Original Article

Mental Health Morbidities and their Correlates among the Adolescents in Kamrup (Metro), Assam: A School-Based Study

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Abstract

Background: India has the largest adolescent population worldwide, and among this group, mental health issues account for 16% of the total global burden of disease and injury. Disturbingly, approximately half of these health conditions manifest before the age of 14 years. To assess the prevalence of depression, anxiety, and stress along with its correlates among the adolescents in the schools of Kamrup (Metro) district, Assam. **Methods and Material:** This cross-sectional study was conducted in 10 randomly selected high schools in the study area among the adolescents selected from 8th to 10th standards in the age group of 14 to 17 years. A pre-designed, pre-tested interview schedule, the modified Kuppuswamy scale, and 'Depression Anxiety Stress Scale-21 Items' (DASS 21) questionnaire were used for data collection. **Results:** The mean ± 2SD age of the adolescents was 14.74 ± 1.58 years. Among the adolescents, the overall prevalence of depression, anxiety, and stress was found to be 22.2%, 24.4%, and 6.9%, respectively. **Conclusions:** The occurrence of mental health morbidities among adolescents is notably widespread, yet researchers have largely overlooked this aspect. This underscores the need for comprehensive investigations into the factors that contribute to these mental health issues.

Keywords: Adolescents, anxiety, DASS 21, depression, mental health morbidities, stress

Introduction

Among the "World Health Organization South-East Asia Region" (WHO SEAR) countries, India holds a unique position in the sense that it has the world's largest adolescent population; that is, almost 22% comprise 10–19-year-old (242 million) of the total Indian population.[1] The United Nations classifies individuals aged 10 to 19 years as adolescents, and this age group comprises nearly 1.2 billion people worldwide, constituting approximately 16% of the global population.[2] The impact of urbanization, social media, economic growth, lifestyle changes, and cultural shifts in India has led to the rapid rise of non-communicable diseases (NCDs) encompassing mental, behavioral, and substance use disorders. Moreover, the ageing population and increasing risk factors like tobacco smoking, excessive alcohol intake, physical inactivity, and unfavorable dietary habits have significantly contributed to the growing prevalence of NCDs. As a result, the burden of NCDs in India has escalated considerably.[3] These disorders contribute to significant morbidity, disability, and even mortality among those affected and adolescents are a highly vulnerable group among them.

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The dramatic hormonal changes and the changing perspective in the surrounding adults make the adolescence more susceptible to stress, strain, and anxiety. The period of adolescence is characterized by heightened vulnerability to mental health challenges due to the rapid interplay of psychophysical and hormonal changes. These dynamics can significantly impact the behavior and adaptability of maturing individuals. Mental health conditions constitute a substantial proportion of the global burden of disease and injury among individuals aged 10–19 years, accounting for approximately 16%. Notably, about half of these mental health conditions manifest before the age of 14 years.[4] Globally, among the mental health morbidities, depression and anxiety are the fourth and ninth primary sources of illness and impairment among adolescents aged 15–19 years, respectively.[4] In the Indian

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context, the calculated lifetime prevalence rate for "any form of mental morbidity" is approximated at 13.67%, indicating that a significant portion of the population has experienced mental health issues at some point in their lives. The current prevalence stands at 10.56%, highlighting the ongoing burden of mental health conditions in the country. Among the various categories of mental morbidity, problems arising from psycho-active substance use were found to be the most prevalent, affecting approximately 22.44% of the population. Additionally, mood disorders were reported in 5.61% of individuals, while neurotic and stress-related disorders were prevalent in 3.70% of the population.[5]

The rapid expansion of the population, along with factors such as migration, industrialization, and the adoption of modern non-traditional lifestyles, has led to increased stress among individuals in India. This is particularly evident among the younger population who are navigating the challenges of a fast-paced life. In light of these circumstances, the present study examined the mental health morbidities experienced by adolescents residing in the Lower part of Assam, India. The aim was to gain a deeper understanding of the psychological well-being of this specific population and shed light on the impact of the changing psycho-social landscape in the region. Early recognition of mental health morbidities through epidemiological studies may help greatly to institute effective interventions, and it will help in policy formulation and planning for appropriate action. This study assesses the prevalence of depression, anxiety, and stress along with its correlates among the adolescents in the schools of Kamrup (Metro) district, Assam.

