

Prevalence and Factors Associated With Depression among School Going Adolescents in Bengaluru: A Cross-Sectional Study

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Abstract:

Introduction: The period of adolescence involves a lot of emotional changes as it is a period of transition to adulthood demanding independence. Adolescents with depression are more likely to have anxiety, disruptive behavior disorder and substance abuse when compared to those who are not depressed.

Objective: To estimate the prevalence of depression among school going adolescents and to assess the factors associated with depression among them. **Method:** A cross-sectional study was conducted among school going adolescents aged 13-16 years in the urban field practice area of a Medical College. Depression was assessed using Beck's depression inventory (BDI). Total 896 adolescents were included in this study. Single stage cluster sampling method was done in which schools were considered as clusters and students constituted the sampling units. Schools were selected by simple random sampling technique using lottery method. **Results:** In this study about 45.2% of the adolescents had depressive disorder, out of which mild depression was reported among 22.2% students, 12.4% moderately depressed and 10.6% severe depression. Factors like mother's education, lack of communication by father and mother with their children, lack of needs satisfied by the fathers of the adolescents (61.9%), father's role in adolescents' life (62%) and domestic violence in family (69.7%) were some of the important reasons for developing depression among adolescents. Adolescent whose parents were having conflict (69.2%) were found to be depressed when compared to those adolescents whose parents had no conflicts this difference was statistically significant ($p < 0.05$). **Conclusion:** The prevalence of depression was found to be 45.2%. Finding of the study emphasizes the need for creating awareness about the early identification of behavioral changes leading to depression among adolescents by the parents and teachers. It is also important to emphasize to the parents on how their relationship and behavior towards the family affects the mental wellbeing of the adolescents.

Key Words : Adolescents, Beck's Depression Inventory (BDI), Depression, Urban area.

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Introduction:

According to World Health Organization (WHO) adolescent age group ranges between 10 to 19 years.^[1] Adolescence being a transitional period is a stage of emotional instability resulting from demand for separation and independence.^[2] India accounts for nearly 18% of the world's adolescents.^[3]

"Health for the world's adolescents" report by WHO shows that depression is the major cause of sickness and impairment for both the genders in the age group of 10 to 19 years.^[4] Globally, the prevalence of depression in adolescence is 15% to 20%. Most of the mental disorders begin before the age of 14 and 70% by the age of 24.^[5]

The depression rates are similar in both the gender before puberty while females show higher rates during and after adolescence.^[6] Adolescents with depression are more likely to have anxiety, disruptive behavior disorder and substance misuse when compared to those who are not depressed.^[4]

The various risk factors for depression include childhood abuse, domestic violence/bullying at school, poverty, social exclusion and educational disadvantage. Psychiatric disturbances among parents, marital violence, social and psychological distress also increase the risk.^[6]

Cost-effective interventions have a positive outcome in the management of depression.^[5] Although depression is preventable and treatable, the stigma and treatment gap associated with depression in India is huge and should be overcome.

Depression being a major risk factor for suicide, significantly affects adolescence but mental health and well-being is overlooked. Early identification of risk factors and routine screening helps in detecting and diagnosing depression at the earliest.

In India, Adolescent Depression is an under-researched area and hence this study was undertaken to estimate the prevalence of depression among school going adolescents aged 13-16 years in Urban field practice area in Bengaluru and to determine the factors associated with depression among the study population.

Method:

A cross sectional study is conducted at an urban field practice area of a medical college in Bengaluru. Adolescents aged 13-16 years studying in high schools during the study period (March 2018- April 2019) were included. Authors excluded adolescents who were absent during the period of data collection and those who have already been diagnosed with depression and on treatment as confirmed by the respective class teachers and health record of the student.

Sample size was calculated using the formula $n = Z^2 \cdot p(1-p) / e^2$. The prevalence (p) of Depression among school going adolescents was considered as 29.9% as per a study conducted by Arun Vashisht et al.^[7]

Z value at 95% Confidence interval = 1.96, P = expected prevalence rate (29.9%), $q = 100 - p$, $e =$ allowable error (15% of p) = 4.48. $n = 4 \times 29.9 \times (100 - 29.9) / (4.48)^2$, $n = 402$. Since it is a cluster sampling method, design effect^[8] was taken into consideration. ($n = 402 \times 2 = 804$). At a non-response rate of 10%, sample size was estimated and approximated to be 896.

Clearance from Institutional Ethical committee (IEC) and Permission from the school authorities and parents/guardians was obtained before the start of the study. The purpose of the study and the nature of information to be furnished by adolescents were explained to them. Single stage cluster sampling method^[9] was used. In the study area, there were 21 high schools. Each school was considered as a cluster. Five clusters were selected using lottery method under simple random sampling technique. From the selected schools, a line listing of adolescents aged 13-16 years satisfying the inclusion criteria was made.

