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Original Research Article

A cross sectional study on prevalence of depression in late adolescents studying in JSS high schools and colleges in Mysore district

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ABSTRACT

Background: This study aimed to identify factors significantly associated with recent depressive mood concerning health-related behavioral patterns at the individual level, perceived safety in the school environment, and willingness to share concerns with family and social networks.
Methods: In the cross-sectional study, a total of 221 middle school students were selected from 5 colleges in Mysuru, Karnataka by probability proportional to size sampling. Beck's depression inventory and semi-structured questionnaire were used to evaluate the Prevalence of depression and factors associated with depression, respectively. Multivariable logistic regression analysis was conducted to explore the association between Factors and Depression in adolescents
Results: 29% of the students reported positive in Depression assessed by the BDI scale. The lifestyle and academic performance were significantly associated with Depression. Moreover, a higher risk of mental health problems was associated with poorer school interpersonal relationships
Conclusions: Depression was prevalent among adolescents and highly associated with lifestyle and academic performance. Our findings underscore the pressing need for school administrators to make efforts to improve school interpersonal relationships among adolescents.

Keywords: Adolescents, Depression, Stress, Peer pressure

INTRODUCTION

Adolescence is a critical and formative period in which individuals begin their transition from childhood to adulthood.[1] This phase is commonly connected with puberty and the period of physical changes that lead to reproductive maturity in many civilizations. In other cultures, adolescence is defined more broadly, considering not only purely physical aspects of maturity but also psychological, social, and moral domains. According to WHO aged between 10-19 are considered as adolescents.[2] The prevalence of mental health issues among 10 to 19-year-olds is estimated to be 1 in 7 (14%) internationally, although most of these conditions go undetected and untreated. One in every five persons on earth is an adolescent, and there are approximately 1.2 billion of them worldwide. About 350 million teenagers, or 22% of the population, live in the South-East Asia Region (SEAR). With 253 million adolescents, India is the only country with the largest proportion of adolescents in the world (aged 10 to 19).[3] The important period of adolescence is when social and emotional habits that are essential to mental health can be established and kept. These include establishing healthy sleep habits, engaging in regular exercise, enhancing communication

and interpersonal skills, and gaining emotional control. Additionally crucial are supportive surroundings in the home, at school, and in the larger community. Around the world, the initial development of depressive disorders has been connected to prevalence rates of mental disease in children and adolescents ranging from 1 to 51%.[4] Mental health disorders are thought to affect 10-20% of adolescents globally, although they are still frequently misdiagnosed and untreated. Results in terms of mental health depend on numerous aspects. The potential impact on adolescents' mental health increases with the number of risk factors they are exposed to the desire for further liberty, peer pressure to fit in, exploring one's sexual identity, and increased access to and use of technology are all things that can cause stress during adolescence. The gap between an adolescent's lived reality and their perceptions or ambitions for the future can be made worse by media impact and gender stereotypes.[5] The quality of their home life and their interactions with their peers are other important determining factors. Violence, including bullying and strict parenting, socioeconomic concerns, and violence, in general, are known to be harmful to mental health. Children and adolescents are disproportionately affected by sexual violence, which is undeniably associated with poor mental health. Due to their living situations, stigma, exclusion or prejudice, or a lack of access to high-quality services and support, some youth are more susceptible to mental health problems.[2] Adolescents from underrepresented racial or sexual backgrounds, as well as those who are orphans, pregnant, adolescent parents, or in early or forced marriages, are among those who fall into this category. Another type of adolescent includes those who reside in vulnerable and humane surroundings.[1] Additionally, social exclusion, discrimination, stigma (which may reduce a teen's motivation to seek care), difficulties in the classroom, risk-taking behavior, physical illness, and human rights violations are more common for teen sufferers of mental health concerns.[6] In adolescence, symptoms are frequently present. Teenagers with emotional problems may show more fury, annoyance, or hostility in addition to sadness or worry. Multiple emotional illnesses frequently manifest as sudden, erratic mood swings and emotional outbursts.[5] Younger teenagers may also experience physical signs of mental distress, such as nausea, headaches, or stomachaches. Among the world, depression ranks as the fifteenth most prevalent cause of sickness and disability in people between the ages of 10 and 14 and the fourth most common among teenagers aged 15 to 19. Anxiety is the sixth most popular cause among teenagers between the ages of 10 and 14 and 15 and 19. The quality of things like homework and attendance can be significantly impacted by emotional problems. Social withdrawal may exacerbate loneliness and isolation. Suicide is one of the worst outcomes of depression.[4] All teenagers experience change, including physical, social, and emotional transitions as well as the process of discovering their unique identities. Teens from various backgrounds are influenced by cultural norms and parental expectations that vary based on how they view society's values and conventions. The adolescent's growth in terms of personal identity, social conduct, and separation from parents, which are crucial aspects of the teen years, may be impacted by these many societal standards, which could also modify the rate of development.[3] A teen's personality and identity are shaped by their parents and their family environment, which also instills values and social standards that serve as the foundation for the teen's decision-making and social behavior. Parenting styles are influenced by culture, and an adolescent's upbringing is impacted by his socioeconomic status, ethnic group, and values and customs. An adolescent who is raised in a household where parental expectations, the nature of adolescence, and family obligations differ from those of his or her classmates may have an identity crisis that strains relationships within the family. Culture has a big impact on how people develop, behave, value, and think. Teenagers respond favorably to family traditions and effective communication. Children who grow up with favorable cultural values and beliefs are more likely to succeed academically and have higher self-esteem. Adolescent development is influenced by a family's socioeconomic situation since economic hardship has a detrimental impact on families. Poverty rates vary by race and ethnicity, which has an impact on adolescent development. Children and teenagers who experience poverty experience effects on all facets of their development, including physical, social, and academic.[6] Teenagers in wealthy families, however, have other difficulties. Adolescents may experience greater rates of sadness and anxiety as a result of parental pressure that emphasizes social and academic accomplishment.

