents in India.[6] Strategies for prevention are important because the treatment of teen depression is really complex and costly.

The risk factors and the consequences of depression have been well studied in different perspectives, but the extent of this problem is not well studied in higher secondary school children in boarding schools. Effect of stress, due to preparation for competitive exams, on mental health, is also not addressed in many studies. Following this study, we tend to give them proper counseling regarding the coping skills and to teach them about life skills management. Career guidance along with other support service is also planned for boarding school children following this study.

Aims and objectives

- To determine the percentage of depression prevalent among higher secondary school children residing in boarding schools.
- To study the risk factors associated with depression
- To determine the difference between the levels of depression among students in boarding school and those attending additional tuition class for competitive exams.
- To determine the difference in prevalence of depression in both groups after one year.

METHODS

Study group

This Cross sectional observational study was conducted in 130 students enrolled to 11th standard in a boarding school in private sector of North Kerala during the period 2014-2015.

Method of collection of data

Students were selected, after obtaining the due consent from parents, students and principal of the institution.

Stream of studies in which they were enrolled were divided into 3, which included Science and Mathematics (Group1), Mathematics and Computer (Group2) and Commerce (Group3). Students from all three streams were included in the study. Students were also grouped according to academic performance depending on the marks they scored for 10th board exam.

Along with filling the base line data and history of risk factors in a pre-determined proforma, a self-administered instrument prepared by CES-DC (Centre for Epidemiological Studies Depression scale for Children) was given to them to screen for the prevalence of depression.

This scale is a 20-item self-report depression inventory with possible scores ranging from 0-60. Weissman et al, developers of this scale used the cut off scores of 15 as being suggestive of depressive symptoms in adolescents[7]. Those students willing to fill the proforma and participate in the study were only included and were asked to fill the same within one month of admission.

Day scholar students and students with past history of chronic diseases and psychiatric illnesses were excluded from study.

Students were broadly divided into those staying in school hostel and those attending additional tuition class for the preparation for competitive exam, even though they were attending the same school. CES-DC scale was again administered to assess the prevalence after one year stay in the same environment.

Outcome variables were assessed in the form of scores obtained in the CES-DC instrument.[8] Those getting a score of less than 15 were grouped as having no depression, those with scores between 15-40 were having moderate depression and those with scores more than 40 as having severe depression. The scores were compared with scores they obtained after one year.

Statistical analysis

Statistical analysis was done using chi square test and a p value less than 0.05 was taken as significant. Student t test was performed to compare between the scores between two groups.

RESULTS

Out of a total of 146 students enrolled into 11th standard in 2014, 16were excluded and 130 students including boys and girls were included in the study.

Mean age of children was 15.32years (SD-0.66). Females were 50 in number which constituted 38% and males 80 (62%).

45.38% enrolled in stream1 (Group I/Science and Mathematics), 37 (28%) chose stream 2 (Group II/Mathematics and Computer Science) and rest stream 3 (Group III/Commerce) 34 (26.4%).

Students who scored all A+ in 10th board exam were 28 (21.5%) and those who scored more than 3A+ were 70 (54.3%) in number and less than that were 32 (24.8%).

65 (50%) students were attending tuition class for preparation for competitive exams and rest half not attending tuition. When the depression scores based on CES-DC was analyzed, 55 students (41.9%) had scores of less than 15, 66 (51.2%) had scores between 15 and 40, and 9 (7%) had scores above 40.

Scores were different for same students after 1year, 74 (56.9%) had scores less than 15, 50 (38.4%) had scores

between 15 and 40 and 6 (4.6%) had scores more than 40. As a whole the students who scored more than 15 constitute 57.7% in 11th and 43% in 12th. But it was not a statistically significant difference.

Table 1: Comparison of depression scales in 11th students staying in school hostel and attending tuition against those staying in hostel and not attending tuition classes.