All the study subjects from the selected schools were interviewed by a pre-tested semi structured self-administered questionnaire in English language. Questionnaire was peer reviewed and validated by experts from psychiatry department. The

questionnaire included the demographic details like age, gender, marital status of parents, family income, socio-economic status using modified Kuppaswamy classification, educational qualification of parents and other factors associated with depression. Beck Depression Inventory (BDI)^[10] was included in the questionnaire, Score of 0-9 was graded as no depression, 10-19 as mild, 20-29 as moderate and ≥ 30 as severe depression. Health education was given to all the students who were found to be depressed.

The data was entered using Microsoft excel 2010 and analysed using the Statistical Package for Social Sciences (SPSS, Chicago USA), Version 20. Descriptive statistics like percentages and frequencies were

applied for categorical data. Chi-square with Fisher exact test was applied to find out the association between two or more attributes. A p-value of <0.05 was considered to be the criteria for statistical significance. Univariate and multivariate logistic regression was done. Odds ratio and confidence intervals were computed.

Results:

In this study out of 896 adolescents, majority were 14 years old, Hindus made up 93.1% of the sample, Of the total population, majority 54.2% were male. About 80.5% of people belong to nuclear families, while 19.5% belong to joint families. A total of 354 adolescents (39.5%) were studying 8th

Table 1 : Socio-Demographic Characteristics of Study Population (N=896)

Socio-Demographic Characteristics		Frequency (%)
Age (Years)	13	256 (28.6)
	14	312 (34.8)
	15	244 (27.2)
	16	84 (9.4)
Religion	Hindu	834 (93.1)
	Muslim	37 (4.1)
	Christian	25 (2.8)
Gender	Male	486 (54.2)
	Female	410 (45.8)
Type of Family	Nuclear	721 (80.5)
	Joint	175 (19.5)
Educational Status (Standard)	Eighth	354 (39.5)
	Ninth	276 (30.8)
	Tenth	266 (29.7)
Marital Status of parents	Married & living together	847 (94.6)
	Divorced	9 (1)
	Separated	2 (0.2)
	Widow/ Widower	38 (4.2)
Socio-Economic Status (Modified Kuppaswamy scale)	Class I	232 (25.9)
	Class II	213 (23.8)
	Class III	289 (32.3)
	Class IV	162 (18.0)

standard, followed by 276 (30.8%) were studying 9th standard. In this study, majority 847 (94.6%) adolescents live with their parents who are currently married and living together. According to the modified Kuppaswamy scale of socio economic status, majority 289 (32.3%) belongs to class III (Table 1)

In this study majority of the study subjects, 584 (65.2%) had no difficulty in approaching the teacher and 547 (61%) said that the rules were not strict in school. Majority 649 (72.4%) were able to follow the curriculum and 710 (79.2%) of the study subjects, were not getting bullied at school. According to the Beck Depression Inventory (BDI), prevalence of depression in the study population was 45.2%.

Based on socio demographic factors, the prevalence of depression was found to be high among nuclear families compared to joint families ($p < 0.05$). Moreover, the prevalence was found to be high among mothers who had an education below 12th standard. (Table 2)

When asked about depression in adolescents and their relationship with their fathers, 43 adolescents reported that they did not have adequate communication with their fathers, of which 29 (67.3%) were depressed. Among the 63 adolescents who believed that their fathers did not meet their needs, 39 (61.9%) were identified as depressed. Among the 108 adolescents who believed that their fathers played no role in decision-making, 67 (62%) were identified as depressed.

Depression was observed to be more among those adolescents who experienced partiality towards sibling by their parents ($OR = 1.68$; $P = < 0.0001$), Being bullied at school ($OR = 2.41$; $P = < 0.0001$), No Friends to share problems with ($OR = 2.11$; $P = < 0.0001$), Feel like running away from home ($OR = 3.7$, $P = 0.0001$), Feel like this life is not worth enough to live ($OR = 2.8$, $P = < 0.0001$), Feel lonely ($OR = 3.9$, $P = < 0.0001$) (Table 3)

Discussion:

In the present study, out of the 896 adolescents, majority of them were males (54.2%) and 45.8% were females and these findings were consistent with the study done by Rani Mohanraj et al.^[11] where 53% were boys and 47% were girls. In this study 34.8% were in the age group of 14 years followed by almost equal distribution of adolescents aged 13 (28.6%) and the least belonged to age group of 16 years (9.4%). The mean age group was 15.5 ± 0.6 years which is in exact consistency with the study by Surabhi Chauhan et al.^[12] where mean age was 15.5 ± 0.6 years.

The prevalence of depression in this study was found to be 45.2% of which 22.2% had mild depression, 12.4% had moderate depression and 10.6% were severely depressed mostly because of disturbed childhood. The prevalence rates differ between various studies due to difference in the age group, data collection tools used, and varied diagnostic criteria. Many studies have observed females to be significantly more depressed than males.^[12-15] In the present study although there was no statistical significance, depression was more among female students (45.4%) due to various factors like inability to cope with stress, male dominance and partiality towards them when compared to their male sibling.

