



# GENDER VARIATIONS IN THE PREVALENCE AND CORRELATES OF DEPRESSION AND ANXIETY AMONG ADOLESCENTS IN SOUTH-EASTERN NIGERIA

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Résumé de l'article

This study explored gender variations in the prevalence and correlates of depression and anxiety among Nigerian adolescents. Using a cross-section of 836 students aged 10 to 18 years (39.5% males and 60.5% females), the study determined gender differences in the prevalence of and the demographic, socioeconomic, and lifestyle factors associated with, depression and anxiety among the respondents. Data were collected using a prevalidated questionnaire and the 25-item Revised Child Anxiety and Depression Scale. Analyses were carried out with the SPSS statistical software (version 21); frequencies and percentages, chi-squared statistics, and point-biserial correlations were examined. Results showed a high(35.4%) prevalence of general anxiety and depression among adolescents. Male respondents had a higher proportion of anxiety (32.1%), depression (31.5%), and general anxiety and depression (44.8%) compared to females who had 20.9% symptomatic depression, 21.9% anxiety, and 29.2% general anxiety and depression. Correlates of mental health symptoms in boys were mothers' education and living with guardians. Having unemployed fathers correlated with anxiety symptoms in girls. Age, class, perceived family socioeconomic status, and emotional connection with parents/guardians were significantly correlated with mental health in both male and female adolescents; however, the pattern of these interactions varied between the genders. Since this study has shown that gender variations exist in the prevalence and correlates of poor mental health among Nigerian adolescents, programs targeting them should reflect gender considerations.

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## **GENDER VARIATIONS IN THE PREVALENCE AND CORRELATES OF DEPRESSION AND ANXIETY AMONG ADOLESCENTS IN SOUTH-EASTERN NIGERIA**

**Uju I. Nnubia and Nancy C. Emmanuel**

**Abstract:** This study explored gender variations in the prevalence and correlates of depression and anxiety among Nigerian adolescents. Using a cross-section of 836 students aged 10 to 18 years (39.5% males and 60.5% females), the study determined gender differences in the prevalence of and the demographic, socioeconomic, and lifestyle factors associated with, depression and anxiety among the respondents. Data were collected using a prevalidated questionnaire and the 25-item Revised Child Anxiety and Depression Scale. Analyses were carried out with the SPSS statistical software (version 21); frequencies and percentages, chi-squared statistics, and point-biserial correlations were examined. Results showed a high (35.4%) prevalence of general anxiety and depression among adolescents. Male respondents had a higher proportion of anxiety (32.1%), depression (31.5%), and general anxiety and depression (44.8%) compared to females who had 20.9% symptomatic depression, 21.9% anxiety, and 29.2% general anxiety and depression. Correlates of mental health symptoms in boys were mothers' education and living with guardians. Having unemployed fathers correlated with anxiety symptoms in girls. Age, class, perceived family socioeconomic status, and emotional connection with parents/guardians were significantly correlated with mental health in both male and female adolescents; however, the pattern of these interactions varied between the genders. Since this study has shown that gender variations exist in the prevalence and correlates of poor mental health among Nigerian adolescents, programs targeting them should reflect gender considerations.

**Keywords:** depression, anxiety disorder, mental health, adolescents, gender variations, Nigeria

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Adolescence marks the beginning of the transition from childhood to adulthood. As such, it can be a pivotal and formative period in the lives of children. The World Health Organization (WHO; 2021) conceptualizes adolescents as young people from ages 10 to 19; this includes children in late childhood (8–12) and teenagers (13–19). Scholarly evidence shows that adolescence is a period marked by exposure to novel risk factors and rapid changes, such as physical changes, as well as increased peer pressure, academic stress, and sexual experimentation (Shirk et al., 2000). These factors predispose adolescents to higher incidences of mental health challenges than other age groups. There is evidence that disorders that affect mental health account for a significant proportion (13%) of the global burden of diseases among adolescents (WHO, 2021). UNICEF has estimated that, in 2019, one in seven adolescents globally had mental health challenges, which translates to an estimated 166 million adolescents comprising 89 million boys and 77 million girls (UNICEF Data: Mental Health, 2021). People with mental health challenges have a high prevalence of negative health behaviours, such as excessive cigarette use, alcohol and substance abuse, physical inactivity, and poor diet, which can contribute to a high prevalence of chronic heart disease, infections, and suicide (Walker et al., 2015). A mental health disorder is diagnosed when a person’s thinking, feelings, or behaviour are disrupted to the extent that they begin to exhibit clinically significant symptoms. These are often accompanied by negative emotions and a decline in key areas of functioning. As with physical diseases, there is a range of mental health challenges, the most common being anxiety disorders and depression (WHO, 2022).