Score	11th girls staying in hostel and attending tuition classes	11th girls staying in hostel and not attending tuition classes	P value
<15	5	16	0.0068
15-40	15	7	
>40	5	2	
Score	11th boys staying in hostel and attending tuition classes	11th girls staying in hostel and not attending tuition classes	
<15	14	20	0.39
15-40	25	19	
>40	1	1	
Score	11th girls staying in hostel and attending tuition classes	11th boys staying in hostel and attending tuition classes	
<15	5	14	0.042
15-40	15	25	
>40	5	1	
Score	11th girls staying in hostel and not attending tuition classes	11th boys staying in hostel and not attending tuition classes	
<15	16	20	0.22
15-40	7	19	
>40	2	1	

Table 2: Comparison of depression scales in 12th students staying in school hostel and attending tuition against those staying in hostel and not attending tuition classes.

Scores	12th girls staying in hostel and attending tuition classes	12th girls staying in hostel and not attending tuition classes	P value
<15	5	20	0.0001
15-40	18	4	
>40	2	1	
Score	12th boys staying in hostel and attending tuition classes	12th girls staying in hostel and not attending tuition classes	
<15	22	27	0.49
15-40	16	12	
>40	2	1	
Score	12th girls staying in hostel and attending tuition classes	12th boys staying in hostel and attending tuition classes	
<15	5	22	0.02
15-40	18	16	
>40	2	2	
Score	12th girls staying in hostel and not attending tuition classes	12th girls staying in hostel and not attending tuition classes	
<15	20	27	0.433
15-40	4	12	
>40	1	1	

A family history of depression or any other psychiatric problems were asked and 9 (6.9%) students gave a positive history and the rest 121 (93.1%) gave a negative history. Family history of psychiatric illness was compared with depression scores obtained in two years

individually and was found to be statistically not significant. (p=0.103 and p=0.68).

Parent's occupation was categorized as professionals, semi-professionals, and others. 45 parents (34.8%) belonged to professional group, 67 (51.9%) belonged to semi-professional type and rest 18 belonged to others. Parent's occupation was compared with depression scores in the scores of 11th and 12th (p=0.57 and p=0.87) which was also not significant. Socio economic status (Kuppusami scale) was also not found to be statistically correlating (p=0.97).[9]

Marks obtained in 10th showed a significant association with depression scores of 11th standard students with an x^2 value of 12.5 (p =0.01), marks didn't positively co-relate with depression scores after one year (p =0.16). Stream chosen by students had significant association with depression scores in two years. x^2 value is 20.68 (p =0.001) in 11th and x^2 value of 29.48 (p =0.001) for 12th. Both of these were significant.

Scores of depression obtained in the 11th was compared with scores obtained in 12th for both boys and girls which was found statistically not significant. Scores of depression were compared between students attending tuition class and not attending, separately for boys and girls in 11th (Table 1) and 12th standards (Table 2).

Female students were found to be more depressed, with x^2 value of 6.67 (p =0.035) in first year, which was statistically significant; and x^2 value of 0.301 (p =0.8) in 2nd year which was nonsignificant. Even in students who attended tuition there was significant difference between boys and girls (p =0.04)

Analysis done in depression score in 12th students showed that girl students attending tuition class were more depressed than their peers not attending tuition whereas in boys there was no significant difference. (Table 2).

DISCUSSSION

Adolescence is a turbulent period in which there is a complex interaction of factors like sex hormones, psycho social stressors, developmental factors, inherited factors all of which play their role. So, an adolescent is having increased vulnerability to depression, stress and anxiety.[10] Academic stress adds on to the fire. More than 50% of them experience a depressed mood and 8-10% progress to clinical signs of depression. Teenage depression affects academic, cognitive, social developments in a negative way and may lead to significant complications if left unattended.

