

Original Research Article

Pattern of anxiety, depression, and suicidality among in-school adolescents in Bauchi, North-East Nigeria

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ABSTRACT

Background: Adolescence is a crucial period of development resulting in significant changes in physical appearance, and psychological functioning. Globally, mental health disorders account for 16% of the global burden of disease and injury in adolescents. The study aims to provide baseline information on adolescents' mental health in Bauchi State.

Methods: A cross-sectional study design was employed in this study. Using systematic sampling technique, 672 in-school adolescents aged 10-19 who gave assent/consent were selected. SPSS was used to analyze the data.

Results: The mean age of the respondents was 15 ± 2.0 , more respondents had no or minimal depression (65.0). However, 0.7% were moderately severely depressed. Most respondents (88.7%) had minimal anxiety, while 1.5% and 0.3% had moderate and severe anxiety respectively. Almost one-quarter of the respondents (23.2%) had thought of ending their life in the past month before the survey with up to 4.2% attempting suicide. Adolescents from polygamous settings were up to 70% less likely to attempt suicide compared to those in a monogamous setting and this was statistically significant with a p-value of 0.039 and CI (0.167-0.785). Furthermore, those whose parents were not in a marital union were 2.9 times more likely to attempt suicide compared to those whose parents were still in union and living together. This was statistically significant with a p-value of 0.018 and CI (1.203-7.060).

Conclusions: Early intervention and a multi-pronged public health approach are crucial to safeguard this vulnerable population's mental well-being to enable them to thrive and reach their full potential.

Keywords: Adolescents, Depression, In-school, Mental health, Substance use, Suicide ideation

INTRODUCTION

Adolescence is a crucial period of development resulting in significant changes in physical appearance, psychological and social functioning.¹ This period

corresponds with the phase of transformation into adulthood during which talents, reasoning, and complex adult behaviors mature. This maturation of behaviors correlates with significant changes in neurogenesis,

cortical synaptic remodeling, neurotransmitter receptors and transporters, and major changes in hormones.²

Currently, there are about 1.8 billion young people in the world of which about 90% live in developing countries.³ Whereas the adolescent population of developed countries has been projected to experience a decline, different trends have been predicted for developing countries, particularly in Sub-Saharan Africa. Mortality from diseases is four times higher in adolescents living in Sub-Saharan Africa compared with developed countries.⁴ Despite this, adolescents have remained a neglected group, hence the call by the sustainable development goal to attend to their needs.

Globally, mental health disorders account for 16% of the global burden of disease and injury in adolescents aged 10-19 years.⁵ These mental health issues have continued to increase both in number and severity among adolescents. In addition, it is well documented that some individuals may suffer from more than one mental health problem while others may suffer from mental health problems that are hitherto perceived to be uncommon in an environment or among a certain group of individuals. However, mental health has remained neglected especially in resource-limited countries like Nigeria which has a grossly deficient budget for health.⁶ Adolescents with mental health disorders are at risk of developing myriads of clinical conditions. Prominent among these are depression (4th leading cause of illness and disability among adolescents aged 15-19 years), anxiety (6th leading cause of illness and disability among adolescents aged 10-14 years), and suicide (3rd leading cause of death among adolescents aged 15-19 years). Suicide is especially common in developing countries where more than 90% of world adolescents' suicides occur.^{3,7} This has been attributed to factors such as; the increasing population of adolescents, especially in Sub-Saharan Africa, experiencing child abuse, neglect, emotional difficulties, bullying, discrimination, low socioeconomic status and the urge for greater autonomy. Other precipitating factors include peer pressures, exploration of sexual identity, substance use and abuse, media influence and the negative impact of information technology advancement.⁸ The antecedent effects of these mental health problems on adolescents include social exclusion, discrimination, educational challenges, risk-taking habits, human rights infringement, mental health-related physical ill-health, depression, anxiety, irritability, frustration, anger, attention deficit hyperactive disorder, and conduct disorder.^{9,10} This school-based study is thus aimed at determining the prevalence of depression, anxiety, and suicidality among adolescents and its associated factors.

The study aimed to provide baseline information on adolescents' mental health and be used to advocate for school-based mental health programmes in Bauchi State.

METHODS

The study was conducted in Bauchi State located in the Northeastern region. The state comprises twenty (20) Local Government Areas (LGAs) located within three senatorial districts. Its 2023 projected population is 7,657,045 of which 3,593,333 are males and 3,453,712 are females. There are 288 public secondary schools and 350 private secondary schools, of these 230 are senior secondary schools of which 29 are boarding schools. The number of students enrolled in private secondary schools is 21,280 males and 22,052 females while the enrollment in senior secondary school is 71,090 males and 50,215 females. The study period for this study was from November 2023 to January 2023.

