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Original Research Article

MENTAL HEALTH ISSUES AMONG ADOLESCENTS IN MANIPUR: A CROSS SECTIONAL STUDY

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Abstract

Background: Out of all the adolescent health issues, mental health has become prime public health concern as it has huge impact on physical, social, and psychosocial health of the adolescent. This study was conducted to assess the prevalence and associated factors of depression, anxiety and stress among adolescent school children in a state of North-East India. **Materials and Methods:** This cross-sectional study was conducted among 3200 adolescents attending both government and private high schools and higher secondary schools located in two districts of Manipur. A two staged stratified random sampling method was used for selecting the schools. A validated questionnaire known as the DASS 21 (Depression, Anxiety and Stress) scale was used for the study. Descriptive and analytical statistics like chi-square were generated. Approval for the study was obtained from the institutional ethics committee. **Results:** A total of 12 government schools and 10 private schools were included in the study. The mean (SD) age of the respondents was 16.1(1.2) year with females constituting 52%. Around half of the respondents (50.7%) were showing emotional state of severe anxiety and around a third (33.7%) of the adolescents were showing signs of moderate depression. Adolescents studying in private schools, female by gender, belonging to Meitei religion, having only one sibling have significantly higher level of severe Anxiety as compared to the other groups. **Conclusion:** The level of depression, anxiety and stress was high among the adolescents. There is a need for a strong multi-sectorial response to address this important mental health issues among the future pillars of our society.

INTRODUCTION

'Adolescents' connotes an unique stage of human development and signifies an individual's transition from childhood into adulthood during which there are dramatic physical, psychological, emotional and social changes taking place simultaneously.[1] During this crucial phase, they require to observe, understand and develop coping, problem solving and interpersonal skills. It is a period when they are more likely to engage in risky and thrill seeking behavior posing a significant risk for injury, physical and mental health issues.[2,3]]

Physiologically an adolescent brain undergoes neural alterations; these coupled with ongoing hormonal changes predispose them to various mental health disorders. Out of all the adolescent health issues, mental health has become prime public health concern as it has huge impact on physical, social, and psychosocial aspect of the adolescent.[3] Rapid advancements in science and technology have increased the influences of social-media and digital-world multifold in recent times. These potentially accentuate the disparity between adolescent's lived reality and their perceptions or aspirations of future thus sowing seeds for various mental health issues. The presence of psychiatric disorders such as depression, anxiety and stress at this stage of life is a matter of concern as it can lead to poor academic performance, lack of communication with friends and family, substance abuse, homicidal ideation, suicidal tendency, school dropout and delinquent behavior.[4,5]

Around 1.2 billion people, or 1 in 6 of the world's population, are adolescents and an estimated 10-20% of adolescents globally experience mental health conditions, yet these remains under-

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diagnosed and undertreated.1These mental health conditions account for 16% of global burden of disease and injury in adolescents. About 50% of all mental illnesses begin by the age of 14 and 75% by mid-20s.[6] Globally, depression is one of the leading causes of illness and disability among adolescents. Anxiety is the 6th commonest cause of illness for adolescents aged 10-14 years and 9th among those aged 15-19 years. Suicide is the 3rd leading cause of death in individuals aged15-19 years.[2]

With a population of 253 million, India is home to 21% of world's adolescents.[5] One in every six Indian child is affected with some form of mental disorder. Early studies reported the prevalence of psychiatric disorders among children ranges from 2.6% to 35.6%.3 As per 'Mental health survey' India, the prevalence of psychiatric disorders in adolescents aged 13-17 years is 7.3%.[5] In India suicide is the leading cause of adolescent deaths.[5]

Identification and quantification of mental status and its disorders has remained a big challenge to all researchers as greater part of the burden is subclinical.[1] There are many validated tools available to estimate the burden of mental health. Depression, Anxiety, and Stress Scale 21 (DASS-21) has been widely employed to assess relationship and effect of depression, anxiety, and stress among various population, age-groups, clinical and nonclinical respondents; and discriminate between anxiety and depression.[7-9]

In absence of studies addressing these issues there exist a lacunae in knowledge regarding the burden of mental health disorders among school-going adolescents in North- Eastern part India. Thus, this study was conducted to assess the prevalence and associated factors of depression, anxiety and stress, among adolescent school children in a state of North East India.