Objectives

Primary objective of the study was to assess the prevalence of depression among late adolescents of JSS high schools and colleges in the Mysore district. Secondary objective of the study was to assess the factors associated with depression among late adolescents.

METHODS

This cross-sectional study was conducted in JSS High schools and colleges, Mysore for the period of 6 months from November 2021 to May 2022. Sampling technique was probability proportional to size (PPS), In this we assigned 5 JSS PUC and degree colleges from Mysuru and male and female students aged between 16-19 years, studying in JSS high schools and Colleges. Considering the prevalence of Depression as high as 33%, with an absolute precision of 5% and confidence interval (CI) of 95%, a minimum sample of 221 subjects needs to be studied. Participants who were uncooperative, not willing to give consent were not included to this study**.** For data collection Permission from the head of the institution will be taken Written informed consent will be taken from the study participants before data collection. Semi-structured questionnaire for gathering information about socio-

demographic profiles will be given. Beck's depression inventory (BDI) questionnaires will be given to know the severity of depression.

Statistical analysis

The data that was collected was coded and typed into an Excel worksheet and was transferred and analyzed using IBM SPSS statistics-25. Frequencies and percentages were computed. For categorical data, cross tables and graphs were created as needed, and inferential statistics such as the Univariate and multivariate logistic regression tests were applied to find factors associated with depression among students. The statistical significance level was set at 5%.

RESULTS

Of the 221 adolescents who participated in the study, 64 (29%) reported recent (in the last 12 months) sadness or hopelessness that interfered with daily life functioning. Among 221 students, majority were aged between 18-19 years 133 (60.18%), followed by 60 (27.14%) in the age group 17-18 years, 28 (12.66%) in the age group of 16-17 years, moreover the majority of the participants were male 128 (57.9%), females were 93 (42.1%) (Table 1).

Table 1: Sociodemographic characteristics.

Variables	Catagory	N	%
Sex	Male	128	57.9
	Female	93	42.1
Grade	Highschool	1	0.5
	PUC	97	43.9
	Graduation	123	55.7
Father's edu.	No education	38	17.2
	Primary	45	20.4
	PUC	96	43.4
	Graduation	42	19
Mother's edu.	No education	61	27.6
	Primary	67	30.3
	PUC	77	34.8
	Graduation	16	7.2
Father's occupation	Govt.	26	11.8
	Labour	73	33
	Private	122	55.2
Mother's occupation	Govt.	5	2.3
	Labour	22	16
	Private	3	1.4
	Housewife	191	86.4
Residence	Rural	98	44.3
	Urban	123	55.7

