Prevalence of Severe Depression among Adolescents in Rural Area of Odisha, India

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Abstract

Background: In adolescents, major depression is projected to rank the second most cause of human illness by the year 2022. Unfortunately, half of the depressed adolescents go undiagnosed in primary care settings. Objectives: The objective is to estimate the prevalence of severe depression among rural adolescents and also to identify few epidemiological determinants causing severe depression. Settings and Design: This cross-sectional study included 341 adolescents from a selected village of Balasore, Odisha. Materials and Methods: A semi-structured questionnaire, and “Beck’s Depression Inventory II” questionnaire for screening depression. Results: Only 24 (7%) of adolescents were found to be having severe depression. The subcategories of depression showed mild mood disturbance in 8.8%, borderline depression in 15.2%, and moderate depression in 12% individuals. Almost 267 (78.2%) were between 15 and 19 years of age. The mean age (standard deviation) of the participants was 16 ± 1.9 years. Majority of the participants belonged to joint family and lower middle-class status as per the Modified Kuppuswamy Scale. Conclusion: Female gender was found to be significantly associated with depression (P = 0.006). Other contributory factors for depression were sleep duration (<6 h), parental fighting, and socioeconomic status.

Keywords: Adolescent, rural area, severe depression

INTRODUCTION

Mental health account for 16% of the global burden of disease and injury in people aged 10–19 years. It is estimated that 190 million adolescents comprise over one-fifth of the entire population.[1] The World Health Organization defines adolescents as persons in the age group of 10–19 years.[2] Adolescence is a period of transition in terms of both physical and mental. During this phase, the adolescent develops stronger bonding with peer groups and romantic interest.[2] There is always physiological and psychological development during this part of life.[3]

Globally, depression is one of the leading causes of illness and disability.[2] Even in developed nation’s depression is a known health burden among children, adolescents, and adults. One in four children in the age group of 13–15 years in India suffers from depression, which affects 86 million people in the South-East Asia region, the World Health Organization. In adolescents, major depression is projected to rank second-most cause of human illness by the year 2020.[4] Unfortunately, half of the depressed adolescents go undiagnosed in primary care settings.[4,5] Declining physical exercise, overutilization of gadgets during bedtime affects the sleep quality thereby predisposing to rise of depression.[3,5] A number of literatures have also shown that sleep deprivation and depression both have bidirectional relationship.[6–9] Depression can have affect on the academic performances of students, hence limiting their career opportunities.[10–13]

Various researchers have shown different proportion of depression among school and college-going students in both urban and rural areas.[16–19] Due to the paucity of community-based studies on severe depression in this part of life.
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Inclusion and exclusion criteria
Adolescents residing for more than 6 months in the selected village were included in the study. Participants on treatment for chronic illness, or any medically diagnosed mental illness and also those not giving consent were excluded from the study.

Statistical analysis
Statistical analysis data were entered into SPSS software version 22 (SPSS Inc., Chicago, IL, USA). The prevalence is expressed as percentages with 95% confidence interval (CI). Independent variables that were found to be statistically significant in univariate analysis were considered for the logistic regression model to determine the important correlates. \( P \leq 0.05 \) was considered statistically significant.

Ethical clearance
Permission to carry out the study was obtained from the Institutional Ethical Committee of the Government Medical College and Hospital, Balasore. Informed consent was obtained from parents/guardians after explaining them about the purpose of the study. Assent was also obtained from the participants.

Results
Of the total 354 adolescents, seven were excluded due to refusal to participate in the study or who were not present in the house even after three separate visits, and other six had permanently migrated from the study area. Out of 341 participants selected, 229 (67.2%) were male and 112 (32.8%) were female. Around 74 (21.7%) were in the age group of 10–14 years and 267 (78.2%) were between 15 and 19 years of age. The mean age (standard deviation) of the participants was 16 ± 1.9 years. According to the type of family, 46 (13.5%) participants were from nuclear family and 295 (86.5%) participants were from joint family.

148 (43.4%) showed depression and 193 (56.5%) were found to be having no depression. The subcategories of depression show mild mood disturbance in 8.8%, borderline depression in 15.2%, 12%, and 7% with moderate depression had severe depression.

Table 1 depicts univariate analyses of depression with the socio-demographic factors. Females were more depressed compared to males. Based on the educational qualification, the majority of 199 (58.4%) were into primary school, secondary schooling 8 (2.4%), high school, and above 134 (39.2%). More than half 195 (57.1%) were sleeping for <6 h in the night time and the rest 146 (42.9) for >6 h.

Table 2 depicts logistic regression analysis of factors related to depression. Females tend to be more depressed than males (adjusted odds ratio [AOR] = 0.38; CI 95%: 0.15–0.98). This difference across the gender was found to be statistically significant\(^*\) (\( P = 0.006 \)). Participants sleeping for lesser duration have higher chances of developing depression compared to those who sleep...
more (AOR = 5.1; CI 95%; 1.4–18.2). It has been observed that participants witnessing regular parental fighting have three times more chances of becoming depressed compared to their counterparts (AOR = 3.1; CI 95%; 1.1–9.0). Furthermore, socioeconomic status seems to be playing a contributory role in depression (AOR = 3.4; CI 95%; 1.3–9.0).

**DISCUSSION**

Our study showed that 7.03% of participants had severe depression which is similar to the findings of previous studies.[20,21,22] A study in North India reported the prevalence of depression to be 39% which is much higher compared to our findings.[23] Such variation could be because of different methods used for the assessment of depression and different baseline variables of study population.

