Original Research Article

Prevalence and risk factors for anxiety and depression among school going adolescent of Rajkot, Gujarat, India

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ABSTRACT

Background: Adolescence is a period of turmoil, leading to several mental health challenges including anxiety and/or depression. Anxiety and depressive disorders affects 10-15% of adolescents. Anxiety and depression are associated with substantial negative effects on adolescent's social, emotional and academic success. This leads to poor social and coping skills, low self-esteem, perceptions of social rejection, and difficulty forming friendships. This study was carried out with an objective to study prevalence and risk factors for anxiety and depression among adolescents.

Methods: A cross sectional study conducted from April 2014 to December 2015 among 1026 school going adolescents from 4 schools of Rajkot, Gujarat, India. Anxiety and depression were measured using Beck Anxiety Inventory (BAI) and Beck Depression Inventory (BDI) respectively. Chi-square test was applied as test of significance.

Results: Majority of the students (58.1%) was belonged to early adolescent age group. Two third were males. Maximum adolescents (42.5%) were coming from class III. Prevalence of moderate-severe anxiety and depression was 9.9% and 18.5%. Anxiety was not significantly associated with age, gender and socio economic class. Prevalence of depression was significantly higher in boys (20.5%) as compared to girls (14.5%, p=0.02). Moderate to severe depression was gradually increased with increasing in age. Adolescent from upper socio economic class (I, II, III- 19.1%) were severely depressed than adolescent from lower socio economic class (IV, V- 4.1%).

Conclusions: Anxiety and depression was significantly present in adolescent age group. Depression was commonly observed in boys and gradually increased with increasing in age. There is need of strengthening school health services with screening and cost effective interventions to minimize the risk of drug abuse, suicide and violence.

Keywords: Adolescent, Anxiety, Beck anxiety inventory, Depression, Socio economic class

INTRODUCTION

Adolescent (10-19 years) accounts for 21.4% of the India's population.[1] According to the WHO, adolescence is the period of life that extends from 10 to 19 years. The Indian Academy of Pediatrics defines adolescence as the period of life between 10 and 18 years.[2] Many diseases in adulthood have their roots in adolescence. Adolescence is a period of turmoil, leading to several mental health challenges including anxiety and/or depression. Anxiety is one of the most common psychological problems in school going adolescents worldwide.[3] Depressive disorders affects 10-15% of adolescents. Anxiety and depression are associated with substantial negative effects on adolescent's emotional, social and academic success.[4] This leads to poor coping skill, low self-esteem, difficulty forming friendships and perceptions of social rejection. Very few studies have addressed depression and anxiety among school going adolescents in India. It should be

explored further due to the seriousness of its adverse consequences.

This study was carried out with an objective to study prevalence and risk factors for anxiety and depression among adolescents.

METHODS

This cross sectional study was carried out for duration of 21 months (April 2014 to December 2015) after approval from Institutional Ethics Committee of the P. D. U. Govt. Medical College, Rajkot, Gujarat, India. Total four schools of Rajkot were randomly selected by computer generated random number.

Inclusion criteria

- Students from 5th to 12th standard (10-19 years)
- Both gender

Exclusion criteria

- Adolescents who were absent on the day of visit were excluded
- Those who denied consent were excluded

Total 1026 adolescents (688 boys and 338 girls) were included. Written informed consent was taken from each participant. A predefined questionnaire was given to be filled by themselves. Questionnaire included information regarding age, sex, standard, socioeconomic status and health problems. Beck Anxiety Inventory (BAI) with 21 items was used for anxiety. The total score is calculated by the sum of the 21 items. Score of 0-21= low anxiety, Score of 22-35= moderate anxiety, Score of 36 and above= potentially concerning levels of anxiety. Beck Depression Inventory is used as psychological instrument for detecting early symptoms of depression in adolescents.[5] Score of 1-10 is normal, 11-16 is mild mood disturbance, 17-20 is borderline clinical depression, 21-30 is moderate depression, 31-40 is severe depression and >40 as extreme depression.

The data were entered into Microsoft excel 2010 spreadsheet and analyzed using EPI INFO Version 7 software. Qualitative data were presented as frequency and percentage and compared with Chi square test. The p-values equal to or less than 0.05 was considered as significant.