Depression in adolescents can manifest as persistent feelings of sadness, irritation, or emptiness, and differs from normal mood swings and short-term emotional reactions to adversity (Polaris Teen Center, 2019). The WHO (2022) states that a depressive episode can be identified when these feelings persist for at least two weeks, along with other symptoms such as “poor concentration, feelings of excessive guilt or low self-worth, hopelessness about the future, thoughts about dying or suicide, disrupted sleep, changes in appetite or weight, and feeling especially tired or low in energy” (para. 5). Anxiety disorders, according to the National Institute of Mental Health (2022) in the United States, go beyond normal levels of concern about health, finances, and relationships with loved ones. Those who suffer from an anxiety disorder often experience persistent and worsening levels of fear and worry, in addition to other symptoms that might have a negative impact on areas of their lives like career, education, and personal relationships (National Institute of Mental Health, 2022). Generalized anxiety disorder, panic disorder, social anxiety disorder, and other phobia-related disorders are all examples of anxiety disorders.

According to a recent study, the prevalence of mental health issues is highest in adolescence, a period of particular vulnerability to the development of mental health issues like depression and anxiety (Jorns-Presentati et al., 2021). According to the New York Center for Living (2018), risk factors for depression and anxiety include various demographic, familial, and individual lifestyle attributes. Their website lists a host of factors, such as genetic susceptibility; long-term stress; exposure to or personal experience with traumatic events like abuse, neglect, or violence; surviving

a natural disaster; dysfunctional family relationships; lack of a supportive social network; questioning their gender identity or sexual orientation; being involved in the juvenile criminal justice system (especially as a female); growing up in a low-income household; having a developmental disability or chronic medical condition; and abuse of alcoholic beverages and other drugs. Adolescent anxiety is significantly connected with demographic factors such as being female, age, academic performance, father's educational level, family size, and residential setting (Anjum et al., 2022). In addition, having a limited emotional connection with parents, living in a volatile home environment, and experiencing regular family relocations all contribute to teenage depression (Lewis et al., 2015). Adverse mental health among teenagers is associated with negative health and social consequences that may include increased "alcohol, tobacco, and illicit substances use, adolescent pregnancy, school dropout and delinquent behaviours" (Danasu et al., 2018, p. 69493).

The types of mental health challenges to which adolescents are susceptible vary by gender, a difference that multiple theories have attempted to explain. One of these, gender intensification theory, postulates that:

In early adolescence, boys and girls experience higher pressure in terms of what is culturally accepted for each sex by parents, peers, educators, and the media. To confront this pressure, they adopt more differentiated gender-role identities, which are supposed to be adaptive for their future adult roles (Major, 2015). (Esteban-Gonzalo et al., 2020, Introduction, para. 6)

Being male, in a patriarchal society, is believed to be associated with reduced depressive symptoms because the male gender, culturally, is linked to higher levels of such traits as self-efficacy, perceived competence, and self-esteem (Esteban-Gonzalo et al., 2020). On the other hand, being female may increase these symptoms because femininity encourages emotionality and putting one's own needs before those of others; this might induce feelings of helplessness in dealing with stress (Priess et al., 2009). Proponents of developmental psychopathology assert that several developmental pathways contribute to the gender differences in adolescent mental disorders (Martin & Hadwin, 2022; Yoon, et al., 2022). For instance, during the pubertal transition, there is a convergence of hormonal and neurodevelopmental changes that vary by sex and may impact the gender difference in depression (Salk et al., 2017). These theories emphasize how social and biological characteristics emerge throughout crucial developmental phases in adolescence and interact with adolescent stresses to cause gender differences in the prevalence of depression and anxiety.

According to a recent population survey of adolescents in England, females were more likely to have internalising disorders like depression or anxiety, whereas adolescent boys were more likely to face externalising difficulties, such as aggressiveness or bullying (Yoon et al., 2022). In a study set in Australia, Lewis et al. (2015) observed that lack of emotional closeness with parents was associated with depressive symptoms among female adolescents but not in males. In a three-

wave longitudinal survey conducted in Canada between 1994 and 1998, Galambos et al. (2016) observed that girls were more likely than boys to experience major depressive episodes and had more severe depressive symptoms. Additionally, gender variations among young people are not limited to those who identify as cisgender, whether male or female. Tordoff et al. (2022) reported a prevalence of more than 50% in both anxiety and depression among their sample of 104 transgender and nonbinary young people, indicating a highly disproportionate level of vulnerability to these disorders. An older study by Reisner et al. (2015) observed that transgender adolescents experienced a twofold to threefold greater risk of depression, anxiety disorder, suicidal thoughts, suicide attempts, and self-harm when compared to their cisgender counterparts. This was attributed to decreased social support and increasing stigma and prejudice that these young people were experiencing within their social milieus.