A cross-sectional study design was employed to study in-school adolescents aged 10-19 years who gave assent/consent to participate in the study, those who were absent were excluded from the study.

Cochran's formula was used to calculate a minimum sample size of 590. This was done using a 21.9% prevalence of depression among adolescents from a previous study conducted in Rivers State, Nigeria.¹¹

Data was collected using a self-administered questionnaire which was adapted from PHQ-A and GAD-7 anxiety questionnaire. Using simple random sampling technique by balloting, a total of six schools were selected from public and private secondary schools in Bauchi LGA. A systematic sampling technique using a sampling interval of four was employed at each school after proportionately allocating the sample size for each selected school. Before data were collected from the study participants, ethical clearance was obtained from the Bauchi State Ministry of Health and permission was obtained from the Director of Education and secondary school principals of the selected secondary schools. Informed written consent was obtained from the participants before enrolment into the study. For those below 18 years, written informed consent was obtained from the parents/guardians of the adolescents, and assent was obtained from the adolescents.

The data collected were cleaned, coded and analyzed using IBM Statistical Product for Services and Solutions (SPSS) version 24. Depression was graded on the total scoring from the adopted questionnaire, the score ranged from 0-27. A score of 0-4 was graded as "no or minimal depression", 5-9, "mild depression", 10-14, "moderate depression", 15-19, "moderately severe depression" and a score of 20-27 were considered as having severe depression. Suicidality was measured by answering "yes" to making any suicide attempt while anxiety was measured using the GAD anxiety questionnaire and graded as 0-21, a score of 0-4 will be regarded as those with "minimal anxiety", 5-9, "mild anxiety", 10-14, "moderate anxiety" and 15-21, "severe anxiety".

Quantitative variables were summarized in mean and standard deviation while qualitative variables were presented in tables. Logistic regression was used to obtain crude and adjusted odds ratio to determine the predictors of suicidality among the study participants.

RESULTS

Data was obtained from 672 adolescents across the selected schools.

Table 1: Socio-demographics characteristics of respondents.

Variable	Frequency (%), n=672
Age group (years)	
10-13	110 (16.4)
14-16	305 (45.4)
17-19	257 (38.2)
Sex	
Male	300 (44.6)
Female	372 (55.4)
Class	
JSS 2	66 (9.8)
JSS 3	136 (20.2)
SSS 1	45 (6.7)
SSS 2	82 (12.2)
SSS 3	343 (51.0)
Monthly allowance (naira)	
<1,000	239 (35.6)
1000-5,000	359 (53.4)
5001-10,000	46 (6.8)
>10,000	28 (4.2)
Participation in religious activity	
Rarely	105 (15.6)
Occasionally	92 (13.7)
Always	475 (70.7)
Family setting	
Polygamous	326 (48.5)
Monogamous	346 (51.5)
Marital status of parents	
Married	524 (78.0)
Not married	148 (22.0)

The mean age of the respondents was 15±2.0 years with more (45.5%) of the respondents being middle-aged adolescents. Over half of the respondents were females (55.4%) and 53.4% of the respondents had a monthly allowance ranging between 1000-5000 naira. Most of the respondents (78.0%) live with both parents (Table 1).

More respondents had no or minimal depression (65.0%). However, 25.3% had mild depression and 0.7% had moderately severe depression (Table 2).

Table 2: Proportion of respondents with depression and grade of depression.

Variable	Frequency (%), n=672
Level of depression	
No or minimal depression	437 (65.0)
Mild depression	170 (25.3)
Moderate depression	60 (8.9)
Moderately severe depression	5 (0.7)

Table 3: Proportion of respondents with anxiety and level of anxiety.

Variable	Frequency (%), n=672
Level of anxiety	
Minimal anxiety	596 (88.7)
Mild anxiety	64 (9.5)
Moderate anxiety	10 (1.5)
Severe anxiety	2 (0.3)

The majority of respondents (88.7%) had minimal anxiety, while 1.5% and 0.3% had moderate and severe anxiety respectively (Table 3).

Most of the respondents did not have any signs associated with anxiety, although more of those who showed symptoms had difficulty controlling worry and worried about different things for several days 17.7% and 16.2% respectively. Very few (1.2%) of the respondents were restless for half of the days within the past two weeks before the survey (Table 4).