Materials and Methods

This cross-sectional study was conducted among adolescents in the high schools of Kamrup (Metro) district, Assam, from April 2019 to June 2020. We included the adolescents of the age group 14 to 17 years, who were studying in the 8th, 9th, and 10th standards in the selected schools and whose parents/teachers consented for participation in the study. Ethical clearance was obtained from the "Institutional Ethics Committee, GMCH, Assam," followed by securing approval from educational institutions and obtaining informed consent from adolescents attending the school, their parents, and class instructors. The adolescents who were not present in the schools during the study period and could not be contacted on three consecutive visits were excluded from the study. Considering p = 16%,[6] l = 4%, and the formula n = 4pq/l^2, the minimum required sample size was calculated as 336. The list of all Government schools of Kamrup (Metro) was collected from the office of the district school inspector along with formal permission and was considered as the sampling frame. From the total of 120 Government provincialized high schools, a simple random sampling method was performed to select 10 schools. Then, from each school with an average class size of 30–40 students, 36 students were randomly selected (12 students from each class of 8th, 9th, and 10th standards) to get the desired sample size. It was decided to include equal numbers of male and female adolescents from each class in the school to maintain uniformity. Finally, a total of 360 students (36 × 10) were selected for the study.

The students from each class were randomly selected using their roll numbers from class registers. If a student was absent on three consecutive visits or unwilling to take part in the study, then the student with a subsequent roll number was selected for the interview. Adequate rapport was built before the interview. Strict privacy and confidentiality were maintained while interviewing the adolescents. The data on the socio-demographic variables, including age, sex, type of family, socio-economic status, parental status (single parent or living with both parents), lifestyle factors, and academic performance, were collected using a pre-designed and pre-tested schedule and the modified Kuppuswamy scale.[7] Depression, anxiety, and stress were screened using the "Depression Anxiety Stress Scale-21 Items" (DASS 21) questionnaire.[8] DASS-21 has been translated into a vernacular language (Assamese). It was back-translated by a bilingual language expert and validated by a team of bilingual experts in psychiatry and community medicine faculty. The data collected were analyzed using IBM SPSS Statistics version 25. The study variables were presented as proportions, and categorical variables were assessed using the Chi-square test. The *P* value <0.05 was considered significant.

Results

The mean ± 2SD age of the adolescents was 14.74 ± 1.58 years. Among the adolescents, the overall prevalence of depression, anxiety, and stress was found to be 22.2%, 24.4%, and 6.9%, respectively.

The study assessed the relationship between various socio-demographic variables and depression among participants. Age, gender, type of family, and socio-economic class did not show significant associations with depression. However, significant associations were observed with parental status ($P = 0.001$), alcohol use by parents ($P < 0.001$), habit of playing video games ($P < 0.001$), and academic performance ($P < 0.001$). No significant associations were found with a history of abuse or a history of mental illness in the family [Table 1].

The relationship between socio-demographic variables and the presence of anxiety among the participants was assessed. Age, gender, and type of family did not show significant associations with anxiety. The lower socio-economic class was significantly linked to a higher prevalence of anxiety ($P = 0.028$). Single-parent households and parental alcohol use were strongly associated with increased anxiety. Participants with a history of abuse had a higher prevalence of anxiety ($P = 0.044$), as did those with a familial background of mental health conditions ($P = 0.043$) Playing video games was associated with higher anxiety levels ($P = 0.003$). The academic performance showed a strong association, with detained participants having higher anxiety rates compared