### ***Present Study***

Studies on the dynamics of adolescent depression and anxiety conducted in Nigeria have not consistently shown gender differences. In a study carried out in Enugu State, Nigeria, Ogbonna et al. (2020) observed gender differences only in the prevalence of mental health challenges. According to their study, male adolescents were more likely than female adolescents to suffer from mental health challenges, which were generally most prevalent at 18 years of age. A recent study of gender nuances in mental health challenges by Nigerian researchers Idowu et al. (2022), which involved undergraduate medical students, focused on the interaction of their psychological distress with the COVID-19 pandemic. The study found that age, lower family income, and family history of mental health challenges were associated with psychological distress among women only, not among men. The gender variations in the risk factors of adolescents' mental health challenges in Nigeria remain underreported. Limited data in this area could make it difficult for the government, public health administrators, school administrators, parents, and family counsellors to develop informed gender-specific programmes and policies targeted at the promotion and protection of adolescents' mental well-being. The present study, which was carried out in Udenu, Enugu State, Nigeria, addresses this knowledge gap by highlighting various gender-specific demographic, socioeconomic, and lifestyle correlates of depression and anxiety among adolescent boys and girls.

Specifically, the study found gender variations in:

1. the prevalence of depression and anxiety among adolescents;
2. the demographic and family-related correlates of depression and anxiety among adolescents; and
3. the lifestyle correlates of depression and anxiety among adolescents.

It is important here to note a particular limitation of this study. The concept of gender in this research refers to a binary definition of gender and does not include participants who identify along the gender-creative spectrum. The researchers chose to focus on cisgender female and male participants since gender-creative identities are not currently recognized in the Nigerian context,

making it difficult to include this demographic in this study. It is also important to note that when we refer to binary labels related to gender (e.g., “girl”, “boy”, “woman”, “man”, “female”, and “male”), we are referring to cisgender participants, even though this term may also not be recognized in the Nigerian context.

### **Methodology**

Data for the study was collected and analyzed using a cross-sectional survey and correlational research methods. The cross-sectional survey approach to design was deemed appropriate because it seeks to characterize and interpret the current state of affairs, collecting data at a given juncture to characterize its nature and establish benchmarks against which it can be measured, while the correlational approach seeks to establish explanatory relationships between individual events (Cohen et al., 2011). A multistage sampling technique was used to select a sample of 1,060 out of 5,238 students from the Udenu local government area (LGA) in Enugu State, Nigeria.

Udenu is an LGA comprising rural communities whose major occupations are farming and petty trading. The LGA has 16 public secondary schools. The public schools consist of one all-boys school; three girls’ schools, and 12 coeducational schools. The first sampling stage involved the proportionate selection of five (30%) of the 16 public schools in the LGA. In selecting the schools, the all-boys school was purposively selected, while one out of the three all-girls schools and three out of the 12 coeducational schools were randomly selected for the study. The general population of students in the five schools was 2,373. In the second stage, using the online sample size calculator with a 5% margin error, 50% baseline level of indicators, and 1.96 level of confidence, the sample size for each school was obtained. The samples for each school were summed up and gave a total of 1,060 students. The final stage involved a purposive selection of students (50% from junior secondary classes, and 50% from senior secondary) within the age range of 10 to 18 in each school. Age 18 was used as the upper limit to align with the age coverage of the data collection instrument used. However, only 836 respondents (39.5% males and 60.5% females) successfully completed the questionnaire, making up the actual sample for the study. Informed consent forms were used to obtain the respondents’ consent to participate. This form stated the purpose of the research, described the procedure, affirmed the voluntary nature of participation, and gave assurance of confidentiality. The content of the form was explained to the respondents before they signed.

### **Materials**

A structured questionnaire and the 25-item Revised Child Anxiety and Depression Scale (RCADS 25; Ebesutani et al., 2012; used by permission) were used to collect data. The structured questionnaire was divided into two sections. Section A was used to elicit information on the demographic and socioeconomic characteristics of the respondents, such as gender, age, class, highest educational level of parents/guardians, occupation of parents/guardians, whether living with parents or with guardians, emotional closeness with parents/guardians, and perceived family



socioeconomic status. Section B covered the lifestyle characteristics of adolescents. The items were: engaging in smoking, alcohol intake, engaging in sex, and regularly engaging in sports or exercise. All the items had dichotomous responses to fit the analytical tool chosen.