Table 4: Domain of anxiety among study respondents.

Variable	Not at all F (%)	Several days F (%)	More than half of the days, F (%)	Nearly every day, F (%)
Having had any of these feeling in the past two weeks				
Feeling nervous, anxious or on the edge	584 (86.9)	61 (9.1)	17 (2.5)	10 (1.5)
Cannot control worrying	516 (76.8)	119 (17.7)	24 (3.6)	13 (1.9)
Worrying about different things	512 (76.2)	109 (16.2)	24 (3.6)	27 (4.0)
Having trouble relaxing	546 (81.3)	95 (14.1)	21 (3.1)	10 (1.5)
Being restless	573 (85.3)	80 (11.9)	8 (1.2)	11 (1.6)
Being easily irritable	552 (82.1)	87 (12.9)	20 (3.0)	13 (1.9)
Feeling afraid	525 (78.1)	106 (15.8)	20 (3.0)	21 (3.1)

Table 5: Suicidality among respondents.

Variable	Frequency (%), N=672
Thought of ending life in the past one month	
Yes	156 (23.2)
No	516 (76.8)
The respondent tried to commit suicide	
Yes	28 (4.2)
No	644 (95.8)

Table 6: Predictors of suicidality among study respondents.

Variable	Attempt of suicide Yes Frequency (%), n=28	Attempt of suicide No Frequency (%), n=644	cP value	cOR (95% CI)	aP-value	aOR(95% CI)
Age grp (yrs)						
10-13	1 (0.9)	109 (99.1)	0.997	0 (0.000- infinity)	0.239	0.2 (0.028-2.432)
14-16	20 (6.6)	285 (93.4)	0.026	2.68 (1.123-6.424)	0.181	2 (0.717-5.827)
17-19	7 (2.7)	250 (97.3)	Reference	1		1
Sex						
Male	15 (5.0)	285 (95.0)	0.334	1.5 (0.681-3.104)	0.192	1.7 (0.756-4.034)
Female	13 (3.5)	359 (96.5)	Reference	1		1
Class						
JSS 2	2 (3.0)	64 (97.0)	Reference	1		1
JSS 3	5 (3.7)	131 (96.3)	0.814	1.2 (0.231-6.468)	0.963	1 (0.180-6.052)
SSS 1	5 (11.1)	40 (88.9)	0.107	4 (0.740-21.607)	0.093	4.6 (0.774-28.485)
SSS 2	7 (8.5)	75 (91.5)	0.182	2.9 (0.599-14.889)	0.091	4.3 (0.792-23.432)
SSS 3	9 (2.6)	334 (97.4)	0.852	0.8 (0.182-4.084)	0.971	1.0 (0.181-5.891)
Monthly allowance (naira)						
<1,000	8 (3.3)	231 (96.7)	0.329	0.5 (0.091-2.234)	0.771	0.7 (0.134-4.441)
1000-5,000	17 (4.7)	342 (95.3)	0.573	0.6 (0.142-2.950)	0.854	0.9 (0.164-4.460)
5001-10,000	1 (2.2)	45 (97.8)	0.320	0.3 (0.025-3.343)	0.245	0.2 (0.017-2.843)
>10,000	2 (7.1)	26 (92.9)	Reference	1		1
Participation in religious activity						
Rarely	3 (2.9)	102 (97.1)	0.908	0.5 (0.163-1.871)	0.138	0.4 (0.099-1.377)
Occasionally	1 (1.1)	91 (98.9)	2.359	0.2 (0.028-1.546)	0.088	0.2 (0.022-1.305)
Always	24 (5.1)	451 (94.9)	Reference	1		1
Family setting						
Polygamous	8 (2.5)	318 (97.5)	0.036	0.4 (0.178-0.994)	0.039*	0.3 (0.167-0.785)
Monogamous	20 (5.8)	326 (94.2)	Reference	1		
Marital status of parents						
Married and living together	12 (7.6)	145 (92.4)	0.016	1	0.018*	1
Separated/divorced	16 (3.1)	499 (96.9)	Reference	2.6 (1.194-5.580)		2.9 (1.203-7.060)

*statistically significant.

Almost one-quarter of the respondents (23.2%) had thought of ending their life in the past month before the survey with up to 4.2% attempting suicide (Table 5).