In this study, mid and late adolescent age group, i.e., 15–19 years were found more depressed, this corroborates with the finding of Jayashree et al.[23] on the contrary Jha et al.[20] and Shukla et al.[24] found significant association between higher proportion of depression with the increasing age which may be attributed to factors such as more academic and parental pressure compared to lower standards.[25]

Findings of higher depression among females well corroborate with some of the previous studies.[16,17,20,23] There can be various reasons such as fear of getting married at an early age, especially in rural areas, incomplete education, hormonal changes, and extra work at home. However, Umesh et al.[21] and Chauhan et al.[22] did not support any similar association.

The type of family seems to be having no role in depression which is also explained by Jayashree et al.[23] and Jha et al.[20] In contrast to our study, a finding by Umesh et al.[21] shows a statistically significant difference with type of family.

It was observed that adolescents who were never engaged in playing any outdoor games were more depressed compared to others. This is in line with the finding of Nair et al. and[16] Chauhan et al.[22] We also found an association between sleep deprivation (i.e., sleeping <6 h) and depressions. In this regard, our results are consistent with other studies.[11,12]

In addition, we found socioeconomic status of the family and parental fighting to be significantly (P < 0.05) associated with depression. This observation is in consonance with a previous study done by Nair et al. and[16] Jayashree et al.[23]

**Table 1: Prevalence of depression as per various demographic characteristics (n=341)**

| Characteristics                          | Total, n (%) | Proportion with depression, n (%) |
|------------------------------------------|--------------|-----------------------------------|
| Age (years)                              |              |                                   |
| 10-14                                    | 74 (21.7)    | 4 (5.4)                           |
| 15-19                                    | 267 (78.2)   | 20 (7.4)                          |
| Gender*                                  |              |                                   |
| Female                                   | 112 (32.8)   | 14 (12.5)                         |
| Male                                     | 229 (67.2)   | 10 (4.3)                          |
| Type of family                           |              |                                   |
| Nuclear                                  | 46 (13.5)    | 3 (6.5)                           |
| Joint/extended                           | 295 (86.5)   | 21 (7.1)                          |
| Socioeconomic status*                    |              |                                   |
| ≥Upper middle                            | 84 (24.6)    | 11 (13.1)                         |
| ≤Lower middle                            | 257 (75.4)   | 13 (5.06)                         |
| Education level of study participants*   |              |                                   |
| Up to primary level                      | 199 (58.4)   | 13 (6.5)                          |
| Middle school                            | 8 (2.4)      | 3 (37.5)                          |
| High school and above                    | 134 (39.2)   | 8 (5.9)                           |
| Mother education                         |              |                                   |
| ≥High school                             | 168 (49.2)   | 9 (5.3)                           |
| Primary                                  | 173 (50.8)   | 15 (8.6)                          |
| Daily sleeping hours*                    |              |                                   |
| ≤6                                       | 195 (57.1)   | 21 (10.7)                         |
| ≥6                                       | 146 (42.9)   | 3 (2.0)                           |
| Play outdoor games*                      |              |                                   |
| Never                                    | 133 (39.0)   | 16 (12.0)                         |
| >3 times in a week                       | 101 (29.6)   | 1 (0.9)                           |
| <3 times in a week                       | 107 (31.4)   | 7 (6.5)                           |
| Parental fighting*                       |              |                                   |
| No                                       | 41 (12.0)    | 7 (17.0)                          |
| Yes                                      | 300 (88)     | 17 (5.6)                          |

*P < 0.05 is significant

**CONCLUSION**

This is a small effort by the authors in rural area of Odisha to show the proportion of depression and few stressors causing depression such as sleep duration, outdoor sports activities, socioeconomic status, and parental fighting, and education level of participants.

**Limitations**

A cause-and-effect relationship is difficult to elicit due to cross-sectional study. There is underrepresentation of female population in our study. Other sensitive topics such as addictions in the family, and sexual abuse were not addressed due to difficulty in opening up of adolescents as the interview was conducted during home visit.

**Recommendation**

- Researchers should be encouraged for undertaking more studies on mental health issues, especially in rural areas
- Behavior change and communication materials with more focus on the younger age group children.

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**Conflicts of interest**

There are no conflicts of interest.
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| Variables                      | Category                      | AOR (95% CI)          | UOR (95% CI) |
|--------------------------------|-------------------------------|-----------------------|--------------|
| Gender                         | Male                          | 0.38 (0.15-0.98)      | 0.31 (0.13-0.74) |
|                                | Female                        |                       |              |
| Play outdoor games              | Never                         | N/A                   |              |
|                                | >3 times in a week             | 0.07 (0.00-0.56)      |              |
|                                | <3 times in a week             | 0.51 (0.20-1.29)      |              |
| Hours of sleep                 | ≥6                            | 5.1 (1.4-18.2)        |              |
|                                | ≤6                            | 5.7 (1.6-19.6)        |              |
| Education level of study participants | Up to primary               |                       |              |
|                                | Middle school                 | 4.2 (0.70-25.6)       |              |
|                                | Above high school             | 0.89 (0.33-2.4)       |              |
|                                | Never                         |                       |              |
|                                | Yes                           |                       |              |
| Parental fighting              | No                            | 3.1 (1.1-9.0)         | 3.42 (1.32-8.85) |
| Socioeconomic status           | ≤Lower middle                 | 3.4 (1.3-9.0)         | 2.8 (1.21-6.58) |
|                                | ≥Upper middle                 |                       |              |

AOR: Adjusted odds ratio, UOR: Unadjusted odds ratio, CI: Confidence interval, NA: Not applicable

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