The RCADS-25 is a questionnaire for children and adolescents aged 8 to 18. It assesses “broad” anxiety (i.e., separation anxiety disorder, social phobia, generalized anxiety disorder, panic disorder, and obsessive-compulsive disorder) with 15 items, and assesses depression with 10 items that are based on DSM-IV criteria. Items are scored according to the frequency of their occurrence on a 4-point Likert scale, ranging from 0 (*never*) to 3 (*always*) and summed to total scores. The anxiety subscale score ranges from 0 to 45, and the depression subscale score ranges from 0 to 30. Higher scores are indicative of higher levels of anxiety and depression.

The structured questionnaire was validated by three lecturers from the Departments of Home Science and Management, and Nutrition and Dietetics, University of Nigeria, Nsukka. Their suggestions and observations were used to improve the questionnaire items.

The RCADS-25 questionnaire was administered to 10 respondents from two public secondary schools in Udenu LGA, comprising five students from each school who were not part of the sample for the study. Cronbach’s alpha values were .807 (depression), .836 (anxiety), and .834 (general anxiety and depression). The instrument, therefore, demonstrated high internal consistency.

### ***Procedure***

A total of 1,060 copies of both the structured questionnaire and the RCADS-25 questionnaire were hand-distributed to the respondents. To facilitate the process, two research assistants were recruited from undergraduate students of the University of Nigeria, Nsukka. They were briefed on how to administer the questionnaires and then collect the completed copies the following day in compliance with the directives of the school heads. After sorting the questionnaires, we found that 836 respondents had filled them out correctly and could be included in the study.

### ***Data and Statistical Analysis***

Data collected were coded and entered into the SPSS (version 20.0) statistical software, then analyzed using descriptive and inferential statistics. The 10 items that assess depression were summed to obtain the raw scores for the total depression subscale, while the 15 items that assess anxiety were summed to obtain the raw scores for the total anxiety subscales. The scores of the participants on the 25 items of the RCADS were summed to obtain the general anxiety and depressive symptoms scores. To establish depression, anxiety, and general anxiety and depressive symptoms, the raw scores of the respondents on each of the three variables were compared to a normative standard and assigned a standard score denoted as a *t*-score. A *t*-score of less than 65 was categorized as normal, and a score of at least 65 but less than 70 as borderline clinical; one of 70 or more was regarded as above the clinical threshold (Chorpita et al., 2005). Missing values and all RCADS computations were carried out using the SPSS syntax for batch scoring (Chorpita & Spence, 2022). Respondents at borderline clinical thresholds and above were then merged,

leaving only two groups: normal and symptomatic. The symptomatic categories of anxiety and depression each included respondents who also met the criteria for the other disorder, while the symptomatic category of general anxiety and depression included all respondents who reached the borderline clinical threshold for either disorder. Frequencies and percentages were used to present descriptive data while binary logistic regression and point-biserial correlation analyses were used to determine the correlates of depression and anxiety at a .05 level of significance.

Table 1. *Background Characteristics of the Respondents*

Demographic/socioeconomic characteristics	Males		Females		General	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Age						
10–14	257	77.9	320	63.2	577	69.0
15–18	73	22.1	186	36.8	256	31.0
Grade						
7–9 (Junior Secondary)	255	77.3	310	61.3	565	67.6
10–12 (Senior Secondary)	75	22.7	196	38.7	271	32.4
Father/guardian's highest education						
Secondary education	195	59.1	392	77.5	587	70.2
Tertiary education	135	40.9	114	22.5	249	29.8
Mother/guardian's highest education						
Secondary education	281	85.2	423	83.6	704	84.2
Tertiary education	49	14.8	83	16.4	132	15.8
Father/guardian's employment status						
Employed	324	98.2	428	84.6	752	90.0
Unemployed/retired	6	1.8	78	15.4	84	10.0
Mother/guardian's employment status						
Employed	312	94.5	450	88.9	762	91.1
Unemployed/retired	18	5.5	56	11.1	74	8.9
Whom do you live with?						
Parents	321	97.3	462	91.3	783	93.7
Guardians	9	2.7	44	8.7	53	6.3
Emotional connection with parents/guardians						
Close	144	43.6	362	71.5	506	60.5
Not close	186	56.4	144	28.5	330	39.5
Perceived family socioeconomic status						
Low-income	47	14.2	65	12.8	112	13.4
Financially comfortable	283	85.8	441	87.2	724	86.6
<b>Lifestyle characteristics</b>						
Engage in smoking						
Yes	43	13.0	36	7.1	79	9.4
No	287	87.0	470	92.9	757	90.6
Take alcohol						
Yes	11	3.3	58	11.5	69	8.3
No	319	96.7	448	88.5	767	91.7
Engage in sex						
Yes	12	3.6	51	10.1	63	7.5
No	318	96.4	455	89.9	773	92.5
Regularly engage in sports/exercise						
Yes	281	85.2	417	82.4	698	83.5
No	49	14.8	89	17.6	138	16.5

Note. *N* = 836; males: *n* = 330 (39.5%); females: *n* = 506 (60.5%).