RESULTS

Total 1026 adolescent students were enrolled in this study. Figure 1 shows socio-demographic detail of students. Mean age was 13.3 years. More than half of the students (596, 58.1%) were 11 to 13 year age group. About 2/3rd students (688, 67.1%) were males with male to female ratio 2.03:1. Maximum adolescents (451, 42.5%) were belonging to class III followed by class IV

(240, 23.4%) and class II (56, 5.5%). Majority of students were from 6th to 8th standard (79.0%). Very few numbers of students in the standard 5th, 10th, 11th and 12th can be explained by their absenteeism and their reluctance to participate in the study.
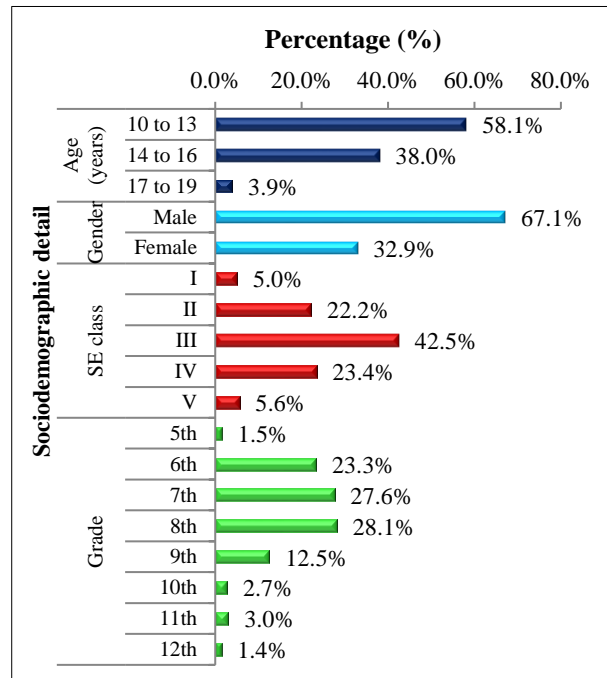

Figure 1: Sociodemographic characteristics of school going adolescents (N=1026).

Table 1: Relationship of various socio-demographic factors to anxiety (N=1026).

Associated factors	Level of anxiety			Total
	Low (%)	Moderate (%)	Severe (%)	
Age in years (χ^2=4.00, df=4, p-value=0.41)				
10-13	544(91.3)	44(7.4)	8(1.3)	596
14-16	343(87.9)	41(10.5)	6(1.5)	390
17-19	37(92.5)	2(5.0)	1(2.5)	40
Gender (χ^2=2.29, df=2, p-value=0.31)				
Boys	626(91.0)	52(7.6)	10(1.5)	688
Girls	298(88.2)	35(10.4)	5(1.5)	338
Socioeconomic status (χ^2=3.13, df=2, p-value=0.20)				
Class I, II and III	660(90.4)	57(7.8)	13(1.8)	730
Class IV and V	264(89.2)	30(10.1)	2(0.7)	296
Total	924	87	15	1026

Table 1 describes relationship of various socio-demographic factors to anxiety. Proportion of moderate anxiety is 8.4% (87) and severe anxiety is 1.4% (15). Moderate and severe anxiety was considered as significant anxiety. The relation between anxiety and age group of school going adolescents is statistically not significant (p-value=0.41). Anxiety was also not

associated with gender and socio economic class as p-value was 0.31 and 0.20 respectively.

Total 190 adolescent (18.5%) were suffering from depression. Table 2 shows relation between depression and demographic factors of studied adolescents. Age and socioeconomic class of adolescents were not significantly associated with depression. However, prevalence of depression was significantly higher in boys (20.5%) as compared to girls (14.5%, p=0.02).

Table 2: Relationship of various socio-demographic factors to depression (N=1026).

Socio demographic variable	Normal	Depression	Total
Age in years (χ^2=0.08, df=2, p-value=0.95)			
10-13	485(81.4%)	111(18.6%)	596
14-16	319(81.8%)	71(18.2%)	390
17-19	32(80.0%)	8(20.0%)	40
Gender (χ^2=5.4, df=1, p value = 0.02)			
Boys	547(79.5%)	141(20.5%)	**688**
Girls	289(85.5%)	49(14.5%)	**338**
Socioeconomic status (χ^2=1.1, df=1, p-value=0.30)			
Class I, II and III	589(80.7%)	141(19.3%)	730
Class IV and V	247(83.4%)	49(16.6%)	296
Total	836	190	1026

Table 3: Relationship of various socio-demographic factors to level of depression (N=1026).

