PREVALENCE AND ASSOCIATION OF DEPRESSION AND SUICIDAL TENDENCY AMONG ADOLESCENT STUDENTS

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Abstract

This is a cross sectional study to find the prevalence of adolescent depression, suicidal ideation and associated socio-demographic factors among adolescent students. 3141 students aged between 15 to 19 years from residential and non-residential government and private schools and colleges from Davangere participated in the study. The self administered questionnaire of Beck’s depression inventory II was used to evaluate the depression status and suicidal ideation was analyzed using item number 9 of BDI. The prevalence of depression in our study group was 57.7%. The prevalence of suicidal ideation was significantly ($P=0.000$) more among depressed (41.7%) compared to non-depressed (11.4%). Residential school students were more depressed (74.5%) than non-residential school students (52.1%, $P=0.000$). Students from joint family were less depressed (40.1%) compared to those from nuclear family (63.3%, $P=0.000$). Moderate depression was the commonest type followed by mild, severe and extreme types. Age, sex, class, recent academic performance, mother’s education level, factors at home like quarrel, financial, alcoholism and chronic illness in parents showed significant relationship with prevalence of depression. Depressed students had problem getting along with parents, siblings, friends and teachers. Parents education level and occupation status had no association with depression rates. To conclude the prevalence of depression in adolescent students of our study group was high and suicidal ideation was significantly high among the depressed students.

Keywords: Adolescent, depression, suicide, residential school, parent’s education, joint family

1. Introduction

WHO defines adolescents as individuals aged 10-19 years. In India, they account for 20% of the population¹. An estimated 20% of the world’s adolescents have a mental health or behavioral problem². Just 50 years ago, many physicians had reservation regarding the existence of significant depressive disorders in children; primarily because they believed that children lacked the mature psychologic and cognitive structure necessary to experience these problems. However, a growing body of evidence has confirmed that children and adolescents not only experience the whole spectrum of mood disorders but also suffer from the significant morbidity and mortality associated with them. Suicide has become a growing public health concern as successive generations have shown a parallel increase of suicide and depression in the pediatric age group ¹². Childhood depression, like the depression of adults, can encompass a spectrum of symptoms ranging from normal responses of sadness and disappointment in stressful life events to severe impairment caused by clinical depression that may or may not include evidence of mania.
a role in the development of depression, even though there is a biological tendency. Studying the prevalence of depression in adolescents and associated socio-demographic factors will contribute in planning the preventive and control strategies. In this study we aimed to determine the prevalence of depression and its association with socio-demographic factors among schools and college students and to evaluate the prevalence of suicidal ideation among the depressed students at Davangere District, Karnataka.

2. Materials and Methods:
2.1 Ethical clearance: This study was approved by the institutional ethics committee. Permission from the heads of the respective institutions was taken after explaining the purpose of the study. Participation in the study was on voluntary basis. Total confidentiality of the institution and individual was assured.

This is a cross-sectional study done in Davangere district. Davangere is a tier-III city in Karnataka State, India with a population of 4,35,125. The sample size was calculated assuming a prevalence of depression to be 18.4% as reported in a previous Indian study. By simple random sampling, a total of 3141 students were included from 6 high schools, 6 pre-university colleges, 1 Industrial Training Institute (ITI) college, all of non-residential type and 2 high schools, 2 pre-university colleges of residential type, from both government and private sectors. The students with any major physical illness or diagnosed illness were excluded from the study. Students were given a brief lecture in the class room about the purpose of the study and informed consent was taken from each of them. The Beck’s Depression Inventory II (BDI) in English and local language was used. The self-administered questionnaire consisted of 21 items with multiple choice answers were given to all the study subjects and scoring was done as per the recommendation. Maximum score was 63. A score of 0—16 was considered as normal, 17—20 as mild / borderline depression, 21—30 as moderate depression, 31—40 as severe depression and 41—63 as extreme depression. Suicide ideation was analyzed using the item number 9 of BDI.

Statistical analysis was done using SPSS version 16 software.

