

Predictors of Mental Health and Well-Being among Adolescents: Evidence from a Community-Based Study in Nigeria

Oluwaseun Adewuni Ewekeye

oluwaseunewekeye@gmail.com

University of Ibadan

Adeyinka Olufolake Adefolarin

University of Ibadan

Mojisola Morenikeji Oluwasanu

University of Ibadan

Research Article

Keywords: Predictors, mental health and well-being, adolescents, community-based

Posted Date: September 21st, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-10729020/v1>

License:   This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Additional Declarations: No competing interests reported.

**Predictors of Mental Health and Well-Being among Adolescents: Evidence from a
Community-Based Study in Nigeria.**

Oluwaseun Adewuni Ewekeye¹, Adeyinka Olufolake Adefolarin¹, Mojisola Morenikeji
Oluwasanu¹,

Department of Health Promotion and Education, Faculty of Public Health, University of Ibadan,
Ibadan, Oyo State, Nigeria.

Corresponding Author: Oluwaseun Ewekeye

Phone Number: +2347031555124 Email: oluwaseunewekeye@gmail.com

ABSTRACT

Background: Mental health is currently a global public health concern, rapidly causing
impairment to the overall health outcomes of an individual. The mental health status of adolescents
is determined by a variety of influencing factors, ranging from socio-economics to mental health
literacy level. There was an urgent need to the conduct this study due to a rapid increase in the
prevalence of mental health problems of adolescents in Nigeria, ranging from 10% to 37% across
several studies in different regions of the country. The study predicted emerging and re-emerging
factors determining the mental health and well-being status of adolescents in Nigeria.

Methods: The community-based study was cross-sectional, adopted a multi-stage sampling
techniques and used quantitative method for data collection. It was conducted among 160
adolescents (10–19 years) and 160 parents of the recruited adolescents from three communities
drawn from three wards in Ibadan North-West and Ogbomoso North Local Government Areas,
Oyo State. Standardized research instruments were interviewer-administered to participants. The
instruments assessed the socio-demographics and mental health literacy of adolescents and
parents, and the mental health and well-being of adolescents. Data were collected for 3 months,

from October to December, 2025, and analyzed using SPSS version 27. Descriptive and inferential statistics were done; predictions were made using ordinal logistic regression.

Results: The results showed that 58% of adolescents flourished, 28% were moderate, while 16% languished in their mental health and well-being status. The status was influenced by a moderate, borderline, to high significant positive association between factors such as age AOR = 3.31 (95% CI = 1.61–6.79, $p < 0.001$), knowledge of mental health AOR = 2.16 (95% CI = 0.99–4.71, $p = 0.054$), knowledge of first aid and help-seeking behaviours among adolescents AOR = 5.80 (95% CI = 2.55–13.17, $p < 0.001$), knowledge of self-help strategies AOR = 2.51 (95% CI = 1.17–5.41, $p < 0.019$) and the mental health status of adolescents. The mental health literacy level among parents was poor (47%).

Conclusions: This study showed that the adolescents' mental health and well-being outcomes are influenced mostly by combined factors. The findings of this study indicate a need for mental health interventions that will incorporate both parents and adolescents in community settings.

Keywords: Predictors, mental health and well-being, adolescents, community-based

BACKGROUND

Mental health is a major aspect of health that significantly impacts an individual's overall well-being. Mental health entails resilience and optimal emotional, cognitive, and social adaptability, attained through a blend of several factors that influence adolescents' mental health and well-being [1]. Positive mental health is a significant factor necessary for an individual to achieve a required level of mental well-being, and this was established clearly in research, that concepts of mental health and mental well-being differ but are closely related [2]. An adolescent can still experience a positive mental well-being while struggling with mental health problems, and it is determined by the situations surrounding the adolescent [3].

47

48 Mental health problems are a vast, growing disease burden, accounting for up to 15% of the disease
49 burden in the world. The World Health Organization, in its report, noted that about one to seven
50 adolescents experience mental disorders, emphasizing the burden of common mental health
51 problems which include depression, suicide, and anxiety among this age group [4].