## Results

### *Background Characteristics of the Adolescents*

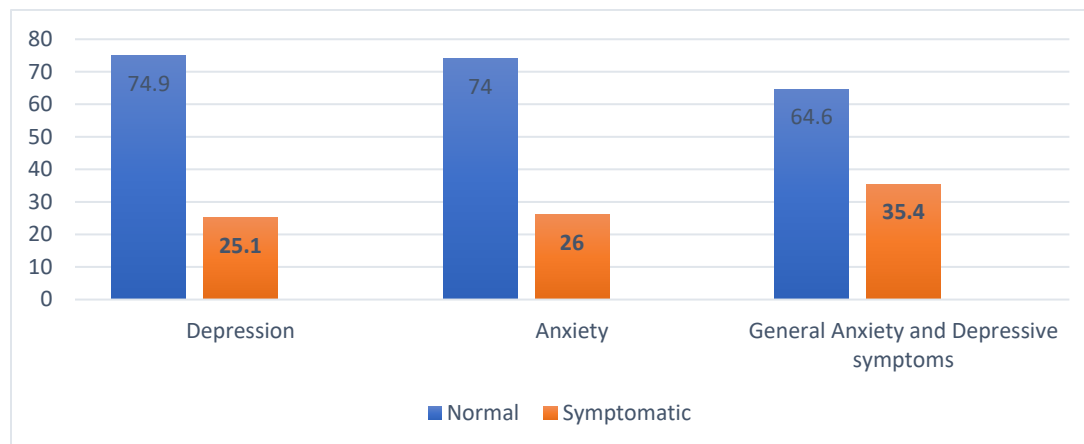
The background characteristics of the respondents (Table 1) show that about two-thirds of them were 10 to 14 years old, and were in grades 7 to 9, which corresponds to the junior secondary level. The majority (93.7%) lived with their parents and the rest with guardians. All parents/guardians had at least secondary school education; 29.8% of fathers/guardians had tertiary education, as did 15.8% of mothers/guardians. The large majority were employed: less than 10% were unemployed or retired. Most respondents considered their families to be financially comfortable. A greater proportion of girls (71.5%) than boys (43.6%) reported having a close emotional relationship with their parents/guardians.

With regard to lifestyle characteristics, relatively few reported engaging in smoking (9.4%), alcohol consumption (8.3%), and premarital sex (7.5%). A greater percentage of boys (13.0%) than of girls (7.1%) engaged in smoking, whereas more girls drank alcohol (11.5%) and engaged in sex (10.1%) than did boys (3.3% and 3.6% respectively). Most engaged in sports or exercise.

### *Prevalence and Severity of Depression and Anxiety Among Respondents*

Figure 1 shows that the depression, anxiety, and general anxiety and depression scores fell in the normal range for most of the adolescents. About a quarter showed clinical levels of each of symptomatic depression, anxiety, and general anxiety and depression.

Figure 1. *Prevalence of Depression and Anxiety Among Respondents*



### *Gender Variations in the Prevalence of Depression and Anxiety*

Table 2 shows that gender was significantly ( $p < .001$ ) associated with depression, anxiety, and general anxiety and depression. Male respondents had a higher proportion of symptomatic anxiety (32.1%), depression (31.5%), and general anxiety and depression (44.8%) than did females, for whom the comparable figures were 21.9%, 20.9%, and 29.2% respectively. Data also showed that males had higher odds of depression, anxiety, and general anxiety and depression.

Table 2. *Prevalence of Depression and Anxiety Among Respondents by Gender*

Mental health	Male respondents (Ref; n = 330)		Female respondents (n = 506)		OR (95% CI)	p
	Normal f(%)	Symptomatic f(%)	Normal f(%)	Symptomatic f(%)		
Depression	226 (68.5)	104 (31.5)	400 (79.1)	106 (20.9)	1.76 (1.33-2.33)	< .001
Anxiety	224 (67.9)	106 (32.1)	395 (78.1)	111 (21.9)	1.88 (1.37-2.57)	< .001
General Anxiety & Depression	182 (55.2)	148 (44.8)	358 (70.2)	148 (29.2)	2.79 (1.92-4.05)	< .001

Note. Ref = reference category.