Among depressed student category 64 (27%), 50 (78%) students had healthy eating habits while 14 (22%) reported no healthy eating habits, 64 (27%), 41 (64.06%) students reported maintained lifestyle balance between study and rest. while 23 (35.93%) reported no balance between study and rest. 64 (27%), majority of students rated academic stress 27 (42.18%) followed by emotional trauma 14 (21.87%), peer pressure and bullying in school had same weightage 8 (12.5%) while sexual trauma reported least 7 (10.93%) (Table 2). In this study, there was no association between socio-demographic factors and Depression among students and were not statistically significant. Each Factor was subjected to a separate univariate logistic regression analysis, with any association that demonstrated a significant correlation ($p<0.05$) with the outcome being chosen for multivariate analysis. In univariate logistic regression (Table 3) lifestyle balance self-rated health condition, self-experience, and academic performance got significant. In multivariate analysis, only two variables remained significant. 2 variables (lifestyle balance, and academic performance) have shown odds of association with Depression among students (Table 4). Lifestyle balance having significant value 0.034 with odds ratio 0.462 (0.226-0.943) showing protective effect. While academic performance having significant value 0.011 with Odds ratio 1.950 (1.164-3.268) showing higher odd of association with the depression among students.

DISCUSSION

This study surveyed 221 children attending JSS High Schools and colleges in Mysuru aged between 16 and 19. This study aimed to determine the prevalence of depression in adolescents and to assess the factors associated with depression among late adolescents. Results of this study showed that out of 221 students, 64 (29%) per cent of school going adolescents suffered from a depressive disorder. In our study, the majority were between 18 to 19 years, 133 (60.18%), followed by 60 (27.14%) in the age group 17-18 years, 28 (12.66%) in the age group of 16-17 years among them most participants were male, 128 (57.9%), females were 93 (42.1%). This kind of research has previously yielded a range of findings. Numerous studies from different parts of India have looked at the prevalence of depression in adolescents using various screening methods and sample sizes ranging from 64 to 1120 children in various grades. These studies show that there is a wide range in the prevalence of depression, from 18.4 to 65.6%. Researchers Vivek et al carried out one such study.[11] Research from various parts of the world is consistent with the prevalence estimates of depression among adolescents provided by Maharaj et al and Harris et al which range from 18.4 to 79.2 percent. It is important to take into account the research population and the diagnostic technique.[15] Numerous research suggest that adolescents in South India have a significant burden of depression. Teenagers who were in school had a 29% prevalence of depression; the variation in prevalence can be related to the adoption of various diagnostic criteria. A clinical diagnosis, depressive symptoms, the use of various assessment tools like structured interviews or self-reports, or the use of diverse samples like community versus clinical settings are all examples of further definitions of depression.[16]

Table 2: Descriptive analysis.

Variables	Category	Depressed, N (%)	Non-depressed
Sex	Male	44 (68.75)	84 (53.50)
	Female	20 (31.25)	73 (46.50)
Grade	High school	0 (0)	1
	PUC	27 (42.18)	70
	Graduation	37 (57.8)	86
Father's occupation	Govt.	7 (11)	19 (12.10)
	Labour	28 (43.75)	45 (28.66)
	Private	29 (45.31)	93 (59.23)
Mother's occupation	Govt.	3 (4.68)	2
	Labour	11 (17.18)	11
	Private	2 (3.125)	1
	Housewife	48 (75)	143
Father's edu.	No edu.	12 (18.75)	26
	Primary	17 (26.56)	28
	PUC	23 (35.93)	73
	Graduation	12 (18.75)	30
Mother's edu.	No edu.	23 (35.93)	38
	Primary	17 (26.56)	50
	PUC	18 (28.12)	59
	Graduation	6 (9.375)	10
Residence	Rural	19 (29.64)	79
	Urban	45 (70.13)	78
Physical: regular physical exercise (moderate intensity >150 min/week) (Y/N)	Yes	19 (29.68)	79
	No	45 (70.31)	78
Physical: healthy eating habits (Y/N)	Yes	50 (78.12)	133
	No	14 (21.87)	24
Physical: lifestyle balanced between study and rest (Y/N)	Yes	41 (64.06)	127
	No	23 (35.93)	30
Any physical health problem (Y/N)	Yes	10 (15.62)	30
	No	54 (84.37)	127
Self-rated health	Poor	12 (18.75)	17
	Fair	34 (53.12)	82
	Excellent	18 (28.12)	58
Self-experienced	Emotional trauma	14 (21.87)	91
	Sexual trauma	7 (10.93)	9
	Peer pressure	8 (12.5)	14
	Academic stress	27 (42.18)	37
	Bullying in school	8 (12.5)	6
Any adverse childhood experiences	Yes	35 (54.68)	66
	No	29 (45.31)	91
Perceived availability of father for discussing concerns.	Yes	39 (60.93)	99
	No	25 (39.06)	58
Perceived availability of mother for discussing concerns.	Yes	34 (53.12)	104
	No	30 (46.87)	53
Perceived availability of teacher for discussing concerns.	Yes	35 (54.68)	117
	No	29 (45.31)	40
Perceived availability of friend for discussing concerns.	Yes	55 (85.93)	145
	No	9 (14.07)	12
Practice spiritual prayer	Everyday	16	58
	Sometimes	33	87
	Never	15	12
	Very good	9	7
	Good	32	59
	Fair	23	91