Being an adolescent from a polygamous setting was protective against attempting suicide compared to a child from a monogamous setting as adolescents from polygamous settings were up to 70% less likely to attempt

suicide compared to those in a monogamous setting and this was statistically significant with a p-value of 0.039 and CI (0.167-0.785). Furthermore, those whose parents were not in a marital union were 2.9 times more likely to attempt suicide compared to those whose parents were still in union and living together. This was statistically significant with a p-value of 0.018 and CI (1.203-7.060) (Table 6).

DISCUSSION

This study demonstrated that about a third of the respondents had some forms of depression with an alarming proportion reporting moderate to severe depression. This is much higher than those reported in Rivers state in Nigeria and Ethiopia.^{11,12} Conversely, it was lower than that reported in a study in India.¹³ These discrepancies might be due to methodological differences or variations in sociocultural contexts that influence how depression is perceived and reported across these regions. A third of adolescents in this study reportedly have depression which is of significant public health concern. Academic pressures, social issues, family problems, and individual risk factors can all contribute to depression in these adolescents. This can negatively impact their academic performance, social interactions and overall well-being, with consequences reaching families and communities.

This study also found that about a tenth of the adolescent respondents reported having varying levels of anxiety. While this prevalence is concerning, it is important to acknowledge that it falls below the rates reported in similar studies conducted in Enugu State, Nigeria and India.^{14,15} These conflicting findings may be attributed to several factors, including methodological differences, particularly the specific tools employed to assess anxiety across the studies. While the observed prevalence of anxiety in this study may be lower than reported in other regions, it remains a significant issue requiring prompt attention especially when considering the vulnerability of adolescents. Anxiety disorders are among the most common mental health challenges faced by adolescents, and even a seemingly low prevalence translates to a substantial number of young people struggling.¹⁶ Several factors can contribute to this anxiety, including academic pressures, social pressures to fit in, family issues like conflict or parental mental health struggles, and individual risk factors such as genetics, personality traits, and past traumas. These anxieties can have a profound impact on adolescents' lives, affecting their academic performance through concentration and motivation issues, hindering social interactions due to fear of judgment, and impacting their overall well-being through physical symptoms, depression, and even substance abuse. The presence of anxiety can also extend its reach, creating strain within families, reducing adolescents' ability to contribute at home, and placing a burden on community resources as families seek additional support.

In a cause for serious concern, this study found that nearly a quarter of the in-school adolescents reported having suicidal ideation within the past month, with some even attempting suicide. Although this prevalence is lower than that reported in comparable studies from Nigeria, Jamaica, and the United States, it signifies a disturbing trend that demands immediate public health attention.¹⁷⁻¹⁹ The implications of these findings are far-reaching. Untreated suicidal ideation and attempts can

lead to complete suicides, a tragedy with devastating consequences for individuals, families, and communities. Furthermore, adolescents experiencing suicidal thoughts often struggle with underlying mental health conditions like anxiety and depression.²⁰ If left unaddressed, these conditions can have a debilitating impact on academic performance, social relationships and overall well-being. The long-term effects can extend into adulthood, potentially limiting future opportunities and contributing to a cycle of mental health issues across generations. This underscores the critical need for a multi-pronged public health approach. Early identification and intervention are essential to prevent the progression of suicidal thoughts and attempts. This includes expanding access to mental health services, training educators and healthcare professionals to recognize the signs of distress, and destigmatizing mental health concerns within communities. Schools can play a particularly vital role by implementing suicide prevention programs that promote emotional literacy, coping skills, and help-seeking behaviors among students.

Furthermore, family dynamics play a significant role in suicidality among adolescents as shown in this study. Notably, adolescents from polygamous family settings were found to be less likely to experience suicidal thoughts and behaviors compared to those from monogamous settings. In addition, adolescents from families with separated or divorced parents were three times more likely to experience suicidality compared to those whose parents were married and living together. These findings highlight the importance of family structure and parental marital status as predictors of suicidality among adolescents, underscoring the need for targeted interventions and support for vulnerable families to promote adolescent mental health and well-being. The study limitation stems from the understanding that mental health issues including suicide are sensitive topics that will require a lot of trust and commitment on the part of adolescents. In addition, some parents have limited knowledge and understanding of mental health issues among adolescents.

CONCLUSION

In conclusion, this study identified concerning levels of depression, anxiety, and suicidal ideation and attempt among adolescents in northeastern Nigeria. Early intervention and a multi-pronged public health approach are crucial to safeguard the mental well-being of this vulnerable population. By creating accessible mental health services, fostering supportive environments, and promoting help-seeking behaviors, adolescents can be empowered to thrive and reach their full potential.

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