MATERIALS AND METHODS

This cross sectional study was conducted among adolescents attending High schools and Higher secondary schools located in two districts Namely Bishnupur and Imphal-East Districts in Manipur, North-east India during 2018 to 2020. Adolescents studying in classes 9 to 12 from the selected schools were included in the study. Refusals to participate and those who were absent on the day of visit were excluded from the study.

Sample size and sampling: Sample size calculation was based on a prevalence of mental health morbidity 22.7% from a the study done by AK Gupta10 et al with an absolute allowable error as 1.5 and at 95% confidence level, the calculated sample size was 2894. Estimating a non-response rate of 10%, the final sample size was rounded off to 3200. The calculated sample size was distributed equally in the two districts i.e.1600 each. Sampling was done in two stages. In the first stage a stratified random sampling technique was used to select the schools from each strata of Government and Private schools using lottery method after listing out all functional Government and Private schools in the two districts. In the second stage all eligible students from the selected schools were included in the study. Sampling of schools were carried out till the required sample size of each strata was met. As the school enrollment is generally lower in government schools, if the required number of students was not met in the particular district, the remaining was filled up from private schools. Study tool and operational definition: A validated questionnaire to assess Depression, Anxiety and Stress known as the DASS 21 scale along with the sociodemographic profile of the participants was used for the study. The DASS 21 Scale is a set of three self-report scales designed to measure the emotional states of depression, anxiety and stress. Each of the three DASS-21 scales contains 7 items, divided into subscales with similar content. Four options were given for each items per scale of depression, anxiety and stress with scores 0,1,2,3. The total score multiplied by 2 is used to calculate the final score.7-8 Recommended cut –off scores for conventional severity labels (normal, moderate, severe) are as follows.

	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28+	20+	34+

In this study the Extremely Severe and Severe grades are clubbed together for further analysis.

Procedure

Prior permission for conducting the session of data collection followed by an interactive health talk on mental health was obtained from the principals of each schools. Each eligible students were given a form for obtaining consent/permission from parents/guardians one day ahead of the visit by the study team. On the day of visit the purpose of the study and how long it will take to fill up the form was explained to the students and verbal assent was taken. The students were explained how to be fill up the different parts of the questionnaire and encouraged to respond honestly and to ask freely if there were any doubts in filling the questionnaire After collection, the questionnaire were checked for completeness by the researcher. An interactive mental health session which lasted for 30-45 minutes was given and those students having any mental health issues were further referred to a tertiary Care Centre psychiatry OPD for further assessment and counseling.

Statistical Analysis

Data collected was entered in MS-excel and was checked for consistency and completeness. Data analysis was performed using IBM SPSS Version

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20. Descriptive statistics were generated and analytical statistics, like chi-square test was performed. A p-value of <0.05 was taken as the level of significance.

Ethical Issues

Ethical approval was obtained from the Institutional Ethics Committee for Protocol No. 117(10)/2018 on 21/09/2018. Written permission from all participating school authorities and parent/guardian, and verbal assent from all the participants was obtained. All identifiers were removed from collected data and strict confidentiality was maintained.

RESULTS

A total of 25 schools were sampled for the study consisting of 12 government schools and 10 private schools to reach the required sample size of 3200. The number of schools from Bishnupur consists of 9 government schools and 7 private schools and from Imphal-East were 6 government schools and 3 private schools. The age ranges from 14-19 years with a mean (SD) age of 16.1(1.2) years. Females constituted 52.4% in this study. The majority of the respondent's mother had education status of primary and middle school (1015, 31.1%). Only a small proportion (223, 7%) had educational level of Graduate and above. The majority of the respondent's father had education status of primary and middle school (968, 30.3%). Majority of the respondents had four and more siblings (1211, 37.8%).

Around 9.8% of the respondents stated that they 'felt down-hearted and blue' most of time, a major proportion of the respondents (85.2%) stated that 'I am worried about situations in which I might panic and make fool of myself' most of the time and around 12.9% stated that 'I found it difficult to relax' applies to them most of the time. [Table 1]

Around half of the respondents (50.7%) were showing emotional state of severe anxiety and around a third of the adolescents were showing signs of moderate depression.[Table 2] Adolescents in the lower age group of 14-15 year have significantly higher proportion of severe depression as compared to the other age groups.[Table 3] Adolescents studying in private schools, female by gender, belonging to Meitei religion, having only one sibling have significantly higher level of severe Anxiety as compared to the other groups.[Table 4] Adolescents in the age group 14-15 year, Islam by religion and having only one sibling have significantly higher level of severe stress as compared to the other groups [Table 5].