Table 3: Factors associated with the depression among students (univariate analysis).

Variables	Sig.	Odds ratio	95% CI	
			Lower	Upper
Age	0.921	0.970	0.536	1.758
Sex	0.029	0.393	0.170	0.908
Grade	0.910	1.059	0.393	2.849
Father's occupation	0.180	0.674	0.378	1.199
Mother's occupation	0.106	0.501	0.305	0.822
Father's education	0.489	1.171	0.749	1.833
Mother's education	0.448	0.828	0.508	1.349
Place of residence	0.744	0.873	0.386	1.973
Regular exercise	0.195	1.693	0.764	3.753
Eating habits	0.400	0.642	0.229	1.800
Lifestyle balance	0.038	2.535	1.054	6.099
Phy. health problem	0.147	2.163	0.763	6.131
Self-rated health condition	0.043	1.053	0.588	1.883
Self-experience	0.020	1.672	1.286	2.173
childhood experience	0.398	0.723	0.340	1.535
Availability of father	0.319	0.639	0.265	1.542
Availability of mother	0.554	1.298	0.547	3.077
Availability of teacher	0.075	2.077	0.928	4.647
Availability of friend	0.103	2.687	0.820	8.812
Spiritual prayer	0.160	1.573	0.836	2.960
Academic performance	0.042	0.539	0.282	1.032

Table 4: Factors associated with the depression among students (multivariate analysis).

Variables	Sig.	AOR	95% CI	
			Lower	Upper
Lifestyle balance	0.034	0.462	0.226	0.943
Academic performance	0.011	1.950	1.164	3.268

The current study's prevalence rate of 29% indicates that depression is a serious psychological illness among adolescents. The current study identified a number of factors that can lead to adolescent depression. Most of these results are in line with other studies from India and other countries, like a study by Kumar et al. in the Davangere region of Karnataka that found a prevalence of up to 57.7%.[17] According to Mohanraj et al 60.8% of teenage adolescents in Chennai who are enrolled in school suffer from depression.[18] This study had no association between socio-demographic factors and depression among students, which was not statistically significant. The majority of the participants were pursuing graduation 123 (55.7%), Followed by PUC 97 (43.90%) and 1 (0.50%) from high school grade. The higher prevalence of depression among students attending public schools may be attributed to these factors. The higher prevalence of depression among students who attend government schools may also be attributed to a number of educational issues, such as a lack of a supporting environment at school. Due to the pressure to perform well on final board exams and prepare for competitive tests, there may be a larger prevalence among students in the 10th and 12th grades. Socioeconomic variables like fathers' education, income, and mothers' education vary greatly between students in public and private schools. In the father's education, the majority were from PUC 96 (43.4%), followed by primary education, 45 (20.40%), 42 (19%) graduated, and 38 (17.2%) had no school education. Whereas the majority of mothers were from PUC 77 (34.8%), followed by primary education 67 (30.30%), 61 (27.60%) had no school education, and 16 (7.2%) were graduated. With regards to the father's occupation category, the majority were from private jobs 122 (55.20%), followed by daily labour work 73 (33%), and 26 (11.8%) were from government jobs. In Mother's occupation category, the majority of mothers were housewives, 191 (86.4%), followed by daily labour work 22 (16%), 5 (2.3%) were from government jobs and 3 (1.4%) from private jobs. However, parents' education status and work profile do not show any significance in the occurrence of depression among adolescents in our study. Among 221 students, rural residents, 123 (56%) were the majority, and 98 (44%) were from urban areas, which did not have significance in our study. It has been found that students from rural areas have a favourable relationship between their upbringing and depression since they are more likely to originate from low-income homes and have worse social standing. It is seen in a study by Meng et al.[19] In the depression category, 64 (27%), the majority were not doing exercise, 45 (70.31%), and 19 (29.68%) were not. Among them, a depressed student reported no physical health problems, while 10 (15.62%) students had some physical health problems. Most research have discovered a connection between teen physical activity and mental health. According to Kirkcaldy et al., exercise is linked to improved mood and self-esteem.[20] A person's body form might alter as a result of physical exercise.[21] Our study has some strong points as we found two variables significant. 2 variables (lifestyle balance and academic performance) have shown odds of association with depression among students. Lifestyle balance has a significant value of 0.034 with an odds ratio of 0.462 (0.226-0.943), showing a protective effect. In comparison, academic performance has a significant

