Depression among higher secondary students of science stream of private schools of Rajkot

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ABSTRACT

Background: Depression with the magnitude of 8 – 20% emerged as major mental health morbidity among adolescents due to its devastating consequences of suicidal tendencies, academic failure, poor social relationships, and substance abuse. The current study was carried out to estimate the magnitude of depression among the students of private higher secondary schools of science stream in Rajkot city, Gujarat. Methods: A cross-sectional study was conducted among the 1219 students of 11th and 12th standards of private schools of science stream in Rajkot city using a multistage sampling method. Students were screened using Patient Health Questionnaire-9 for Depression and categorized into no depression, mild, moderately severe and severe depression. Epi Info software version 7.1.5.2. from CDC, Atlanta, USA was used to analyze the data. Results: One-third (31.99%) of students had depression followed by Dysthymia (20.59%) and Suicidal risk in 1.64% of students. The prevalence of depression was higher in female students (37.28%) than males. Students of 12th standard (38.06%) were more depressed than 11th standard (25.98). The suicidal risk was found more among the students of 12th standard (2.47%) compared to 11th standard (0.82). The prevalence of Depression, Dysthymia and Suicidal risk were more in Muslim students than Hindus. According to severity, female students (13.98%), 12th standard students (11.53%), Muslim (19.73%) and students residing at a hostel (12.12%) were more depressed (moderate to severe) than their counterparts. Conclusion: In the present study, a significant proportion of students were found suffering from depression.

Keywords: Depression, dysthymia, patient health questionnaire-9, students

Introduction

Adolescence is a state of great commotion with regard to behavioural and emotional aspects. The adolescent age group is defined as a period of life between the age of 10 and 19 years by World health organization (WHO).¹ Depression is a mental disorder that presents with symptoms like disturbed sleep and appetite, low self-esteem, poor concentration, guilt or low self-worth, loss of interest and pleasure, and depressed mood. Petersen et al. (1993) defined adolescent depression as depressed mood, depressive syndrome and clinical depression.² Dysthymia, also called Persistent Depressive Disorder, is defined as a persistent low-grade depression for at least the past two years with associated other symptoms of Depression (eating disorders, sleep disorders, low self-esteem, poor concentration, etc.).³ Suicide risk is defined as thinking about ending oneself associated with a suicidal attempt ever in the whole life.⁴

Students of science streams of higher secondary private school are going through great mental stress because of a highly competitive academic environment, social pressure, and personal issues.

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competitive environment in the school and the expectation and pressure of parents for better academic performance. In a comparative study done in Gujarat, science stream students were more severely depressed than non-science stream students.\[3\] About 11.3% depression was observed among the higher secondary school students in a study done in India.\[4\] A study done on Indian high school students shows that academic stress and parental pressure were higher among the 12th standard students than 11th standard, but no difference was found among the students of both standards regards to psychiatric morbidity.\[7\]

Depression, in the last two decades, emerged as major mental health morbidity among adolescents due to its devastating outcome of suicide, which is a third leading cause of mortality in adolescents. Depression in adolescents leads to suicidal tendencies, academic failure, poor relationships with peers, family and other relatives, substance abuse, severe depression, and other psychiatric co-morbidities.\[8\] A substantial number of adolescents found with a rate ranging from 8% to 20% suffer from depression.\[9,10\] The proportion of adolescents having emotional and behavioural problems ranging from 16.5% to 40.8% in all over the world and in India the range is 13.7% to 50%.\[11-14\] A meta-analysis estimated that about 13% of children and adolescent suffer from mental disorders globally.\[15\] A previous study showed that adolescent school girls were more depressed than boys.\[16\] Psychiatric morbidity with depression being the most prevalent disorder was observed in 29% of girls and 23% of boys among the school-going adolescents.\[17\] From meta-analysis, about 5.6% of adolescents were found to have a major depressive disorder.\[18\]

A 7% of children in the community and 23% of school-going children have psychiatric disorders in India.\[19,20\] A proportion of depression increases from childhood to adolescence for all, but adolescent girls are 1.5 to 3 times more vulnerable to developing depression than their counterparts.\[21\] An annual incidence rate of depression, 1.6 per thousand children aged 10 – 17 years was observed from a community-based longitudinal study in north India.\[22\] Though the government of India implemented the School Health Programme under Ayushman Bharat, it does also not address the depression and other psychiatric morbidities among school-going children. One of the reasons behind overlooking the depression among adolescents is the wide range of presenting symptoms like unexplained physical symptoms, eating disorders, poor academic performance and other behavioural symptoms.\[23,24\] Child psychiatric disorder is less researched, especially in Gujarat. Due to a lack of data on the prevalence of depression and other psychiatric morbidities among adolescents, effective mental health programmes for adolescents cannot be implemented.

Therefore, this study was planned to find the prevalence of depression among students of private higher secondary schools of science stream in Rajkot city, Gujarat.