Table 1: Association of various risk factors with depression

Sociodemographic variables	Depression present ($n=80$)	Row %	Column %	Depression absent ($n=280$)	Row %	Column %	*P*
Age							
14-15 years	36	22.2%	45.0%	126	77.7%	45.0%	0.444
15-16 years	27	19.7%	33.8%	110	80.3%	39.3%	
16-17 years	17	27.9%	21.3%	44	72.0%	15.7%	
Gender							
Boy	47	26.1%	58.8%	133	73.9%	47.5%	0.076
Girl	33	18.3%	41.3%	147	81.7%	52.5%	
Type of family							
Nuclear	49	22.8%	61.3%	166	77.2%	59.3%	0.752
Joint	31	21.4%	38.8%	114	78.6%	40.7%	
Socioeconomic status							
Lower class	41	24.7%	51.3%	125	75.3%	44.6%	0.839
Upper lower class	13	19.1%	16.3%	55	80.9%	19.6%	
Lower middle class	16	21.3%	20.0%	59	78.7%	21.1%	
Upper middle class	6	22.2%	7.5%	21	77.8%	7.5%	
Upper class	4	16.7%	5.0%	20	83.3%	7.1%	
Parental status							
Single parent	10	52.6%	12.5%	9	47.4%	3.2%	0.001
Living with both parents	70	20.5%	87.5%	271	79.5%	96.8%	
Alcohol use by the parents							
Yes	36	38.3%	45.0%	58	61.7%	20.7%	<0.001
No	44	16.5%	55.0%	222	83.5%	79.3%	
History of abuse							
Yes	45	26.3%	56.3%	126	73.7%	45.0%	0.076
No	35	18.5%	43.8%	154	81.5%	55.0%	
History of mental illness in the family							
Yes	6	28.6%	7.5%	15	71.4%	5.4%	0.471
No	74	21.8%	92.5%	265	78.2%	94.6%	
Habit of playing video games							
Yes	67	27.9%	83.8%	173	72.1%	61.8%	<0.001
No	13	10.8%	16.3%	107	89.2%	38.2%	
Academic performance							
Detained	17	58.6%	21.3%	12	41.4%	4.3%	<0.001
Regular	63	19.0%	78.8%	268	81.0%	95.7%	

to those with regular performance ($P < 0.001$). These findings underscore the importance of considering these socio-demographic factors in understanding and addressing anxiety among adolescents [Table 2].

Socio-demographic variables showed associations with the presence of stress. There was a significant relationship between age and stress, with a higher stress prevalence observed among participants aged 16–17 years. Gender ($P = 0.824$), type of family ($P = 0.032$), socio-economic class ($P = 0.905$), alcohol use by parents ($P = 0.243$), history of abuse ($P = 0.716$), habit of playing video games ($P = 0.883$), and history of mental illness in the family ($P = 0.024$) did not exhibit significant associations with stress. However, parental status ($P = 0.013$) and academic performance ($P = 0.001$) showed significant associations, indicating that participants living with a single parent and those who were academically detained had a higher prevalence of stress [Table 3].

Discussion

This study represents one of the initial investigations conducted to examine the mental health morbidities among school-going adolescents in this district, serving as the gateway to the entire north-eastern states. The findings reveal a significant prevalence of depression, anxiety, and stress, particularly highlighting the elevated prevalence of anxiety (24.2%) in comparison to various studies conducted globally.[7-9] In contrast, the studies conducted in Tamil Nadu and Chandigarh demonstrated an even higher prevalence of anxiety among adolescents, indicating regional variations in the prevalence of anxiety disorders.[10,11] This may be due to different study instruments used, socio-cultural differences, variations in study settings which have much bigger urbanization, and inclusion of different age groups in their study.[9,10] The high prevalence of depression (22.2%) among adolescents is consistent with other studies done in India.[9,10,12] A lower prevalence of stress (6.9%)

