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ORIGINAL ARTICLE

A Study on Prevalence and Risk Factors of Depression Among Adolescents (16-19 years) in the Urban Area of Andhra Pradesh

Kavya Sri T,[1] Pavan Chand Donipudi,[2,]* Sravya T[1] and R Nageswara Rao[3]

[1]*Post Graduate, Department of Community Medicine, Siddhartha Medical College, Vijayawada, NTR District, Andhra Pradesh*
[2]*Assistant Professor, Department of Community Medicine, Siddhartha Medical College, Vijayawada, NTR District, Andhra Pradesh*
[3]*Professor and HOD, Department of Community Medicine, Siddhartha Medical College, Vijayawada, NTR District, Andhra Pradesh*

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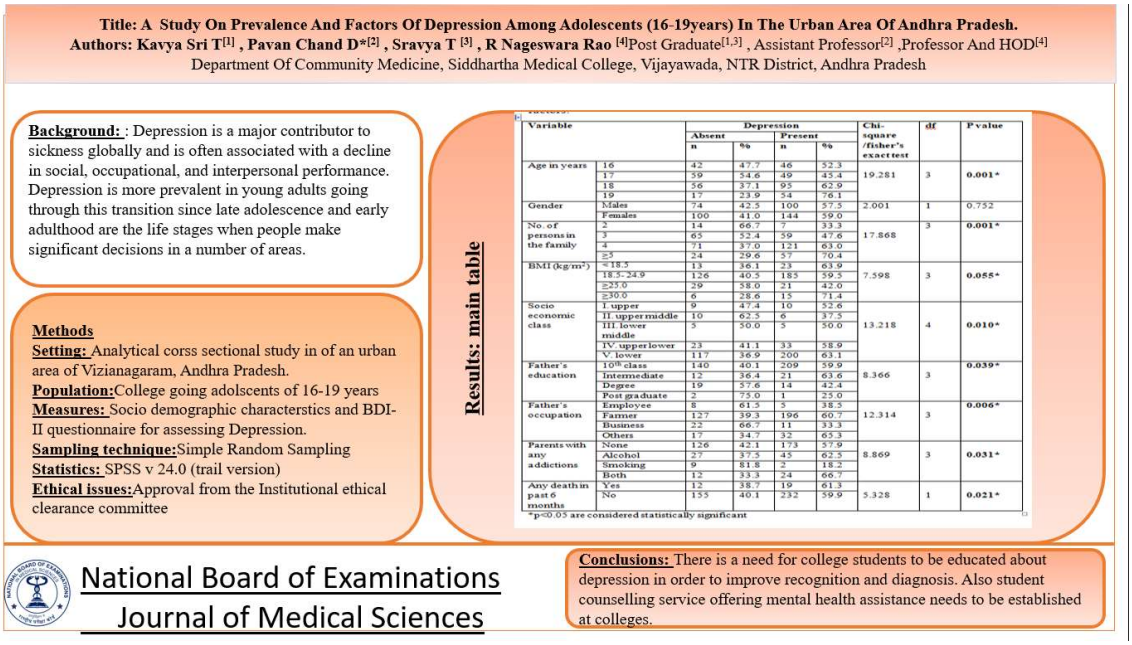
Abstract

Background: Depression is a major contributor to sickness globally and is often associated with a decline in social, occupational, and interpersonal performance. Depression is more prevalent in young adults going through this transition since late adolescence and early adulthood are the life stages when people make significant decisions in a number of areas. **Objective:** This cross sectional study was done in September-November 2023 with objective to find out prevalence of depression and risk factors associated with depression among College going Adolescents [16-19 years] in the Urban area of Vizianagaram city, Andhra Pradesh. **Methodology:** A Semi structured questionnaire was used to collect information on socio demographic characteristics. Study participants were screened using Beck's Depression Inventory Questionnaire (BDI –II) to gather information regarding depression & its risk factors. **Results:** The overall prevalence of depression was found to be 58.4%; in which 117 (28%) were having mild depression, 63 (15.3%) were having severe depression and 64 (15.1%) were having moderate depression. The study showed a highly significant association between levels of depression and selected demographic variables such as Age in years, No. of persons in their family, BMI, Socio- economic status, Father's education, Father's occupation and Parents with any addictions. **Conclusion:** There is a need for college students to be educated about depression in order to improve recognition and diagnosis. Also student counselling service offering mental health assistance needs to be established at colleges.