Table 3. *Demographic/ SocioEconomic Correlates of Depression, Anxiety, and General Anxiety and Depression by Gender*

Characteristic	Males			Females		
	Depression r	Anxiety r	General r	Depression r	Anxiety r	General r
Age						
10–14	-.103	-.071	-.119*	.016	.197*	.167*
15–18						
Grade						
7–9 (Junior secondary)	-.120*	-.017	-.088	-.013	.167*	.132*
10–12 (Senior secondary)						
Father/guardian’s highest educational level						
Secondary education	-.009	-.079	-.066	.014	.046	.038
Tertiary education						
Mother/guardian’s highest educational level						
Secondary education	.023	.191*	.149	.087	.001	.056
Tertiary education						
Father/guardian’s employment status						
Employed	-.058	-.025	-.052	.007	.087*	.069
Unemployed/Retired						
Mother/guardian’s employment status						
Employed	-.034	.056	.022	.031	.015	.032
Unemployed/Retired						
Whom do you live with?						
Parents	.021	.173**	.131*	-.018	-.030	-.031
Guardians						
Emotional connection with parents/guardians						
Close	.019	.142*	.122*	.017	-.157**	-.110*
Not close						
Perceived family socioeconomic status						
Low-income	.004	-.169**	-.119*	-.093*	-.010	-.065
Comfortable						

\* $p \leq .05$ . \*\* $p \leq .01$ .

***Gender Variations in the Demographic/Socioeconomic Correlates of Depression and Anxiety***

Data on the demographic and socioeconomic correlates of depression (Table 3) show that among male respondents, being in a lower grade (junior secondary) was significantly, though mildly, correlated with depression, while coming from a low-income family was significantly associated with depression among girls.

Table 3 further shows that, among male respondents, the correlates of anxiety ( $p < .05$ ) included: having mothers/guardians with tertiary educational qualifications, living with guardians, not having a close emotional relationship with parents/guardians, and coming from a low-income family. General anxiety and depression was significantly associated with being in the lower age range of 10 to 14, living with guardians, not having a close emotional connection with parents/guardians, and coming from a low-income family.

Among female respondents, anxiety symptoms were associated ( $p < .05$ ): with being in the older age range of 15 to 18, being in senior secondary classes, having an unemployed or retired father/guardian, and not having a close relationship with parents/guardians. General anxiety and depression in girls was also associated with being in the older age range, being in senior secondary classes, and — perhaps surprisingly — having a close emotional connection with parents/guardians.

***Lifestyle Correlates of Depression and Anxiety***

Table 4 shows that lifestyle factors were not significantly correlated with depression and anxiety among female respondents. Among males, lifestyle was not associated with depression, but smoking was mildly associated with anxiety, and not engaging in regular exercise or sports was also mildly correlated with anxiety and general anxiety and depression.

Table 4. *Lifestyle Correlates of Depression, Anxiety, and General Anxiety and Depression by Gender*

Lifestyle factors	Males			Females		
	Depression r	Anxiety r	GAD r	Depression r	Anxiety r	GAD r
Engage in smoking						
Yes	-.007	-.131*	-.098	-.076	.047	-.007
No						
Take alcohol						
Yes	.012	-.047	-.030	.000	-.019	-.017
No						
Engage in sex						
Yes	.026	-.032	-.011	-.025	-.033	-.041
No						
Engage in sports/exercise						
Yes	.003	.159**	.115*	.051	.014	.042
No						

\*significant at  $p \leq 0.05$ . \*\*significant at  $p \leq 0.01$ .

## Discussion

### *Gender Variations in the Prevalence and Severity of Depression and Anxiety*

The study explored the gender variations in the prevalence and correlates of depression and anxiety among adolescents in the Udenu LGA in southeastern Nigeria. The findings show that although the majority of the adolescents had normal levels of depression and anxiety, a significant proportion showed symptoms of mental health challenges. Approximately one third (35.4%) were above the normal threshold for general anxiety and depression, which is much higher than the 14% global prevalence of adolescent mental health issues reported for 2019 by UNICEF (2021) and WHO (2021). Specifically, about a quarter (25.1% and 26%) of the adolescents in this study showed symptoms of depression and anxiety respectively. In 2019, the WHO (2021) reported a 3.6% to 4.6% global prevalence of anxiety and a 1.1% to 2.8% prevalence of depression among adolescents 10 to 19 years. In a meta-analytical study, Racine et al. (2021) found the global prevalence of depression to be 25.2%, and of anxiety to be 20.5%, among young people less than 18 years old during the COVID-19 period. The findings of the current study align with those of Racine et al. (2021), and this implies that the rate at which young people experience mental health challenges might have increased since the COVID-19 period began. Depression and anxiety are usually comorbid with each other and are collectively referred to as internalising disorders (Kalin, 2020). They have negative health effects both in the present and future lives of young people and can impair their productivity as members of society (Zhang et al., 2021).