52

53 In Oyo State, mental health problems remain critically high among adolescents [5,6]. In a
54 systematic review and meta-analysis of 27 studies conducted in Oyo State between 2010 and 2024,
55 among 47,451 participants [5], the results show that 12% of children and adolescents experienced
56 major depression, 9.2% of them suffered from generalized anxiety disorder, 15.1% experienced
57 behavioural disorder, and 29.6% experienced post-traumatic stress disorder. These problems are
58 linked to low levels of mental health literacy, age, socio-economic status, and educational
59 background of parents, as well as parental neglect [5].

60

61 Recently, studies have assessed the predictors of mental health status among adolescents, with
62 more focus on mental health literacy among parents and adolescents [7,8]. This move will be a
63 step towards reducing mental health problems of adolescents, using evidence-based interventions.
64 Theories have explained that a prevailing health problem could be explained by external factors
65 beyond the individual's characteristics (9,10). In line with these theories, studies have also
66 identified an association between the socio-demographic characteristics of parents and adolescents
67 with adolescents' mental health and well-being status [7,8]. However, a study from the South-
68 western part of Nigeria among in-school adolescents revealed a weak to moderate influence of
69 self-esteem, self-efficacy, gender, and the socio-demographics of parents in predicting mental

health among in-school adolescents [8]. Consequently, the school factor could have a moderating effect on adolescent mental health and other factors. However, studies among both in-school and out-of-school adolescents in the community setting, which comprises both in-school and out-of-school adolescents, may reveal different predictors.

The common settings for mental health studies in Nigeria are health facilities and schools. There are limited community studies on adolescents' mental health and well-being in Nigeria. The community represents adolescents from diverse families, education, and socioeconomic backgrounds, which could contextualize mental health predictors differently from the school setting. This study therefore examined the predictors of mental health and well-being among adolescents, targeting both parents and adolescents in a community setting.

METHODS

Study Aim

The study predicted emerging and re-emerging factors determining the mental health and well-being status of adolescents in Nigeria

Study design

The findings presented in this article is the baseline result of a quasi-experimental study on adolescent mental health and well-being which was conducted in two Local Government Areas (LGAs) of Oyo State, Nigeria. The goal of the main study was to improve the mental health and well-being among adolescents through a collaborative efforts of both parents and adolescents. The intervention will adopt the parent for lifelong health programme, designed for parents and teen. It has been adapted in some other low-and-middle-income countries [9,10,11].

Study settings

The community-based study was conducted in two cities, one LGA in each city. The LGAs were Ibadan North West and Ogbomoso North. Both LGAs share similar characteristics, including population size. Ibadan North West Local Government Area is the smallest LGA in Ibadan, Oyo State. The local government is an urban settlement, known for its rich cultural and economic activity, as well as plant resources primarily used in traditional medicine. The LGA covers approximately 26 km², or about 2,673 hectares. Ogbomoso North LGA is the largest LGA in Ogbomoso city of Oyo State. The economy of the LGA primarily relies on agriculture. The region has fertile land, and farming serves as the primary livelihood for its residents. The area covers approximately 104 square kilometres and experiences an average temperature of 28 degrees Celsius. Ibadan North West and Ogbomoso North LGAs were both established in 1991. They both have an estimated population size of about 260,000 as of 2026. There is presently no current figures for the adolescents' population at the two LGAs, but based on the demographic data from the National Bureau of Statistics (NBS) in 2006, Ogbomoso North accounted for 46,811 adolescents aged 10-19 years, while Ibadan North West accounted for 31,451 adolescents aged 10-19 years [11]. The Yoruba language is the dominant language in the two LGAs, and the residents are mainly Christians and Muslims.