Table 1: Showing assessment of the respondents for Depression, Anxiety and Stress by DASS-21 scale (N=3200)

Statements	Did not apply to me N(%)	Apply to me to some degree N(%)	Apply to me to a moderate degree N(%)	Apply to me most of the time N(%)
DEPRESSION SCALE				
I couldn't experience any positive feeling at all	1126(35.2)	1499(46.0)	375(11.7)	200(6.3)
I found it hard to take initiative to do things	863(27.0)	1683(52.6)	475(14.8)	179(5.6)
I felt that I had nothing to look forward to	1394.6(43.6)	1278(39.9)	364(1.4)	164(5.1)
I felt down-hearted and blue	886(27.7)	1609(50.3)	391(12.2)	314(9.8)
I was unable to became enthusiastic about anything	1402(43.0)	1226(38.3)	406(12.7)	166(5.2)
I felt I was not worth as a person	895(28.0)	1433(44.8)	549(17.2)	323(10.1)
I felt life was meaningless	844(26.4)	1559(48.7)	507(15.8)	290(9.1)
ANXIETY SCALE				
I was aware of dryness of my mouth	954(29.8)	1687(52.7)	436(13.6)	123(3.8)
I experience breathing difficulty	1273(39.8)	1254(39.2)	438(13.7)	235(7.3)
I experience trembling	1000(31.3)	1527(47.7)	421(13.2)	252(7.9)
I am worried about situations in which I might panic and make fool of myself	195(6.1)	219(6.8)	58(1.8)	2728(85.3)
I felt I was close to panic	1147(35.8)	1460(45.6)	422(13.2)	171(5.3)
I was aware of heartbeat in absence of physical exertion	1517(47.4)	1141(35.7)	360(11.3)	182(5.7)
I felt scared without any good reason	1193(37.3)	1435(44.8)	362(11.3)	210(6.6)
STRESS SCALE				
I found it hard to wind down	769(24.0)	1754(54.8)	416(13.0)	261(8.2)
I tended to over-react to situations	1435(44.8)	1361(42.5)	320(10.0)	84(2.6)
I felt I was using a lot of nervous energy	1136(35.5)	1388(43.4)	452(14.1)	224(7.0)
I found myself getting agitated	1286(40.2)	1324(41.4)	419(13.1)	171(5.3)
I found it difficult to relax	673(21.0)	1558(48.7)	556(17.4)	413(12.9)
I was intolerant of anything that kept me from getting on with what I was doing	1110(34.7)	1494(46.7)	431(13.5)	165(5.2)
I felt I was rather touchy	1345(42.0)	1276(39.9)	375(11.7)	204(6.4)

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Table 2: Showing distribution of respondents according to categories of depression, anxiety and stress according to DASS-21 scale (N=3200)

CATEGORIES	DEPRESSION N(%)	ANXIETY N(%)	STRESS N(%)
NORMAL	831(26.0)	137(4.3)	2102(65.8)
MILD	891(27.8)	263(8.2)	481(15.0)
MODERATE	1078(33.7)	1179(36.8)	429(13.4)
SEVERE	400(12.5)	1621(50.7)	185(5.8)

Table 3: Showing comparison of depression grade with selected variables (N=3200)

DEPRESSION		Normal N(%)	Mild N(%)	Moderate N(%)	Severe N(%)	p-value
District	Imphal-East	452(28.2)	448(28.0)	506(31.6)	194(12.1)	0.013
	Bishnupur	379(23.7)	443(27.7)	572(35.8)	206(12.9)	
Gender	Female	441(26.3)	477(28.5)	533(31.8)	225(13.4)	0.080
	Male	390(25.6)	414(27.2)	545(35.8)	175(11.5)	
Type of school	Govt.	301(26.3)	296(25.9)	398(34.8)	149(13.0)	0.309
	Private	530(25.8)	595(28.9)	680(33.1)	251(12.2)	
Age(yr)	14-15	253(25.7)	323(32.8)	275(27.9)	134(13.6)	<0.001
	16-17	381(25.3)	385(25.6)	564(37.5)	176(11.7)	
	18 & above	197(27.8)	183(25.8)	239(33.7)	90(12.7)	
Religion	Hindu	133(23.5)	195(34.5)	183(32.4)	54(9.6)	<0.01
	Islam	63(21.2)	116(39.1)	87(29.3)	31(10.4)	
	Christian	209(25.0)	204(24.4)	322(38.5)	101(12.1)	
	Meitei	426(28.4)	376(25.0)	486(32.4)	214(14.2)	
Birth-order	Only child	25(29.8)	07(8.3)	45(53.6)	07(8.3))	<0.001
	First born	214(27.4)	250(32.1)	195(25.0)	121(15.5)	
	Second born	201(21.1)	274(28.8)	360(37.9)	116(12.2)	
	Third and above	391(28.2)	360(26.0)	478(34.5)	156(11.3)	
Number of siblings	None	09(12.0)	16(21.3)	47(62.7)	03(4.0)	<0.001
	One	88(22.0)	129(32.2)	109(27.2)	74(18.5)	
	Two	197(24.9)	250(31.6)	255(32.2)	90(11.4)	
	Three	199(27.6)	200(27.7)	204(28.3)	119(16.5)	
	Four and above	338(27.9)	296(24.4)	463(38.2)	114(9.4)	