Our study found pronounced gender variations in the prevalence of mental health symptoms. Adolescent boys were 1.8 times more likely to experience symptomatic anxiety, 1.9 times more likely to show depression, and 2.8 times more likely to have general anxiety and depression than were adolescent girls. This finding corroborates the theories of both gender intensification and developmental psychopathology, which suggest that the pattern of mental health of adolescent girls and boys varies as a result of their susceptibility to certain social and biological characteristics (Martin & Hadwin, 2022; Priess et al., 2009; Yoon et al., 2022). However, contrary to the findings of some studies conducted in Nigeria (Ogbonna et al., 2020), Bangladesh (Anjum et al., 2022), and England (Yoon et al., 2022), all of which found girls to be at greater risk of depression and anxiety than boys, adolescent boys in the current study appeared to face harsher mental health challenges than did their female counterparts.

This discrepancy may be partly due to the rural setting of our study: the aforementioned studies were mostly conducted among urban adolescents. Young people who live in remote or rural places such as Udenu are more likely to experience feelings of social isolation and deprivation; these play a role in the development of stress, anxiety, and depression, and affect boys and girls differently (Costas & Smith, 2020). Due to the drudgery of local agricultural practices to which boys are culturally tied, rural teenage boys more frequently than girls feel that rural life is unfulfilling, causing many of them to wish to emigrate to the city (Obi & Peart, 2016). Rural adolescent boys often come into contact with models of “toxic masculinity” that may inspire them to emulate

cultural ideals of what it means to be a “real man”, such as hiding their emotions and not seeking help (Amaefula, 2021). An increased adherence to traditional male ideals is linked to higher rates of depression and anxiety among boys (Harris, 2021).

### ***Gender Variations in the Correlates of Depression and Anxiety***

The findings of this study show that having mothers/female guardians with higher (post-secondary) educational qualifications was correlated with higher anxiety symptoms among boys. In their longitudinal survey of Indonesian adolescents, Fakhrunnisak and Patria (2022) similarly found that mothers’ higher educational status was associated with a higher risk of mental disorders in boys, but in the aspect of depressive symptoms. Educated mothers tend to have higher behavioural and academic expectations of their sons, as male children are expected to become responsible adults, financially capable of sustaining their families (Fakhrunnisak & Patria, 2022). This scenario might be a source of worry and concern for the male children. Additional findings of the present study showed that not living with their biological parents correlated with higher anxiety symptoms for boys. Supportive and close-knit families safeguard adolescents against harmful behaviours such as substance abuse, and mental health issues such as depression, anxiety and suicide (Raising Children Network, 2021), which are usually more common in adolescent boys (Rice et al., 2021). Furthermore, having unemployed or retired fathers or male guardians was a correlate of higher anxiety symptoms only among adolescent girls. It may be that adolescent girls find it worrisome to have fathers who are not engaged in income-generating work. The worry may stem from observing the stress and toil their mothers undergo as the sole family breadwinners, which they might project as their own future experience. The fact that rural adolescent girls are usually expected to marry early (Obi & Peart, 2016) lends strength to this conjecture.

The gender intensification theory stresses that various family and social characteristics influence the mental health of adolescent boys and girls differently (Esteban-Gonzalo et al., 2020). In the present study, although factors such as age, class, perceived family socioeconomic status, and emotional closeness with parents or guardians impacted both genders, their interactions with mental health were found to be complex and multifaceted. Being of younger age (10–14 years) and in junior secondary classes (grades 7 to 9) were associated with poorer mental health in boys, while older girls (15–18 years) and those in the upper classes (grades 10 to 12) were more affected.

Developmental psychopathology theorists note that the process of figuring out and integrating one’s identity in adolescence can predispose one to mental health challenges (Shirk et al., 2000). Older adolescent females might be under stress from factors like expectations regarding traditional gender roles and the need for approval from members of the opposite sex. On the other hand, younger adolescent boys might be dealing with the challenges of pubertal changes, the development of their sexual identity, and how they see themselves as men (Jones et al., 2012).

Reiss’s (2013) systematic review of studies concerning socioeconomic inequalities and mental health problems in children and adolescents found that adolescents from low-income homes were two to three times more likely to have mental health disorders than those from high-income

families, and low family socioeconomic status was strongly associated with a higher incidence of mental health challenges in adolescents regardless of gender. Corroborating Reiss's observation, the findings of this study suggest that while coming from a poor socioeconomic background was associated with increased depressive symptoms in girls, it affected boys in the dimensions of anxiety and general anxiety and depression. Family poverty might result in the deprivation of basic and developmental needs among adolescents. However, while in girls poverty might increase feelings of unhappiness and futility, in boys it appears to increase the experience of peer pressure and fears about the future. This is especially so when boys mingle with their peers from wealthier or more financially stable homes. Among adolescents, coming from a low-income family might lead to lower self-confidence, an inferiority complex, and an unrealistic focus on the rapid accumulation of wealth (Enaikele et al., 2022).