Study population and selection of study participants

The study population consisted of adolescents aged 10-19 years together with one of their parents aged 30 years and above. Religion and gender were considered from the onset of the recruitment process for a non-biased selection. The study employed a multi-stage sampling technique. Six wards were randomly selected from the two LGAs, three from each. From the six wards, one community was selected per ward, making a total of six communities. Household mapping was conducted through the help of two representatives of the Landlord Association in all the

communities, accompanied by the Ward Development Committee officer and the principal investigator. In the conduct of household mapping, all households were listed within each selected community to compare with the household data obtained from the Oyo State 2025 Insecticide Treated Net (ITN) Campaign and Distribution. Study participants were then selected using a proportionate sampling technique of 30, 25, and 25 paired participants of parents and adolescents from the two LGAs, using household data from the Oyo State 2025 Insecticide Treated Net (ITN) Campaign and Distribution. A total of 80 parents and 80 adolescents were recruited in each LGA, making a total of 320 study participants, consisting of 160 parents and adolescents from Ibadan North West and 160 from Ogbomoso North.

Study participants were selected per household. In each household with more than one household, one household was selected by ballot, and an eligible parent or primary caregiver (either father or mother) of at least one adolescent was identified. In any household with more than one eligible parent or caregiver, one was randomly selected by ballot. If the selected household had no eligible respondent, the next household in sequence was visited. In one household, a parent and an adolescent were selected.

Sample size determination

The sample size for the study was calculated using the Leslie Kish formula for estimating sample size for a single proportion ($n = Z^2 P(1-P)/d^2$). $P = 25\%$, based on the proportion of mental health knowledge among adolescents in Nigeria [1], at 95% confidence level, 5% margin of error, a degree of precision of 0.05, and a 10% attrition rate. To the best of the researchers' knowledge, there is no current dyad cross-sectional mental study in Nigeria in which parents and adolescents were assessed together without any interventions.

$$n = \frac{Z^2 p(1-p)}{d^2}$$

139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161

d^2

$n = \frac{1.96^2 \times 0.25(1-0.25)}{0.05^2}$

$n = 0.72$

0.0025

$n = 288+28$ (attrition rate)

$n = 316$ adolescents and parents

For this study, the sample size was rounded up to 320. A total of 320 adolescents and parents were recruited into this study.

Instruments

The socio-demographic variables, such as age, gender, class, religion, parents marital status, educational level, average monthly income, and parents' occupation, were obtained from adolescents, while age, gender, religion, educational level, income, occupation, and marital status were obtained from parents. The variables were measured using descriptive and inferential statistics. Besides the socio-demographics assessment, all other instruments used in this study were standardized research instruments adopted from previous studies on mental health among adolescents and parents: Mental Health Continuum Short Form [12], The Mental Health Literacy for Young People Questionnaire [17], and The Parental Mental Health Literacy Questionnaire [19].

Mental Health Continuum Short Form (MHC-SF) is a fourteen-item self-administered questionnaire that measures three dimensions of mental well-being. The MHC-SF was developed by Keyes in 2007 [12], demonstrating that mental health operates in a continuum from emotional

well-being, psychological well-being and social well-being [12]. The continuum recognizes how individuals migrate along the continuum as a result of internal and external factors. The form also shows the possibility of realizing positive mental health and well-being, even in the presence of mental illness [13]. The MHC-SF has been culturally validated in other research; it shows a strong internal consistency of 0.70 and above [14-16].

The Mental Health Literacy for Young People Questionnaire is a 29-item research instrument developed by Campos and some other researchers [17]. It assesses four key factors in mental health literacy, including knowledge of mental health problems, erroneous beliefs and stereotypes, help-seeking, and first-aid skills. The instrument helps researchers identify gaps in mental health knowledge and informs the planning of appropriate interventions for adolescents. It is not yet widely adopted in Nigeria. However, the newer version adapted for young adults has been validated in a cross-national study conducted in Nigeria. Confirmatory factor analysis of the questionnaire, based on validity and reliability, has demonstrated that the four-factor structure is relevant across countries, including Nigeria [18].

Mental Health Literacy Questionnaire for Parents

The Parental Mental Health Literacy Questionnaire used in this study to assess parents' Mental Health Literacy was adapted from a group-based study for parents in Kenya [19]. The scale was designed to assess parents' knowledge and attitudes towards adolescents' mental health and well-being, as well as their perceptions of their ability to help others [19].