3. Results:
The response rate was 99.5% with 3126 participants giving completely filled questionnaires. The prevalence of depression in this study group was 57.7%. Boys were significantly more depressed than girls. Moderate depression was the most common type, followed by mild depression, severe depression, and least common was extreme depression. There was significant association with age. Prevalence of depression increased from 15 years of age, peak at 18 years and a dip at 19 years of age. Students in 10th class and 2nd pre-university college were more depressed compared to 1st pre-university college students and it was least among job oriented ITI students. Residential school students were found to be more depressed than non-residential school students. Students from joint family were significantly less depressed compared to nuclear family. (Table II)

Suicidal ideation, as assessed by score of >0 in item number 9 of BDI was significantly more among depressed students compared to non-depressed students (Table III). Among the depressed female, 45.2% had suicidal ideation (P<0.014). Suicidal ideation was high among the pre-university students (50.7%). Suicidal ideation increases with the severity of depression. Among the mild depression group, the suicidal ideation was 23.1%, moderately depressed group the suicidal ideation was 40.6%, among severely depressed group, the suicidal ideation was 68.35%, and among extremely depressed group the suicidal ideation was 84.2%. Depression rates in children showed a decreasing trend with increasing mother’s education level (P = 0.00), but father’s education level (P = 0.089) and occupation of both parents had no relationship (for father P =0.184, for mother P = 0.786). Depression rates were significantly more among students who had problems at home like quarrel (77.1%, P = 0.000), financial (70%, P = 0.000), alcoholism (81.7%, P = 0.000), and chronic illness in parents (80.8%, P = 0.000). Depressed students had more problem in getting along with parents (78.5%, P = 0.000), siblings (81.7%, P = 0.000), friends (79.8%, P = 0.000), and teachers (75.4%, P = 0.000).

4. Discussion:
The prevalence of depression was found to be 57.7% in our study. This was comparable to the results of the study.
Studies in elementary schools in Turkey have shown that parent’s educational level has an effect on their children’s social and emotional characteristics. We observed that higher literacy rate in mother was associated with lower rates of depression in children. Two studies have reported similar association with father’s education level. However in our study, father’s education level had no relation to their children’s depression rates.

Parent’s occupation level had no effect on the prevalence of depression in children, an observation similar to studies in Iran. In our study students who had problem at home like quarrel, financial, alcoholism, chronic disease in parents had significantly higher rates of depression. Similar finding were noted in other studies. Risks in the family environment may contribute to the development of depression in children. Chronic illness among parents may pose additional responsibilities and lack of emotional support in children. Depressed students had problem getting along with parents, teachers, siblings and friends. Problematic relationship may be associated with greater depression. However the question is of what comes first, the interpersonal problems or the depressive symptoms.

Prevalence of suicidal ideation among the depressed was high (41.7%). Lower rates (20%) was observed by Khalil in a study involving only females and using a different tool. Though we found males to be more depressed than females, depressed females had significantly more rates of suicidal ideation compared to depressed males. Students studying in 2nd pre-university college who had the highest rates of suicidal ideation also had the highest rates of depression. As the severity of depression increased, prevalence of suicidal thoughts also increased.

A few limitations of this study were (1) BDI is a screening tool, hence further clinical assessment is needed for confirming the diagnosis of depression and deciding the management. (2) Since this is a cross-sectional study, it is difficult to establish the causal link between depression and associated factors studied. (3) Information on academic performance was taken from students, without cross checking from school records. (4) Item number
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which was used to study suicidal ideation also contributes to the overall scoring in BDI. Longitudinal studies to establish the causal link between depression and associated factors is needed. More studies involving also the age group 10—15 years, parents, teachers, rural students and more socio-demographic factors is required.

In conclusion, the study has found that the rate of depression among adolescent students in a tier-III city is high. Moderate depression was the commonest type. Suicidal ideation was significantly more among the depressed female students and increased with severity of depression. The prevalence of depression was found to be more among students of male sex, residential school, nuclear family and those who had problems at home like quarrel, alcoholism, financial and chronic illness in parents. Depressed students had problem getting along with parents, siblings, teachers and friends. There was significant relationship between depression and age, class, academic performance and mother’s education level.

Parents, teachers and caregivers especially at residential schools should be educated about the symptoms of depression to aid in early recognition. Counseling and guidance services should be made available to depressed students, especially to those with suicidal ideation. The implications from this study can be made use in the planning of preventive programmes to promote mental health in adolescents.