Keywords: Adolescent, Depression, Prevalence, Risk factors, Urban

*Corresponding Author: Pavan Chand Donipudi
Email: dr.paavan@gmail.com

Graphical Abstract



Introduction

Mental health illnesses are unlike any other in that they impact a greater number of people throughout their entire life, are more common and incapacitating, or start at a younger age. Depression is a major contributor to sickness globally and is often associated with a decline in social, occupational, and interpersonal performance [1]. Depression is more prevalent in young adults going through this transition since late adolescence and early adulthood are the life stages when people make significant decisions in a number of areas.

The adolescent age group is defined by the World Health Organization (WHO) as the years between 10 and 19 years of age [2]. Because of the physical and physiological changes that take place during this time, the early and late adolescent groups are identifiable in terms of their biological, cognitive, social, and emotional development and are at quite different life stages [3]. During the adolescent stage, puberty and cognitive and brain development result in improved social and self-awareness [4].

In 1998, the World Health Report estimated that non-communicable diseases accounted for 39% of all Disability-Adjusted Life Years (DALY) lost in low- and middle-income countries, with neuropsychiatric problems accounting for 10% of the disease burden [5].

Globally, neuropsychiatric illnesses cause the bulk of DALYs lost in people between the ages of 15 and 44. Depression is the most common psychiatric disorder among adolescents, according to research done in communities and schools across the world [6].

Due to their high incidence, associated issues, and other health-related repercussions, depression disorders are listed by the World Health Organization as one of the most common mental health illnesses affecting adolescents [7].

Adolescent depression affects 15-20% of people worldwide, and 60–70% of

those instances recur [8,9]. A 2022 Mental Health America study found that 15.08% of young people (ages 12 to 17) said they had experienced at least one major depressive episode in the year before [10]. A prospective longitudinal research conducted in Chandigarh, north India, with a community-based sample of children aged 10 to 17 years, found that the annual incidence rate of depression was 1.61 per 1000 [11].

Depression in adolescents can present with a wide range of symptoms, including eating problems, unexplained physical issues, poor academic performance, and other behavioural signs. This is one of the reasons it is often overlooked [12]. As they become older, the most catastrophic effect is suicide, which is the third highest cause of mortality for adolescents over the age of 18. They are also frequently more likely to experience increased hospitalizations, recurring depression, psychosocial impairment, substance addiction, and antisocial activities [13].

Adolescent behavioural and hormonal changes make it challenging to diagnose depression, and over 70% of affected children do not receive the proper care [14]. Depression is also one of the health issues that goes undiagnosed because affected children are unable to express their true feelings. In addition, people are hesitant to seek psychiatric assistance because of the underlying melancholy of this era of increasingly perplexing and erratic personalities.

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V) lists a variety of depressed moods, psychomotor agitation or retardation, diminished interest or pleasure, insomnia, fatigue or loss of energy, diminished ability to concentrate, significant weight loss, feelings of worthlessness or excessive guilt, and recurrent thoughts of death as symptoms of depression [14]. Nearly 40–90% of the young people with depressive disorders also had symptoms of anxiety disorders, substance addiction, conduct problems, and personality disorders [15]. There is a two to four-fold probability that adolescent depression disorder will continue into adulthood, and it frequently has a chronic waxing and waning history (Pine et al., 1999) [16].

Childhood depression was once believed to be concealed by undiagnosed diseases, but doctors and psychiatrists now regard it as a serious illness that affects both young children and teenagers [17]. At the college level, academic pressures are increasing daily and at each successive level. Students are adjusting emotionally to complex life changes. Academic pressures at the college level are rising daily and with every level that follows. The difficulties of college, moving away from home for the first time, learning to live independently, forming new relationships, and irregular sleep patterns are all potential risk factors for students as they adjust emotionally to complex life changes. Depression has also been shown to be a risk factor for substance abuse, underachievement in school, and absenteeism [18].

Early diagnosis and treatment of depression may be essential for decreasing the rate of depression in youth, improving depression management, and averting detrimental consequences. Although the causes and effects of depression have been researched across a wide range of demographic groups and subgroups, little is known about the scope of the issue or

the impact of the illness on college students. Therefore, this study was undertaken to determine the prevalence of depression among college students as well as the risk factors linked to depression.

Materials and Methods

This research employed a cross-sectional study design conducted at a General Intermediate and Degree College with yearly admission of over 1000 students in Vizianagaram city of Andhra Pradesh state, between September to November 2023.