value of 0.011with an odds ratio of 1.950 (1.164-3.268), offering a higher odd association with depression among students. Eating disorders refer to unhealthy eating patterns with adverse psychological and physical effects. It is highly prevalent among adolescents in developed countries such as Malaysia, and the possible significant association with depression justifies special attention.[22] In our study depressed student category, 64 (27%) and 50 (78%) students had healthy eating habits, while 14 (22%) reported no healthy eating habits. Among the depressed student category, 64 (27%) and 41 (64.06%) students reported maintaining a lifestyle balance between study and rest. At the same time, 23 (35.93%) reported no balance between study and rest. Among the depressed student category, 64 (27%), majority of students rated their health fair, 34 (53.12%), followed 18 (28.12%) rated excellent, and 12 (18.75%) rated poor health. School environment and career-related issues are two critical domains which are significant stress inducers if not handled well. Among the depressed student category, 64 (27%), majority of students reported their academic performance as good, 32(50%) followed by 23 (36%) reported as very good, and 9 (14%) reported as fair. Among depressed student category 64 (27%), the majority of students rated academic stress 27 (42.18%), followed by emotional trauma 14 (21.87%), peer pressure and bullying in school had the same weightage 8 (12.5%), while sexual trauma reported least 7 (10.93%). The results of the current study demonstrated that having a supportive environment at school can help to prevent depression. Instead of using the punishment approach, schools should create a setting where children feel comfortable talking about their difficulties. The schools should also offer counselling services to students who need assistance.[23] Depression was also correlated with parameters relating to individual schooling. It's possible that consistent study habits reduced the pressure of assignments and exams. Therefore, it is important for parents, teachers, and physicians to support regular study habits. Lack of self-satisfaction with academic success is another personal aspect linked to depression. This exemplifies the competitive nature of some students who, although performing well in their academics, may not be satisfied with their results and may suffer from poor self-esteem. In contrast to some earlier studies, Nolan et al, Morrison et al, and Chassin et al have discussed the amount of play activity in the classroom, parental and teacher support and motivation, the attitude of parents toward their children's future, parental satisfaction with academic performance, father approval of the father's career choice, motivation by teachers, the number of supportive teachers, bullying in the classroom, and peer pressure.[24-26] Teenagers who participate in intimate relationship behaviour, use the internet often for extended periods of time, or utilise social media are at risk of developing depression. Therefore, more research is needed to ascertain the impact of these factors on adolescent depression.

Limitations

One self-reporting item cannot be viewed as a replacement for a clinical diagnosis based on a face-to-face interview with a qualified medical professional.

CONCLUSION

In conclusion, this study provided information regarding the magnitude of the problem of depression and many modifiable risk factors for depression among school going adolescents. A multisectoral strategy is needed to address this public health problem. Parents need to be informed that their children's abuse by their own or other family members may be a cause in their sadness. By making home life better, parents should put more emphasis on encouraging kids to talk to them about their problems. It's important for teachers and parents to assess how well the faculty views students in connection to their unrealistic expectations for their academic success. Additionally, it's crucial to emphasize regularity in studying in order to prevent students from feeling down. School counsellors may be in charge of regularly spotting teenagers with depressive disorders and making the appropriate recommendations. Community workers may be interested in identifying the depressive diseases among out-of-school youth in order to assist them in receiving treatment as promptly as feasible.

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