Data collection

Data were collected over 3 months, from October to December 2025, using a quantitative research design. A set of standardized research instruments was adapted for use; these included the Mental Health Continuum Short Form (MHC-SF) to assess adolescents' mental health status in the two LGAs, the Mental Health Literacy for Young People Questionnaire, and the newly developed Mental Health Literacy Questionnaire for Parents used in a study conducted in Ethiopia [19]. A total of six research assistants were trained virtually and in person for 2 days, but only five, including the Principal Investigator, eventually went to the field. The research instruments were pretested in Ibadan South West LGA in Oyo State, which has similar characteristics to the study areas.

Data analysis

A unique identification code was assigned to each respondent's questionnaire for correct data entry and analysis. The processing of the data included sorting, editing, collection, categorization, and scoring of the questionnaires. A coding dictionary was designed using Statistical Package for the Social Sciences (SPSS version 27) for effective data entry. The quantitative data were analyzed using descriptive and inferential statistics (Chi-square/Fisher exact and ordinal regression).

The mental health status was measured across three dimensions. For an adolescent to experience a flourishing mental health state, such an individual must score 5 (every day) or 4 (almost every day) in at least one of the three items of emotional well-being dimension and have at least 5 or 4 in at least 6 of the 11 items in the social and psychological well-being dimensions. The languishing mental health status was determined by a score of 0 (Never) or 1 (Once or twice) in at least one of the 3 items in the emotional well-being dimension and at least 6 of the 11 items in the social and psychological dimensions of the mental health continuum short form questionnaire. Any

adolescent who did not meet the flourishing or languishing status requirements was grouped into the moderate mental health status.

Adolescents' mental health literacy was measured using a four-factor mental health literacy questionnaire for young people. Items across the four factors were scored from 0 to 4; Strongly Disagree = 0, Disagree = 1, Neither Disagree nor Agree = 2, Agree = 3, and Strongly Agree = 4. The score range was 0–116. The total score of 116 for the four factors was categorized as good or poor knowledge, using the 50th percentile. A higher score indicates good knowledge, positive attitudes towards mental health, and prompt help-seeking behaviours; a lower score indicates poor mental health knowledge, attitudes, and help-seeking behaviours. Regarding the third factor, six out of the eight items on knowledge of erroneous beliefs and misconceptions were scored in reverse, with a total score of 32; a higher score indicates greater mental health literacy among adolescents.

Parents' mental health literacy was measured on a scale from 0 (Never) to 4 (Always), with a maximum score of 48 and a minimum of 0. A higher score indicates good mental health literacy, and a lower score indicates poor mental health literacy, using the 50th percentile.

Ethical considerations

Ethical approval was obtained from the Oyo State Research Ethical Review Committee (reference number NHREC/OYOSHRIEC/10/11/22) in accordance with the Declaration of Helsinki and relevant ethical guidelines and regulations. Written consent was obtained from the heads of selected communities and all study participants before the study commenced. Assent was obtained from adolescents under the age of 18 years and oral consent was taken from parents of the

adolescents. Respondents were informed of their right to withdraw at any time and were assured of confidentiality, as no identifiers were included in the questionnaire.

RESULTS

Socio-Demographics of Adolescents

More than two-thirds of respondents, 112 (70.0%), were aged 14–17 years, with a mean age of 14±5 and a standard deviation of 0.4938. A little above average, 82 (51.2%), practiced Islam, and the majority, 137 (85.6%), were secondary school students. A high proportion of respondents' parents, 135 (84.4%), were married. Almost all adolescents' parents, 151 (94.4%), were business owners, artisans, or farmers, and nearly three-quarters, 115 (71.9%), of adolescents' parents completed secondary school education. See Table 1a for details.