The ethical approval for conducting this study was obtained from the institutional ethical clearance committee. The purpose of the study was explained and permission to conduct the study in this college was obtained from the Head of the institution.

Individuals in the age group of 10–19 years are considered as adolescents [5]. However, for the purpose of this study, adolescents aged 16 years and above were included. The colleges were visited on a pre-informed date and the eligible students (aged above 16 years and less than 19 years) were included in the study. The selected students were explained about the objectives of the study, and assured of confidentiality, and after consent was obtained from each one of them, data collection was done.

The sample size was estimated based on a study conducted by Bharathi et al., in adolescents, Patna, Bihar, where the prevalence of depression was 51.2% [20]. With 10% relative precision and assuming 95% confidence limits, the minimum required sample size was 381. Adding 10% of the non-response rate, the sample size required for our study was estimated to be 418. Probability proportion to the size of the population statistical sampling technique was used to decide the number of adolescents to be included in the study from each class.

Pre-tested, semi-structured questionnaires were utilized to gather study participants' socio- demographic information. The B. G. Prasad Scale [21] was used to determine the level of socioeconomic status. The Beck Depression Inventory-II (BDI-II, OHSU Headache Centre), a mood-measuring tool that was first created by Dr. Aaron T. Beck, was used in this investigation to determine the prevalence of depression (Beck, 2009) [22]. The multiple-choice test consists of 21 groups of statements, each with a score between 0 and 3, adding up to 63 overall. A score of 0 to 13 is considered normal, a score of 20 to 28 is considered moderate, a score of 29 to 63 is considered severe, and a score of mild or borderline is considered clinical.

Data input and analysis were done using the statistical package for social sciences, version 24 trail version (SPSS Inc., Chicago, IL). For continuous variables, descriptive analyses were computed using mean and standard deviation, whereas percentages were employed to characterize frequency for nominal variables. Categorical variables were compared using Fischer Exact value and Pearson's chi-square. P values less than 0.05 were considered statistically significant.

Binary logistic regression was done with mental depression as a dependent variable with the dichotomous outcome and with age, education, type of family, satisfaction with their studies, BMI, socioeconomic class, parents living status, father’s education, parents with any

addiction and any history of psychological illness in their family.

Results

A total of 418 college going adolescents participated in the study, of them majority (61.9%) were aged 17 -18 years. The mean age of the participants was 17.61 ± 1 years. The proportion of males were 58.4% and females were 41.6%.Majority of the participants are from Hindu religion (94.7%). Most (88.6%) of the participants belong to nuclear families. Among the participants, 75.8% belonged to Lower socio-economic class. History of psychological illness in their families was observed in 45 (10.8%) of study participants (Table 1).

The overall prevalence of depression was found to be 58.4% in this study, of which 117 (28%) were having mild depression, 63 (15.3%) were having severe depression and 64 (15.1%) were having moderate depression (Table 2).

In the present study from Table 3, it was observed that significant association is present between levels of depression and demographic variables like Age in years (p= 0.0001), No. of persons in their family (p= 0.001), BMI in kg/m^2 (p= 0.055), Socio- economic status (p= 0.010), Father's education (p= 0.039), Father's occupation (p= 0.006), Parents with any addictions (p= 0.031) and Death of a family member in past 6 months (p= 0.021).

From Table 4, with Bivariate analysis, the risk of depression among study participants was observed to be significantly higher with more no. of persons in their family (OR 1.85), who are not satisfied with their studies (OR 1.465), with BMI >30.0 (OR 1.39), belonging to Lower socio- economic class (OR 1.21).

Table 1. Socio- demographic profile of the study participants

Variables		Frequency (n)	%
Age	16 yrs	71	17.0
	17 yrs	108	25.8
	18 yrs	151	36.1
	19 yrs	88	21.1
gender	Males	244	58.4
	Females	174	41.6
Religion	Hindu	396	94.7
	Muslim	6	1.4
	Christians	15	3.6
	others	1	0.2
Education	Inter 1st year	79	18.9
	Inter 2nd year	72	17.2
	Degree 1st year	150	35.9
	Degree 2nd year	117	28.0
Type of Family	Nuclear family	310	74.2
	Joint family	108	25.8
Socio economic class	I. Upper	19	4.5
	II. Upper middle	16	3.8
	III. Lower middle	10	2.4
	IV. Upper lower	56	13.4