Table 4: Showing comparison of Anxiety grades with selected variables (N=3200)

ANXIETY		Normal N(%)	Mild N(%)	Moderate N(%)	Severe N(%)	p-value
District	Imphal-East	100(6.2)	136(8.5)	591(36.9)	773(48.3)	<0.001
	Bishnupur	37(2.3)	127(7.9)	588(36.8)	843(53.0)	
School type	Govt.	102(8.9)	111(9.7)	386(33.7)	545(47.6)	<0.001
	Private	35(1.7)	152(7.4)	793(38.6)	1076(52.3)	
Gender	Female	58(3.5)	143(8.5)	597(35.6)	878(52.2)	0.024
	male	79(5.2)	120(7.9)	582(38.2)	743(48.8)	
AGE(yr)	14-15	30(3.0)	110(11.2)	364(37.0)	481(48.8)	0.001
	16-17	73(4.8)	96(6.4)	562(37.3)	775(51.5)	
	18& above	34(4.8)	57(8.0)	253(35.7)	365(51.5)	
Religion	Hindu	11(1.9)	52(9.2)	220(38.9)	282(49.9)	0.001
	Islam	21(7.1)	37(12.5)	109(36.7)	130(43.8)	
	Christian	36(4.3)	66(7.9)	288(34.4)	446(53.3)	
	Meitei	69(4.6)	108(7.2)	562(37.4)	763(50.8)	
Birth-order	Only child	05(6.0)	12(14.3)	36(42.9)	31(36.9)	0.001
	First born	37(4.7)	54(6.9)	303(38.8)	386(49.5)	
	Second born	39(4.1)	47(4.9)	321(33.8)	544(57.2)	
	Third and above	56(4.0)	150(10.8)	519(37.5)	660(47.7)	
Number of siblings	None	04(5.3)	12(16.0)	43(57.3)	16(21.3)	0.001
	One	15(3.8)	17(4.2)	109(27.2)	259(64.8)	
	Two	41(5.2)	64(8.1)	293(37.0)	394(49.7)	
	Three	24(3.3)	77(10.7)	316(43.8)	305(42.2)	
	Four and above	53(4.4)	93(7.7)	418(34.5)	647(53.4)	

Table 5: Showing comparison of stress grade with selected variables (N=3200)

STRESS		Normal N(%)	Mild N(%)	Moderate N(%)	Severe& Ext Severe N(%)	p-value
District	Imphal-East	1061(66.3)	249(15.6)	206(12.9)	84(5.2)	0.396
	Bishnupur	1044(65.2)	232(14.5)	223(13.9)	101(6.3)	
Gender	Female	1094(65.3)	258(15.4)	224(13.4)	100(6.0)	0.883
	Male	1011(66.3)	223(14.6)	205(13.5)	85(5.6)	
Type of school	Govt.	765(66.9)	149(13.0)	155(13.5)	75(6.6)	0.073
	Private	1340(65.2)	332(16.1)	274(13.3)	110(5.4)	
Age(yr)	14-15	686(69.6)	113(11.5)	120(12.2)	66(6.7)	0.001