Table 1a: Socio-Demographics of Adolescents

N = 160

Demographic Characteristics	Frequency (N)	Percent
Age (in years)	Age Mean = 14±5	
10-13	21	13.1%
14-16	112	70.0%
17-19	27	16.9%
Sex		
Male	66	41.3%
Female	94	58.8%
Religion		
Christianity	77	48.1%
Islam	82	51.2%
Traditional	1	0.6%

Class		
Primary	19	11.9%
Secondary	137	85.6%
Tertiary	4	2.5%
Parent's Marital Status		
Married	135	84.4%
Divorced/Separated	16	10.0%
Widowed	9	5.6%
Parent's Occupation		
Civil Servant/Private Organization	1	0.6%
Business Owner/Artisan/Farmer	151	94.4%
Retiree	8	5.0%
Parent's Educational Level		
Primary	31	19.4%
Secondary	115	71.9%
Tertiary	12	7.5%
None	2	1.2%

240

241 **Socio-Demographics of Parents**

242 Less than half of the respondents, 69 (43.1%), were aged 40–49 years. The mean age was 54±5
 243 years, with a standard deviation of 0.8817. More than two thirds of the respondents, 118 (73.8%),
 244 were female. The majority, 100 (62.5%), were Muslims. A reasonable proportion of the
 245 respondents, 137 (85.6%), were secondary school holders, and more than two thirds, 124 (77.5%),

246 were married. The larger proportion of the parents, 151 (94.4%), were business owners, artisans
 247 and farmers. The majority of the respondents, 56 (70.0%) and 59 (73.8%), were secondary school
 248 holders, and more than half, 52 (56.3%), earned between #5000 and #50000. See Table 1b for
 249 details.

250 **Table 1b: Socio-Demographics of Parents**

Variables	Frequency (N)	Percent
Age (in years)	Mean age = 54±5	
30 - 39	55	34.4%
40 - 49	69	43.1%
50 -59	25	15.6%
70 and above	11	6.9%
Sex		
Male	42	26.3%
Female	118	73.8%
Religion		
Christianity	55	34.4%
Islam	100	62.5%
Traditional	5	3.1%
Class		
Primary	19	11.9%
Secondary	137	85.6%
Tertiary	4	2.5%

Marital Status		
Married	124	77.5%
Divorced	7	4.4%
Separated	11	6.9%
Widowed	18	11.3%
Occupation		
Civil Servant	4	1.2%
Private Organization Worker	1	0.6%
Business Owner/Artisans/Farmers	151	94.4%
Retiree	4	2.5%
Monthly Income		
#5000 – #50000	90	56.3%
#51000 - #100000	44	27.5%
#100000 and above	26	16.3%

251

252 **Mental Health Literacy among Adolescents**

253 Less than half 77 (48.1%) of the respondents strongly agreed that a person with depression feels

254 very miserable, more than average 89 (55.6%) strongly agreed to the statement “People with

255 schizophrenia usually have delusions”, less than two quarters 65 (40.6%) agreed that a person with

256 anxiety disorder may panic in situations that she/he fears, and less than one third 34 (21.3%)

257 disagreed that one of the symptoms of depression is the loss of interest or pleasure in most things.

258

259 More than one thirds 64 (40.0%) of the respondents disagreed the statement “Mental disorders
260 don't affect people's behaviours”, and a quarter 40 (25.0%) strongly agreed to the statement “If
261 someone close to me had a mental disorder, I would listen to her/him without judging or
262 criticizing”. The majority of the respondents 115 (71.9%) agreed to seek a psychologist’s help if
263 they experienced a mental disorder, and less than one thirds 47 (29.4%) strongly agreed to the
264 statement “If someone close to me had a mental disorder, I would encourage her/him to look for a
265 psychologist”. The majority 112 (70.0%) and 110 (68.8%) strongly agreed that physical exercise
266 and sleeping well contributes to contributes to good mental health respectively.

267

268 The factors of adolescents’ mental health literacy scale showed that a little above average (51.0%)
269 of the respondents had a good knowledge of mental health, 44.0% had erroneous beliefs about
270 mental health, indicating less stigmatization, 57.0% had good first aid skills and seeking
271 behaviours, while 58.0%, had good self-help strategies. See Table 2, Figure 1.