Table 2: Association of various risk factors with anxiety

Sociodemographic variables	Anxiety present (*n*=88)	Row %	Column %	Anxiety absent (*n*=272)	Row %	Column %	*P*
Age							
14-15 years	40	24.7%	45.5%	122	75.3%	44.9%	0.727
15-16 years	31	22.6%	35.2%	106	77.4%	39.0%	
16-17 years	17	27.9%	19.3%	44	72.1%	16.2%	
Gender							
Boy	54	30.0%	61.4%	126	70.0%	46.3%	0.049
Girl	34	18.9%	38.6%	146	81.1%	53.7%	
Type of Family							
Nuclear	54	25.1%	61.4%	161	74.9%	59.2%	0.718
Joint	34	23.4%	38.6%	111	76.6%	40.8%	
Socioeconomic Class							
Lower Class	53	31.9%	60.2%	113	68.1%	41.5%	0.028
Upper Lower Class	9	13.2%	10.2%	59	86.8%	21.7%	
Lower Middle Class	16	21.3%	18.2%	59	78.7%	21.7%	
Upper Middle Class	6	22.2%	6.8%	21	77.8%	7.7%	
Upper Class	4	16.7%	4.5%	20	83.3%	7.4%	
Parental Status							
Single parent	12	63.2%	13.6%	7	36.8%	2.6%	<0.001
Living with both parents	76	22.3%	86.4%	265	77.7%	97.4%	
Alcohol use by the parents							
Yes	38	40.4%	43.2%	56	59.6%	20.6%	<0.001
No	50	18.8%	56.8%	216	81.2%	79.4%	
History of abuse							
Yes	50	29.2%	56.8%	121	70.8%	44.5%	0.044
No	38	20.1%	43.2%	151	79.9%	55.5%	
History of mental illness in the family							
Yes	9	42.9%	10.2%	12	57.1%	4.4%	0.043
No	79	23.3%	89.8%	260	76.7%	95.6%	
Habit of playing video games							
Yes	70	29.2%	79.5%	170	70.8%	62.5%	0.003
No	18	15.0%	20.5%	102	85.0%	37.5%	
Academic performance							
Detained	19	65.5%	21.6%	10	34.5%	3.7%	<0.001
Regular	69	20.8%	78.4%	262	79.2%	96.3%	

has been found among the adolescents in the current study in comparison with other studies.[9-14] The regional variations in the prevalence of anxiety disorders can be influenced by differences in the study instruments used, socio-cultural norms, and variations in study settings, particularly in terms of urbanization levels and the inclusion of different age groups.

In the present study, the prevalence of stress increases with age and it was statistically significant. This could be explained by the academic pressure with increasing age as well as the different social and developmental challenges confronted by adolescents. A similar finding was found in studies done in Chandigarh using DASS 21 scale.[11] Gender was significantly associated with anxiety, and boys were found to be having a higher prevalence of anxiety when compared to girls in our study. In contrast, many studies showed that girls were more at risk for anxiety.[9-13] This may be due to social roles and responsibilities in this society putting boys at more risk of developing anxiety.

A high prevalence of stress is seen in the nuclear family. However, depression, stress, and anxiety were significantly higher in the adolescents who were staying with a single parent. These findings were confirmed by previous studies done among adolescents in Delhi and Jammu.[15,16] However, in contrast to these findings, one study done in Uttar Pradesh estimated lesser prevalence was seen in the nuclear family.[10] These variations could be influenced by socio-cultural differences within families and the broader community. Factors such as parenting styles, family dynamics, support systems, and socio-economic conditions can contribute to the differences observed. The study conducted in Uttar Pradesh might reflect unique socio-cultural characteristics specific to that region.[10] It is essential to consider these contextual factors when interpreting and comparing the prevalence rates of mental health conditions in different family structures.