	V. Lower	317	75.8
Any family history of psychological illness	Yes	45	10.8
	No	373	89.2

Table 2. Prevalence of depression among study participants

Variable		Depression				
		No (%)	Mild (%)	Moderate (%)	Severe (%)	Total (%)
Gender	Male	100 (41.0)	77 (31.6)	32 (13.1)	35 (14.3)	244 (58.4)
	female	74 (42.5)	40 (23.0)	31 (17.8)	29 (16.7)	174 (41.6)
Total		174 (41.6)	117 (28.0)	63 (15.1)	64 (15.3)	418

Table 3. Showing association of levels of depression with various socio- demographic factors

Variable		**Depression**				**Chi-square /fisher's exact test**	**df**	**P value**
		Absent		**Present**				
		n	**%**	**n**	**%**			
Age in years	16	42	47.7	46	52.3	19.281	3	**0.001***
	17	59	54.6	49	45.4			
	18	56	37.1	95	62.9			
	19	17	23.9	54	76.1			
Gender	Males	74	42.5	100	57.5	2.001	1	0.752
	Females	100	41.0	144	59.0			
No. of persons in the family	2	14	66.7	7	33.3	17.868	3	**0.001***
	3	65	52.4	59	47.6			
	4	71	37.0	121	63.0			
	≥5	24	29.6	57	70.4			
BMI (kg/m^2)	< 18.5	13	36.1	23	63.9	7.598	3	**0.055***
	18.5- 24.9	126	40.5	185	59.5			
	≥25.0	29	58.0	21	42.0			
	≥30.0	6	28.6	15	71.4			
Socio economic class	I. upper	9	47.4	10	52.6	13.218	4	**0.010***
	II. upper middle	10	62.5	6	37.5			
	III. lower middle	5	50.0	5	50.0			
	IV. upper lower	23	41.1	33	58.9			
	V. lower	117	36.9	200	63.1			
Father's education	10th class	140	40.1	209	59.9	8.366	3	**0.039***
	Intermediate	12	36.4	21	63.6			
	Degree	19	57.6	14	42.4			

	Post graduate	2	75.0	1	25.0			
Father's occupation	Employee	8	61.5	5	38.5	12.314	3	**0.006***
	Farmer	127	39.3	196	60.7			
	Business	22	66.7	11	33.3			
	Others	17	34.7	32	65.3			
Parents with any addictions	None	126	42.1	173	57.9	8.869	3	**0.031***
	Alcohol	27	37.5	45	62.5			
	Smoking	9	81.8	2	18.2			
	Both	12	33.3	24	66.7			
Any death in past 6 months	Yes	12	38.7	19	61.3	5.328	1	**0.021***
	No	155	40.1	232	59.9			

*p<0.05 are considered statistically significant

Table 4. Correlates of depression: Bivariate analysis

Variables		**Total n**	**Depression n (%)**	**OR (95% CI)**	**P value**
Overall		418	244 (58.4)	-	-
Age in years	16- 17	179	103 (57.5)	Reference	-
	18- 19	239	141 (59.0)	0.912 (0.734- 1.13)	**0.004***
Gender	Males	174	100 (57.5)	Reference	-
	Female	244	144 (59.0)	0.904 (0.581- 1.14)	0.655
No. of persons in the family	2	124	7 (33.3)	Reference	-
	3	21	57 (70.4)	6.504 (2.151- 19.66)	0.102
	4	81	121 (63.0)	3.588 (1.328- 9.26)	**0.004***
	≥5	192	59 (47.6)	1.856 (0.670- 5.13)	**0.001***
BMI (kg/m^2)	< 18.5	36	23 (63.9)	0.761 (0.345- 1.68)	**0.003***
	18.5- 24.9	311	185 (59.5)	Reference	-
	≥25.0	50	21 (42.0)	0.570 (0.300- 1.08)	0.086
	≥30.0	21	15 (71.4)	1.399 (0.510- 3.18)	**0.001***
Socio economic class	Class I/II/III	45	21 (46.7)	Reference	-
	Class IV/V	373	223 (59.8)	1.217 (0.601- 2.46)	**0.002***
Father's education	10th class	349	209 (59.9)	0.856 (0.352- 2.08)	**0.001***