In this study, there was no association of age with depression, however the prevalence was higher among those aged 15-16 years (45.4%). This difference in age may be due to fact that adolescents will have better capacity to handle the stress as they grow older. Adolescents from nuclear families (66.3%) were found to be more depressed than those who belonged to joint families (40.1%) may be because of lack of sufficient attention from parents or due to the loss (death/ divorce/ separate) of one parent, lack of love and affection from other kith and kin within the family.

Table 2 : Association of Socio-Demographic Factors with Depression among study participants

Variable	Category	Depression according to BDI (N=896)		Total n (%)	Chi-square	p value
		Present (N=405) n (%)	Absent (N=491) n (%)			
Age (in years)	≤14 years	256 (45.1)	312 (54.9)	568 (100)	0.011	0.918
	≥ 15 years	149 (45.4)	179 (54.6)	328 (100)		
Gender	Male	206 (42.4)	280 (57.6)	486 (100)	3.39	0.06
	Female	199 (48.5)	211 (51.5)	410 (100)		
Religion	Hindu	377 (45.2)	457 (54.8)	834 (100)	0.45	0.7
	Muslim	18 (48.6)	19 (51.4)	37 (100)		
	Christian	10 (40)	15 (60)	25 (100)		
Type of family	Nuclear	289 (40.1)	432 (59.9)	721 (100)	39.03	<0.001*
	Joint	59 (33.7)	116 (66.3)	175 (100)		
Educational status of study subjects	Eighth	166 (46.9)	188 (53.1)	354 (100)	0.67	0.7
	Ninth	122 (44.2)	154 (55.8)	276 (100)		
	Tenth	117 (44)	149 (56)	266 (100)		
Marital status of parents	Married & living together	380 (44.9)	467 (55.1)	847 (100)	0.59	0.7
	Divorced	6 (54.5)	5 (45.5)	11 (100)		
Father's education	Widow/ Widower	19 (50%)	19 (50%)	38 (100)	1.175	0.278
	≤12 th standard	284 (46.5)	327 (53.5)	611 (100)		
	>12 th standard	122 (42.8)	163 (57.2)	285 (100)		
Mother's education	≤12 th standard	322 (47.4)	357 (52.6)	679 (100)	5.58	<0.001*
	>12 th standard	83 (38.2)	134 (61.8)	217 (100)		
Socio-Economic Status (modified Kuppaswamy scale)	Class I & II	190 (42.7)	255 (57.3)	445 (100)	2.23	0.135
	Class III & IV	215 (47.7)	236 (52.3)	451 (100)		
Siblings	Present	347 (44.2)	438 (55.8)	785 (100)	1.9	0.1
	Absent	58 (52.3)	53 (47.7)	111 (100)		

*Statistically significant

Married parents who are living together is known to be a positive factor against adolescent depression. Presence or absence of siblings was not significantly associated with depression in this study. This may be attributed to the fact that as they grow older, they identify themselves as an individual for

decision making towards dating and other risk seeking behavior and hence often do not depend on their siblings for emotional support due to the fear of disclosing to their parents.

This study showed that mother's educational status has been cited as an influencing factor on

Table 3 : Results of Multivariate Logistic Regression Analysis (N=896)

Variable	Adjusted Odds Ratio (95% CI)	p value
Parents partial towards sibling	1.68 (1.16-2.43)	<0.001
Being bullied at school	2.41 (1.66-3.49)	< 0.001
Absence of friends to share problems with	2.11 (1.40-3.19)	<0.001
Feel like running away from home	3.7 (1.91-7.13)	< 0.001
Feel like this life is not worth enough to live (suicidal ideation)	2.8 (1.83-4.55)	<0.001
Feel lonely	3.9 (2.83-5.47)	<0.001

children as educated mothers are said to be better off in handling day to day stressful events and also provide better emotional support to their children at homes. These findings highlight the importance of role of family in development of adolescent depression. Conflict between parents was also found to be significantly associated with depression, which hampers the child's mental pursuit.

Several studies have shown that being bullied at school was significantly associated with depression^[16-17] and these findings are consistent with the present study, whereas bullying was not associated with depression in a study by Man Mohan Singh et al.^[18] Above findings suggest that there is a need for mental counseling of children to help them cope up with studies and to mitigate other factors responsible for depression.

In the present study, factors which triggered suicidal ideation like thoughts about running away from home, loneliness and feeling like 'this life is not worth living' were significantly associated with depression.

Conclusion:

In this study, the prevalence of depression was found to be 45.2% of which 22.2% had mild depression, 12.4% had moderate depression and 10.6% were severely depressed.

Factors like family type, parents' communication, conflict between parents, domestic violence in family, partiality towards sibling by

parents, father's role in life and needs satisfied by father, being bullied at school, feeling lonely, feeling like escaping from home and suicidal ideation were found to be significantly associated with depression.

Recommendations:

Study emphasizes the need for creating awareness about depression to the community, parents and teachers in order to recognize the symptoms at the earliest for early diagnosis and treatment.

Limitations:

Over reporting or under reporting of data due to self-administered questionnaire. Obtaining additional information from other sources like parents and teachers would have enhanced the validity of the study. Sexual component could not be assessed due to socio-cultural barriers.

Declaration:

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Conflict of Interest: Nil

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