Globally, Roberts et al reported that the prevalence rates of mental disorders among children and adolescents range from 1% to 51% with a mean rate of 15.8% for adolescents.[11] In developing countries, the prevalence of mental disorders among adolescents attending primary health care facilities ranges between 12% and 29%.[12] Harrington and Clark reported that 60% of adolescents experience depressive symptoms.[13]

The percentage of overall depression in our study is 57.7% in the 1st year and 43%in 2nd year and it is a prudent reminder of the extreme pressure the adolescent face in this particular age. A great majority of them are in a depressed mood, this may be explained by the fact that the proforma was filled within 1 month of their admission to hostel. A change in environment along with a rapid introduction to a more taxing syllabus might have leads to this. Compared to other studies the percentage is alarmingly high. This is higher than those reported by several national, regional and international studies.

A review of the literature reveals a considerable disparity in figures on the prevalence of psychiatric disorders in adolescents. This could be due to the diversity in methods, definitions used, or geographical locations. But the percentage with high scores (>40) were only 7% which is comparable to other studies.[14] This may be with regards to their anxiety regarding performance in the board exams, which is taken as a measure of their entire academic caliber. A study on source of and level of stress in university students showed that 77.6% and 10.4% of students experienced severe stress and there was significant difference between boys and girls.[15] In a study of depression among adolescent students in south India by Divya Trivedi in showed that 22.45% of students were depressed.[16] Each year adds to more competitiveness in students and that may be the reason for the higher percentage in our students. In this respect when the difference in percentage of depression was analyzed among students staying in hostel and not attending tuition was less than those attending additional tuition classes. Additional burden of tuition class and the stress of preparing for the competitive exams may be root cause for this finding. Boys showing less stress than girls. Our study also had results with depression in boys being less compared to girls.

In our study the percentage of depression was not positively co relating with the level of education of parents. In a similar study done in Malaysia on depression among secondary school students by Adlina S showed that students with parents who have no formal education or only primary education had more chances of depression.[17] Our study shows that the students who chose Science and Maths were more depressed may be because of the stress associated with the upcoming competitive exams and more taxing syllabus. In similar studies, poor academic performance was one of the risk factors associated with depression, but in our study those students who scored high marks in their 10th board exam was more depressed than their peers. This may be due to the unrealistic expectation the students had about themselves and from their parents.

In a study done in Riyadh on depression screening in adolescent females by Raheel et al, 30% were found to be depressed and another study by same author on coping strategies of adolescent girls to overcome stress suggested that they used emotion based coping strategies than problem solving skills which could have long term implications.[18] In our study the coping mechanism the students adopted to overcome stress was not studied in particular, but there was no significant decrease in the depression levels after one year indicating that the coping strategies they used were not effective. The lack of parental support in hostels and the stress of facing the board exam may be cause for this. Study by Jayanthi and et al in Tamil Nadu on academic stress and adolescent depression showed similar percentage of depression and academic stress positively correlated with depression in consistent with our study which showed that Science and Mathematics students were more stressed than their peers.[19]

Limitations

This study has the following limitations: it was performed exclusively in the City in North Kerala; hence, its results exclusively reflect the psychiatric status of urban adolescents. It was a school-based study which might therefore miss adolescents in the community who do not attend school. In addition, there is no built-in lie scale in CES-DC as it is just a self-reporting data collection tool for screening which should be followed by a structured psychiatric assessment. Finally, no information on coping strategies was studied.

CONCLUSION

Findings of study showed high prevalence of depression in adolescents, and more for good academic achievers who prepared for competitive exams. Purpose of this study is to highlight the common but ignored problem of depression. Findings emphasizes need of screening of depression symptoms and identifying adolescents who need further intervention because this problem can result in poor academic performance, poor coping methods and suicidal ideations.

Academic stress should be decreased by involving students in more co- curricular activities and reducing the parental pressure on students for higher academic achievements. Teachers and parents should be made aware to identify depression at earlier stage so that the risk for progression to severe depression and problems like drug abuse, suicide and violence can be minimized. Health education to parents as well as to whole community should be promoted to remove the stigma attached to these disorders.

Studies similar to present study could pave the way for school-based interventions that may help adolescents with mild and moderate depressive symptoms which in turn could minimize the risk for progression into other serious problems like drug abuse, suicide and violence.

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