Further findings from this study revealed that emotional ties to parents or guardians had an impact on the mental health of both male and female adolescents. However, the correlations are opposite in sign: boys who did not have a close relationship with their parents/guardians showed higher symptoms of anxiety, whereas for girls, being close was correlated with higher anxiety. This finding is, however, contrary to that of Lewis et al. (2015), who found that the lack of emotional closeness with parents was associated with depressive symptoms among Australian female adolescents but not male adolescents. Adolescent boys and girls evaluate their relationships with their parents differently, according to a study by Ruhl et al. (2015) in which girls reported feeling a stronger emotional connection to their parents than boys did. One might speculate that being so close to their parents made the girls worry about their freedom to live their youthful lives the way they pleased. On the other hand, the lack of adequate emotional connection with parents could be a source of worry and concern for boys. Adolescents' level of attachment to their parents has been found to influence their mental, emotional, and social development; however, the quality of the parent–child relationship can also make a difference in attachment levels (Cooper et al., 2021). Moretti and Peled (2004) observed that insecure parent–adolescent interaction is linked to increased risk-taking behaviour, mental health issues, poor social skills, and inadequate coping mechanisms among youths, whereas a secure relationship decreases these difficulties.

### ***Lifestyle Correlates of Depression and Anxiety***

Our findings also showed that although engaging in alcohol intake and premarital sex showed some positive link with depression and anxiety in both boys and girls, the association was too weak to be significant. Omoegun and Alli (2020) observed that alcohol consumption among young people was associated with an increased risk for several mental health and social issues. Shrestha (2019) noted that the mental health consequences of premarital sexual behaviour among teenagers can include regret, guilt, loss of self-respect, depression, loss of family support, drug misuse, and even suicide. The findings of the current study indicate that adolescent alcohol intake and premarital sex do not impact mental well-being, perhaps indicating that these behaviours are not a source of cultural conflict between adults and adolescents in the Udeno LGA.



Furthermore, the responses of adolescent boys who smoked indicated greater anxiety than did those of non-smokers. It might be that these respondents used smoking as a way of dealing with anxiety or that smoking triggered anxiety symptoms in them. Prochaska et al. (2013) similarly observed that teenagers who smoke have a greater chance of developing mental health challenges, including depression, anxiety, and panic attacks, compared to their nonsmoking peers. Additionally, boys who regularly participated in sports or exercise showed lower anxiety levels and fewer general anxiety and depression symptoms than those who did not. The mental health benefits of regular exercise include better sleep, reduced risk of depression (by up to 30%), an improvement in mood, a reduction in stress and anxiety, an increase in self-esteem, and easier social interactions (Mind, 2019). None of the lifestyle factors examined were linked to adolescent girls' depression or anxiety. This is presumably because females may not engage in those activities to the same extent as boys do.

### ***Limitations of the Study***

The major limitation of the study is that although the association between mental disorders and the demographic and lifestyle variables could be established under our experimental design, causation could not. As discussed previously, this study drew on a binary definition of gender and therefore did not investigate the mental health challenges that may be experienced by those with gender-creative identities.

### ***Conclusion***

This study, to the best of our knowledge, is the first to provide empirical insight into the gender variations in correlates of adolescents' mental health in Nigeria. Adolescents had a significant prevalence of anxiety and depression, with anxiety symptoms outweighing depressive symptoms. Compared to adolescent girls, adolescent boys showed more signs of anxiety and depression. Demographic, socioeconomic, and lifestyle correlates of mental disorders showed gender variations. While having unemployed fathers played a role in anxiety exclusive to girls, the educational level of mothers/guardians, as well as living apart from biological parents, were correlates of mental health disorders peculiar to teenage boys. Age, class, perceived family socioeconomic status, and emotional closeness with parents/guardians were significantly correlated with mental health in both male and female adolescents; however, the pattern of these interactions varied between the genders. Thus, gender variations exist in the dynamics of mental health among Nigerian adolescents. It is, therefore, recommended that programmes and policies that address mental well-being and mental disorders among adolescents should be sensitive to gender in their formulation and implementation, in order to maximize their impacts and outcomes. Family Science professionals should institute well-being intervention programmes that aim to enhance the quality of parent–adolescent relationships and prepare girls for a more productive and fulfilling adult life that makes room for ambitions beyond marriage. To promote adolescent mental well-being, particularly among boys, parents and school authorities should merge their efforts to foster positive lifestyles by discouraging smoking and other harmful habits and encouraging participation in physical exercise and sports.

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