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### Table 1: Demographic Characteristics of the Study Population (Total = 3126)

| Age (yr) | 10th class | 1st Pre-University college | 2nd Pre-University college | ITI | Total |
|----------|------------|----------------------------|---------------------------|-----|-------|
| 15       | 346        | 43                         | 00                        | 02  | 391   |
| 16       | 389        | 664                        | 02                        | 29  | 1084  |
| 17       | 00         | 693                        | 276                       | 92  | 1061  |
| 18       | 00         | 25                         | 272                       | 138 | 435   |
| 19       | 00         | 03                         | 00                        | 152 | 155   |

| Sex      |            |                            |                           |     |       |
|----------|------------|---------------------------|---------------------------|-----|-------|
| Male     | 505        | 635                        | 337                       | 364 | 1841  |
| Female   | 230        | 793                        | 213                       | 49  | 1285  |

| Type of school |            |                            |                           |     |       |
|----------------|------------|---------------------------|---------------------------|-----|-------|
| Residential    | 319        | 336                        | 134                       | 00  | 789   |
| Non-residential| 416        | 1092                       | 416                       | 413 | 2337  |

### Table 2. Prevalence of depression

| Age (yr) | No. of subjects | Non Depressed | Depressed | $P$ value | Severity of Depression | Mild | Mod | Severe | Extreme |
|----------|-----------------|---------------|-----------|-----------|------------------------|------|-----|--------|---------|
| 15 years | 391             | 184$^3$       | 207       | 0.006     | 70                     | 17.9%| 101 | 31     | 05      |
| 16 years | 1084            | 480           | 604       |           | 171                    | 15.8%| 323 | 101    | 09      |
| 17 years | 1061            | 424           | 637       |           | 181                    | 17.1%| 303 | 137    | 16      |
| 18 years | 435             | 160           | 275       |           | 74                     | 17%  | 138 | 57     | 06      |
| 19 years | 155             | 75            | 82        |           | 23                     | 14.8%| 48  | 09     | 02      |

| Sex      | No. of subjects | Non Depressed | Depressed | $P$ value | Mild | Mod | Severe | Extreme |
|----------|-----------------|---------------|-----------|-----------|------|-----|--------|---------|
| Male     | 1841            | 750           | 1091      | 0.040     | 285 | 581 | 205    | 20      |
| Female   | 1285            | 571           | 714       |           | 234 | 332 | 130    | 18      |

| Type of school | No. of subjects | Non Depressed | Depressed | $P$ value | Mild | Mod | Severe | Extreme |
|----------------|-----------------|---------------|-----------|-----------|------|-----|--------|---------|
| Residential    | 789             | 201           | 588       | 0.000     | 124 | 319 | 129    | 16      |
| Non-Res        | 2337            | 1120          | 1217      |           | 395 | 594 | 206    | 22      |

| Class         | No. of subjects | Non Depressed | Depressed | $P$ value | Mild | Mod | Severe | Extreme |
|---------------|-----------------|---------------|-----------|-----------|------|-----|--------|---------|
| 10th          | 735             | 300           | 435       | 0.001     | 133 | 225 | 70     | 07      |
| 1st Pre-       | 1428            | 636           | 792       |           | 217 | 400 | 157    | 18      |
| University     |                 | 44.5%         | 55.5%     |           | 15.2%| 28% | 11%    | 1.3%    |
| College        | 550             | 195           | 355       |           | 93  | 174 | 78     | 10      |
| 2nd Pre-       |                 | 35.5%         | 64.5%     |           | 16.9%| 31.6%| 14.2%  | 1.8%    |
| University     | 413             | 190           | 223       |           | 76  | 114 | 30     | 03      |
| ITI            |                 | 46%           | 54%       |           | 18.4%| 27.6%| 7.3%   | 7%      |

| Type of family | No. of subjects | Non Depressed | Depressed | $P$ value | Mild | Mod | Severe | Extreme |
|----------------|-----------------|---------------|-----------|-----------|------|-----|--------|---------|
| Nuclear        | 2376            | 872           | 1504      |           | 444 | 755 | 271    | 34      |
| Joint          | 750             | 449           | 301       |           | 75  | 158 | 64     | 04      |

$ Number of subjects, ** Percentage

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Table 3. Suicidal ideation

| Score in item 9 | BDI score | TOTAL | P value |
|-----------------|-----------|-------|---------|
|                 | Normal <16 | Depressed >16 |       |
| 0 (non-ideators)| 1170      | 1052  | 2223    |
|                 | 88.6%      | 58.3% | 71.1%   |
| 1 to 3 (ideators)| 151        | 753   | 904     |
|                 | 11.4%      | 41.7% | 28.9%   |
| TOTAL           | 1321       | 1805  | 3126    |

*P value* <0.000