**Methodology**

It was a cross-sectional observation study done from June 2017 to March 2018 among the science stream students of the private higher secondary school of Rajkot city, Gujarat. Ethical approval was obtained from the Institutional Ethical Committee (IEC).

A sample size of 1200 students was derived by taking 25% prevalence (P) of Depression among adolescents from a study done in South India with relative precision 10% of P and a level of significance at 5%.\[25\]

Out of 103 higher Secondary science stream schools, 57 were private or self-finance schools in Rajkot city. Private or self-finance schools were selected using multistage sampling and from each school one 11th and one 12th standard classes were selected. Schools having more than one 11th or 12th class, one class of each standard was selected by lottery method. Total 1219 students (about 50% students from each standard) who were present at the time of school visit and those who gave consent were included in the study. The students were enrolled in the study using the random number table methodology. Schools were continued selected till desired study sample was achieved. A total of 14 schools were be visited for study purpose to get the desired sample.

A pre-tested and semi-structured questionnaire developed in local language was used to collect information regarding socio-demographic profile, occupation, income and education of parents, details regarding family and other relevant information. The questionnaire was self-administered with maintaining the privacy and the result was kept confidential. The Patient Health Questionnaire-9 (PHQ-9) modified for the teen was used to screen students for identifying the symptoms of depression and categorized into no depression (score 0-4), mild (5-9), moderate (10-14), moderately severe (15-19) and severe depression (20-27) by score observed in PHQ-9.\[26\] A total score is obtained by summing the response (0-3) in 1 to 9 criteria of the PHQ-9 questionnaire. The PHQ-9 was administered in either English or Gujarati as per school medium. According to PHQ-9, Depression is diagnosed if criteria 1 to 8 of questionnaire score “2” or “3” that is symptoms present for more than half a day or nearly every day with criteria 9 (thought that you would be better off dead, or of hurting yourself in some way) if present at all. Dysthymia is diagnosed if the student feels depressed or sad most of the day even if he or she felt okay sometime in past year as per PHQ-9. According to PHQ-9, a positive response in suicide risk question is having thought of ending one’s life in the past month and suicide attempt ever in whole life.

Data entry was done in Microsoft excel 2007 and analyzed using Epi Info software version 7.1.5.2. from CDC, Atlanta, USA. The frequency and percentage were calculated for categorical data and the Chi-square test was used to compare the depression among the different variables.
Results

Table 1 shows that 31.99% of students were suffering from depression. The prevalence in male and female students was 29.90% and 37.28%, respectively. Depression was observed more in students of 12th standard (38.06%) than 11th standard (25.98%). By religion, the proportion of depression was 30.27% and 57.89% among Hindu and Muslim students respectively. Depression was found more in students living in a hostel (42.42%).

About 20.59% of study participants had Dysthymia. More female students (26.30%) than males (18.33%) had Dysthymia. Muslim (31.58%) students had a higher prevalence than Hindu (19.86%) students. A higher proportion of Dysthymia was observed in hostel (22.82%) students than those residing at home (20.14%) as shown in Table 1.

In the present study, 1.64% of participants had suicidal tendencies. Female (2.60%) students had more suicidal risk than males (1.26%). More 12th standard (2.47%) students than 11th standard (0.82%) had suicidal tendency and by religion risk was higher in Muslim (10.53%) students than Hindu (1.04%). Suicide risk was found 1.78% and 0.97% in students residing at home and hostel, respectively.

Table 2 elaborates the distribution of participants into different categories of depression according to the severity score obtained in the PHQ-9 questionnaire. Female students were more moderate to severely depressed (13.98%) than males. Students from the 12th standard (11.53%) were more depressed than students of the 11th standard (6.86%). The proportion of moderate to severe depression was found higher among Muslim students (19.73%) than Hindu students. The students residing at a hostel (12.12%) were more depressed in the present study.

Discussion

This study had included 1219 school going students of the science stream of Rajkot city of Gujarat. The observed prevalence of depression in the present study was 31.99% with 22.81% of students having mild depression, 6.23% having moderate depression, 2.30% having moderately severe depression and less than 1% students having severe depression. The mixed results were observed by the studies done in past with prevalence of depression ranging from 18.4 to 79.2%. The variation in the prevalence of depression observed in different studies was due to varying sample size and use of different screening tools such as the Beck Depression Inventory and centre for Epidemiological studies-depression scale.[26] As observed in different studies done in India, in the present study, girls students (38.39%) were found to be more depressed than boys (29.90%) and the difference was statistically significant.[27]

The statistically significant number of students from 12th standard were found to be more depressed than students of 11th standard. A comparable result was observed in previous studies done by Jayanthi P et al. and Man Mohan Singh et al.[25,28]

Students from the Muslim (57.89%) community were significantly more depressed than Hindu students (30.27%). While in the study done by Kuna Kishore Jha et al.[29] the students belonging to minority (Buddhism, Jainism, etc.) were found to be more depressed than students of Muslim and Hindu religions.