Socio-demographic variable	Level of depression			Total
	Low (%)	Moderate and borderline (%)	Severe and extreme (%)	
Age in years (χ^2=3.63, df=4, p-value=0.45)				
10-13	58(52.3)	38(34.2)	15(13.5)	111
14-16	34(47.9)	24(33.8)	13(18.3)	71
17-19	2(25.0)	5(62.5)	1(12.5)	8
Gender (χ^2=2.2, df=2, p-value=0.32)				
Boys	71(50.4)	46(32.6)	24(17.0)	141
Girls	23(48.9)	21(44.7)	5(10.6)	47
Socioeconomic status (χ^2=2.2, df=2, p-value=2.3)				
Class I, II and III	66(46.8)	48(34.0)	27(19.1)	141
Class IV and V	28(57.1)	19(38.5)	2(4.1)	49
Total	94	67	29	190

Table 3 shows that level of depression (Mild, moderate and severe) was not significantly associated with age, gender and socio economic class. However, Out of depressed early adolescent, about 47.7% early adolescent were suffering from moderate to severe depression. Proportion of moderate to severe depression among middle and late adolescent was 52.1% and 75.0% respectively. It shows that moderate to severe depression was gradually increased with increasing in age from early

to late adolescent. Adolescent from upper socio economic class (I, II, III- 19.1%) were severely depressed than adolescent from lower socio economic class (IV, V- 4.1%).

Table 4: Association between level of anxiety and depression of school going adolescents.

Anxiety level	Depression		Total
	No depression (%)	Presence of depression (%)	
Low	812(87.8)	112(12.2)	924
Moderate and severe anxiety	24(23.5)	78(76.5)	102
Total	**836**	**190**	**1026**

χ^2=252.08, df=1, p-value=0.001.

Table 4 depicts significant association between level of anxiety and depression of school going adolescents. (χ^2=252.08, df=1, p-value=0.001).

DISCUSSION

Anxiety is one of the most common psychological disorders in school-aged children and adolescents worldwide. In the present study, prevalence of moderate and severe anxiety was 9.9% (Moderate anxiety- 8.4% and severe anxiety- 1.4%). Prevalence of anxiety was 11.0% and 18.6% in the study of Kumar et al, and Deb S et al, respectively.[5,6]

Gender

In the present study, girls reported higher anxiety (11.9%) than boys (9.1%) but statistically not significant. Kumar A et al, reported anxiety was more prevalent in girls (21.2%) than boys (1.3%).[5] However, Deb S et al, revealed higher anxiety in boys (20.1%) than girls (17.9%).[6]

Socio economic status

In the present study, socio economic status was not associated with anxiety among adolescent. Deb S et al, observed that the mean anxiety scores were higher for the middle socio-economic group (30.0) than low socio-economic group (28.6) and then the high (23.6) socio-economic group (p<0.05).[6] These differences in gender and socio economic status may be due to environmental factors and biological and gender roles, gender-role stress, social relationships, and gender differences in socialization process.[7,8]

In the present study, prevalence of depression was 18.5% (Mild- 9.16%, moderate and borderline- 6.5% and severe- 2.8%). Bansal et al, documented similar prevalence of depression (18.5%).[9] However, various Indian studies reported higher prevalence of depression than the present

study (Mohanraj R et al, 60.0%, Jayanthi P et al, 25.0%).[10,11] BDI scale was used in all studies.

In the present study, moderate to severe depression was gradually increased with increasing in age from early to late adolescent. Mohanraj et al, also supported this observation.[10] There is major transition at age of 16 from high school to the secondary school. They may experience more stress like peer influence, independence from family, increasing autonomy, and social adjustment.[10] In the present study, boys (20.5%) were more depressed than girls (14.5%). In a Mohanraj R et al, reported contrary finding as moderate severe depression was higher in girls (27.0%) than boys (21.0%) but statistically not significant.[10] In Indian society, investment in sons' education is related to the expectation of better future employment and familial security.[6] Therefore, adolescent boys have to face more pressure regarding their future career and proper choice of employment which may lead to depression.

In the present study, socio economic status was not significantly associated with depression. However, when level of depression was compared with socioeconomic status, it was observed that severe depression was higher among adolescent from socio economic class I, II and III (19.1%) than adolescent from socio economic class IV and V (4.1%). Contradictory finding was observed in the study of Vashisht A et al.[12] In their study, prevalence was higher in adolescent of class V (56.0%) compared to class IV (40.0%), III (32.0%), II (30.0%) and I (10.2%). This disparity in the socioeconomic class can be explained by poorer coping styles, peer pressure, stress exposure, addiction and weaker social support among the higher socioeconomic class.

CONCLUSION

In this study, anxiety and depression were significantly present in adolescent age group. Depression was commonly observed in boys and gradually increased with increasing in age. Severe depression was higher among adolescent from upper socio economic class than adolescent from lower socio economic class. This may lead to poor academic performance, poor stress coping methods and suicidal tendency. There is need of strengthening school health services with screening and cost effective interventions for depression to minimize the risk for progression into other problems such as drug abuse, suicide and violence.

ACKNOWLEDGEMENTS

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