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	16-17	977(64.9)	241(16.0)	203(13.5)	85(5.6)	
	18 & above	442(62.3)	127(17.9)	106(15.0)	34(4.8)	
Religion	Hindu	371(65.7)	84(14.9)	97(17.2)	13(2.3)	0.001
	Islam	192(64.6)	36(12.1)	41(13.8)	28(9.4)	
	Christian	542(64.8)	128(15.3)	117(14.0)	49(5.9)	
	Meitei	1000(66.6)	233(15.5)	174(11.6)	49(5.9)	
Birth-order	Only child	52(61.9)	13(15.5)	15(17.9)	04(4.8)	
	First born	565(72.4)	71(9.1)	116(14.9)	28(3.6)	
	Second born	530(55.7)	194(20.4)	148(15.6)	79(8.3)	0.06
	Third and above	958(69.2)	203(14.7)	150(10.8)	74(5.3)	
Number of siblings	None	50(66.7)	16(21.3)	09(12.0)	0(0.0)	
	One	257(64.2)	44(11.0)	59(14.8)	40(10.0)	
	Two	523(66.0)	117(14.8)	112(14.1)	40(5.1)	0.005
	Three	473(65.5)	123(17.0)	91(12.6)	35(4.8)	
	Four and above	802(66.2)	181(14.9)	158(13.0)	70(5.8)	

DISCUSSION

This study, which was conducted among the adolescents in two districts of Manipur, is one of the few studies done to measure the depression, anxiety and stress of the adolescents studying in the districts of Imphal-East and Bishnupur.

Depression, Anxiety and Stress were assessed using DASS-21 scale and it was found that 46.2%, 87.5% and 19.2% of the adolescents had moderate to severe depression, anxiety and stress respectively. Similarly findings were reported in study done by Bakksanyla et al.[11] reported 47.3%, 72.7% and 49.1% had depression, anxiety and stress respectively. Sheikh BM et al.[12] also reported depression, anxiety and stress in 53.9%, 59.7% and 43.8% of adolescents respectively. Similar prevalence was also found in other literatures.[13-15]

In another study done with the same tool by Kumar KS et al.[16] the prevalence was much lower i.e. 19.5%, 24.4% and 21.1% respectively which might be due to the inclusion of only 11th and 12th standard only and was conducted in sub-urban areas only, whereas this study included a large rural population with lower socioeconomic status and more number of Government schools. Another possible reason may be that 11th standard have already developed their coping skills and can handle stress better whereas the new entrants to high school level at 9th standard which is included in this study is subjected to more stringent academic atmosphere. Moreover higher prevalence was found in rural area adolescents, which might indicate the inaccessibility of same education, recreational and public health resources as compared to urban areas. Findings in other literature shows that the students of rural are vulnerable to stress, depression and anxiety.[17-19]

The present study shows girls are significantly more likely to suffer from anxiety as compared to boys. Other studies done by Muzammil et al and B Bista et al20-21 reported boys as being more likely to suffer from depression anxiety and stress as compared to girls whereas majority of the studies reported females having higher level of depression as compared to males.[16,18-19,22-23] The difference in the general findings of females having less depression and stress in this study may be due to social and cultural norms of these region where females have better rights and freedom to express themselves.

In the present study, prevalence of anxiety was more among adolescents of private schools as compared to government schools which may be due to parental pressure and harsh competitive environment, Singh MM et al reported a higher prevalence among government school children.[24] The study reveals that the adolescents with one or more number of siblings have higher level of depression and stress which is similar to a study by Fatiregun et al.[25] where having higher number of sibling came out as significant predictor of depression. Hindu by religion is significantly associated with lower depression and stress whereas in a study done by Jha KK et al.[25] minority religion were associated with higher prevalence of depression.

The prevalence of anxiety significantly increases with age in this study similar to other studies.[26-30] The reason may be due to decrease attachment to family, as they prefer more autonomy and independence. Stress and anxiety are the offshoots of inadequate interaction with the environment and family. In a study conducted by Kumar KS 16 anxiety was found to be higher in lower age groups.

The strength of our study is that it was done in a large sample population of 3200 using a validated tool to assess depression anxiety and stress using a stratified random sampling technique covering both Government and private schools with 100% response rate. Bishnupur was included where majority is of rural population and Imphal-east being more of urban population. The studies limitations are that adolescents studying in lower classes could not be included. Moreover absentees on the day of visit and school dropouts were not included which may be an underestimation of the disease burden as they are more likely to have mental disorders; hence, findings of the present study cannot be generalized to them.

CONCLUSION

Despite the limitations, the study highlighted that a significant proportion of school going adolescents suffered from depression, anxiety and stress.

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Improving social skills will be an effective intervention to reduce mental disorders. There is a need for a strong multi-sectoral response to this important public health problem. In spite of the limitations, this study points towards the issue of prevalence of depression, anxiety and stress in adolescence and the purpose of the study is well served to highlight the common but ignored problem.

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