Dysthymia was more prevalent in female (26.30%) students than male students (18.33%) and among students belonging to Muslim (31.58%) religion compared to Hindu religion (19.86%) and the difference was statistically significant (p < 0.05).

A statistically higher prevalence of suicidal risk was observed among the students of 12th standard (2.47%) compared to students of 11th standard (0.82%). Muslim (10.53%) students had significantly more suicidal risk than Hindu (1.05%) students.

Limitation

The study’s major limitation was that the Psychiatrist could not confirm the diagnosis due to feasibility issues.

Table 1: Prevalence of depression, dysthymia and suicidal risk among students according to basic demographic characteristics

| Variables | Depression | Dysthymia | Suicidal Risk | Total Students |
|-----------|------------|-----------|---------------|---------------|
|           | n (%)      | P, χ²     | n (%)         | P, χ²         | n (%)         | P, χ² | n=1219 (%) |
| Gender    |            |           |               |               |               |       |
| Male      | 261 (29.90)| <0.05, 6.21| 160 (18.33)   | <0.05, 9.63   | 11 (1.26)     | >0.05, 2.76 | 873 (71.62) |
| Female    | 129 (37.28)|           | 91 (26.30)    |               | 9 (2.60)      |       | 346 (28.38) |
| Standard  |            |           |               |               |               |       |
| 11th      | 159 (25.98)| <0.05, 5.98| 126 (20.59)   | >0.05, 5.16   | 5 (0.82)      | <0.05, 5.16 | 612 (50.20) |
| 12th      | 231 (38.06)| 20.42     | 125 (20.59)   | 0.000020      | 15 (2.47)     |       | 607 (49.80) |
| Religion  |            |           |               |               |               |       |
| Hindu     | 346 (30.27)| <0.05, 24.99| 227 (19.86)   | <0.05, 5.98   | 12 (1.05)     | <0.05, 9.63 | 1143 (93.77) |
| Muslim    | 44 (37.89) | 24.99     | 24 (31.58)    |               | 8 (10.53)     |       | 76 (6.25)   |
| Residence |            |           |               |               |               |       |
| Home      | 302 (29.81)| <0.05, 20.14| 204 (20.14)   | >0.05, 1.78   | 18 (1.78)     | >0.05, 0.69 | 1013 (83.10) |
| Hostel    | 88 (42.72) | 13.11     | 47 (22.82)    | 0.75          | 2 (0.97)      |       | 206 (16.90) |
| Total     | 390 (31.99)|           | 251 (20.59)   | 20 (1.64)     |               |       | 1219 (100)  |
Table 2: Severity of depression among students as per various demographic characteristics

| Variables       | Minimal/No Depression | Mild | Moderate | Moderately Severe | Severe | \( P, \chi^2 \) | Total Students |
|-----------------|-----------------------|------|----------|-------------------|--------|----------------|----------------|
| Gender          |                       |      |          |                   |        |                |                |
| Male            | 612 (70.10)           | 196  | 44       | 17                | 4      | <0.05, 12.67   | 873 (71.62)    |
| Female          | 217 (62.72)           | 82   | 32       | 11                | 4      | 1.16           | 346 (28.38)    |
| Standard        |                       |      |          |                   |        |                |                |
| 11th            | 453 (74.02)           | 117  | 23       | 16                | 3      | <0.05, 26.05   | 612 (50.20)    |
| 12th            | 376 (61.94)           | 161  | 53       | 12                | 5      | 0.82           | 607 (49.80)    |
| Religion        |                       |      |          |                   |        |                |                |
| Hindu           | 797 (69.73)           | 249  | 65       | 25                | 7      | <0.05, 26.69   | 1143 (93.77)   |
| Muslim          | 32 (42.11)            | 29   | 11       | 3                 | 1      | 1.32           | 76 (6.23)      |
| Residence       |                       |      |          |                   |        |                |                |
| Home            | 711 (70.19)           | 214  | 61       | 20                | 7      | <0.05, 14.87   | 1013 (83.10)   |
| Hostel          | 118 (57.28)           | 64   | 15       | 8                 | 1      | 0.49           | 206 (16.90)    |
| Total           | 829 (68.01)           | 276  | 76       | 28                | 8      | 0.66           | 1219 (100)     |

**Conclusion**

This study has shown that a high prevalence of Depression and Dysthymia was observed in the study population with a small proportion of students were having suicidal tendency. The majority of students were suffering from mild depression. The study findings emphasize the need to screen school-going children for depression and other psychiatric morbidities using the platform of school health programme with the end objective of healthy students. In addition, the study suggests that primary care physicians screen adolescents who come for other illnesses for depressive symptoms.

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**Conflicts of interest**

There are no conflicts of interest.

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