In our study, the lower socio-economic class had an increased risk of anxiety, which may be caused by the prevailing financial

Table 3: Association of various risk factors with stress

Sociodemographic variables	Stress present (*n*=25)	Row %	Column %	Stress absent (*n*=335)	Row %	Column %	*P*
Age							
14-15 years	7	4.3%	28.0%	155	95.7%	46.3%	0.001
15-16 years	7	5.1%	28.0%	130	94.9%	38.8%	
16-17 years	11	18.0%	44.0%	50	82.0%	14.9%	
Gender							
Boy	14	7.8%	56.0%	166	92.2%	49.6%	0.824
Girl	11	6.1%	44.0%	169	93.9%	50.4%	
Type of family							
Nuclear	20	9.3%	80.0%	195	90.7%	58.2%	0.032
Joint	5	3.4%	20.0%	140	96.6%	41.8%	
Socioeconomic class							
Lower class	13	7.8%	52.0%	153	92.2%	45.7%	0.905
Upper lower class	5	7.4%	20.0%	63	92.6%	18.8%	
Lower middle class	4	5.3%	16.0%	71	94.7%	21.2%	
Upper middle class	1	3.7%	4.0%	26	96.3%	7.8%	
Upper class	2	8.3%	8.0%	22	91.7%	6.6%	
Parental status							
Single parent	4	21.1%	16.0%	15	78.9%	4.5%	0.013
Living with both parents	21	6.2%	84.0%	320	93.8%	95.5%	
Alcohol use by the parents							
Yes	9	9.6%	36.0%	85	90.4%	25.4%	0.243
No	16	6.0%	64.0%	250	94.0%	74.6%	
History of abuse							
Yes	11	6.4%	44.0%	160	93.6%	47.8%	0.716
No	14	7.4%	56.0%	175	92.6%	52.2%	
History of mental illness in the family							
Yes	4	19.0%	16.0%	17	81.0%	5.1%	0.024
No	21	6.2%	84.0%	318	93.8%	94.9%	
Habit of playing video games							
Yes	17	7.1%	68.0%	223	92.9%	66.6%	0.883
No	8	6.7%	32.0%	112	93.3%	33.4%	
Academic performance							
Detained	7	24.1%	28.0%	22	75.9%	6.6%	0.001
Regular	18	5.4%	72.0%	313	94.6%	93.4%	

insecurity in their family. Our findings align with numerous earlier studies conducted among adolescents in many parts of India.[16-18] Alcohol use by the parents was also associated significantly with adolescent depression and anxiety in this study. The findings are similar to the other studies done in Bangalore and Finland.[19,20]

The finding of a higher prevalence of anxiety with reported abuse in the family has been corroborated by many previous studies' statements.[15,21,22] However, in the current study, we did not use any tool for screening abuse. Furthermore, a significantly higher prevalence of anxiety and stress was found in the adolescents reporting mental disorder in their family members. Many studies done across the globe are in conformation to our study finding that mental disorders in the family are significantly associated with psychological distress among adolescents.[23,24] The role of having the habit of playing a video game in adolescents' depression and anxiety was in conformity with the earlier studies done in Bengaluru and China.[25,26] This demands further research and exploration in this regard. A significant relationship of depression, anxiety, and stress with academic performance found in the current study conformed with various studies.[27,28] However, this needs further in-depth qualitative research.

Conclusion

There is a high prevalence of mental health morbidities among adolescents in Kamrup (Metro), Assam, but they are least explored by researchers. In-depth research is required to explore the contributing factors of mental health morbidities among adolescents, and schools serve as a great platform for evaluating them. The family environmental factors like alcohol use, adolescent abuse and neglect, the habit of video gaming, and so on have to be addressed through a holistic approach involving policymakers, civic societies, professionals like counsellors, and so on.

Abbreviations

- WHO: World Health Organization
- SEAR: South East Asian Region
- NCD: Non-Communicable Diseases
- DASS: Depression Anxiety Stress Scale
- SPSS: Statistical Package for Social Sciences
- SD: Standard Deviation
- GMCH: Gauhati Medical College and Hospital.

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Conflicts of interest

There are no conflicts of interest.

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