	Intermediate	33	21 (63.6)	1.474 (0.651- 3.34)	**0.052***
	Degree	33	14 (42.4)	Reference	-
	Post graduate	3	1 (25.0)	1.31 (0.268- 1.68)	0.983
Father's occupation	Employee	13	5 (38.5)	Reference	-
	Farmer	323	196 (60.7)	2.319 (0.624- 8.61)	0.209
	Business	33	11 (33.3)	0.529 (0.121- 2.30)	0.396
	Others	49	32 (65.3)	3.228 (0.765- 13.61)	0.110
Self satisfaction with their study	Yes	382	221 (57.9)	Reference	-
	No	36	23 (63.9)	1.465 (0.632- 3.39)	**0.003***
Any death in past 6 months	Yes	31	19 (61.3)	0.466 (0.143- 1.51)	**0.002***
	No	387	232 (59.9)	Reference	-

*p<0.05 are considered statistically significant

Discussion

Depression is a frequent condition that affects a person's capacity to carry out daily tasks. Early-onset depression frequently lasts, recurs, and continues into adulthood, according to a recently published longitudinal prospective study. This suggests that childhood depression may also be a predictor of more severe illness in age. According to Weissman et al. (1999), depression in young people frequently co-occurs with other mental diseases, most frequently anxiety disorder with disruptive behaviour or drug misuse disorder. Depressive disorders in children and adolescents are linked to a number of negative consequences, such as difficulties in social and academic domains and physical and mental health issues in later life [22]. According to published research, almost 70% of kids with depression don't get the right care [20].

The prevalence of depression in our study was found to be 58.4%. This was comparable to the studies previously done by Malik et al. [23] from Rohtak, north India (52.9%); and by Bharathi et al. [20] in Patna, 2022 where the prevalence rate was 51.2%. However several other studies observations (Man Mohan Singh et al. [24] 2017; Johnson et al. [25] 2022; Chauhan et al. [26] 2022; A.S.Md. Al Mamun et al. [27] 2022) done among college students have reported the prevalence of depression to be varying from 30% to 40%.

The most common type of depression in our study was of mild (28%) followed by severe (15.3%) and moderate grade depression (15.1%). Moderate depression was again the commonest type of depression in a Kerala (India) based

study conducted among 10 to 19 years school/college students.

The late adolescent age group was shown to be substantially more depressed than the other age groups in the present study. Research done by Mohan Raj et al., and Chakraborthy et al. from Chennai [29] and Mangaluru [30] respectively, in southern India, revealed that adolescent depression rises with age.

Bivariate analysis in the present study revealed a significant association between the subject's family type and depression. It was shown that the number of family members had a significant association with the depressed symptoms experienced by students. A number of studies by Anjum et al. [31] 2019; Salodia et al. [32] 2017; Shelke et al. [33] 2015 supported our current conclusion.

Bivariate analysis revealed a strong positive connection between depression and low levels of self-satisfaction in the study. Two Chandigarh research groups showed similar findings that depression and low self-esteem are positively correlated. [34,35].

Additionally, a significant ($p<0.01$) association was discovered between the BMI status of students and depression symptoms. Compared to students of normal weight (59.5%), a higher percentage of underweight (63.9%) and obese (71.4%) students reported having depressed symptoms. A.S.Md. Al Mamun et al.'s study [27] from Bangladesh in 2022 showed findings similar to the present study.

Lower socioeconomic level was revealed to be the independent predictor of depression among adolescents, which is consistent with the findings published by Mojs et al. [36] .

In this study, adolescents' levels of anxiety and sadness were correlated with their parents' lower levels of education. According to Kathleen et al. [37] and Srinivasa et al. 38], adolescents were likewise found to be more susceptible to all psychiatric problems if their parents had lower educational attainment.

In this study, College students' depressed symptoms and death of family member in past 6 months were significantly correlated. Singh et al. [24] from Chandigarh, north India, and Mohan Raj et al. [28] from Chennai, south India, made similar observations.

Conclusion

It was observed from this study, that there is a significant prevalence of depression among study subjects. Most of the students were experiencing mild depression. In order to ensure that college-bound adolescents are healthy, the study's findings highlight the necessity of screening them for depression and other psychiatric morbidities through screening health programs. In order to increase diagnosis and detection, health education regarding mental health should be provided to students. This analysis emphasizes the significance of college students' access to mental health treatment facilities from a public health perspective.

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Competing Interest and Funding

There is no competing interest and no funding was received for this study.

Conflict of Interest

The authors declare that they do not have conflict of interest

Author's contribution

KST & ST: Data collection and statistical analysis. PCD: Guidance for methodology and statistical analysis. RNR: Head of the Project

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