272 **Table 2: Mental Health Literacy among Adolescents**

N = 160

Statement	Strongly Disagree N (%)	Disagree N (%)	Neither Agree nor Disagre e N (%)	Agree N (%)	Strongly Agree N (%)
Knowledge of Mental Health Problems					

2.A person with depression feels very miserable	0 (0.0%)	9 (5.6%)	12 (7.5%)	62 (38.8%)	77 (48.1%)
3.People with schizophrenia usually have delusions (e.g., they may believe they are constantly being followed and observed)	4 (2.5%)	5 (3.1%)	9 (5.6%)	53 (33.1%)	89 (55.6%)
9.A person with anxiety disorder may panic in situations that she/he fears	0 (0.0%)	0 (0.0%)	10 (6.3%)	65 (40.6%)	85 (53.1%)
12.Alcohol use may cause mental disorders	0 (0.0%)	8 (5.0%)	3 (1.9%)	35 (21.9%)	114 (71.3%)
16. Changes in brain function may lead to the onset of mental disorders	0 (0.0%)	3 (1.9%)	9 (5.6%)	59 (36.9%)	89 (55.6%)
20.One of the symptoms of depression is the loss of interest or pleasure in most things.	4 (2.5%)	34 (21.3%)	11 (6.9%)	57 (35.6%)	54 (33.8%)
22.The symptom's length is one of the important criteria for the diagnosis of a mental disorder	4 (2.5%)	3 (1.9%)	16 (10.0%)	62 (38.8%)	75 (46.9%)

24. Drug addiction may cause mental disorders.	1 (0.6%)	12 (7.5%)	5 (3.1%)	41 (25.6%)	101 (63.1%)
25. Mental disorders affect people's thoughts.	0 (0.0%)	12 (7.5%)	2 (1.3%)	47 (29.4%)	99 (61.9%)
27. A person with schizophrenia may see and hear things that nobody else sees and hears.	77 (48.1%)	73 (45.6%)	2 (1.3%)	6 (3.8%)	2 (1.3%)
28. Highly stressful situations may cause mental disorders	7 (4.4%)	4 (2.5%)	2 (1.3%)	40 (25.0%)	107 (66.9%)
Erroneous beliefs/Stereotypes					
6. Mental disorders don't affect people's behaviours	34 (21.3%)	64 (40.0%)	5 (3.1%)	27 (16.9%)	30 (18.8%)
10. People with mental disorders belong to low-income families.	40 (25.0%)	71 (44.4%)	12 (7.5%)	21 (13.1%)	16 (10.0%)
11. If someone close to me had a mental disorder, I would listen to her/him without judging or criticizing	2 (1.3%)	8 (5.0%)	4 (2.5%)	106 (66.3%)	40 (25.0%)

13.Mental disorders don't affect people's feelings.	11 (6.9%)	17 (10.6%)	9 (5.6%)	96 (60.0%)	27 (16.9%)
14.The sooner the mental disorders are identified and treated, the better	1 (0.6%)	2 (1.2%)	4 (2.5%)	85 (53.1%)	68 (42.5%)
15.Only adults have mental disorders	70 (43.8%)	70 (43.8%)	1 (0.6%)	11 (6.9%)	8 (5.0%)
21.If someone close to me had a mental disorder, I could not be of any assistance	42 (26.3%)	86 (53.8%)	16 (10.0%)	14 (8.8%)	2 (1.3%)
23.Depression is not a true mental disorder	15 (9.4%)	70 (43.8%)	27 (16.9%)	36 (22.5%)	12 (7.5%)
First Aid Skills & Help-Seeking Behaviour					
4.If I had a mental disorder I would seek my relative's help	4 (2.5%)	5 (3.1%)	3 (1.9%)	68 (42.5%)	80 (50.0%)
5.If someone close to me had a mental disorder, I would encourage her/him to look for a psychologist	6 (3.8%)	4 (2.5%)	1 (0.6%)	102 (63.7%)	47 (29.4%)

8.If I had a mental disorder, I would seek a psychologist's help	4 (2.5%)	5 (3.1%)	1 (0.6%)	115 (71.9%)	35 (21.9%)
17.If someone close to me had a mental disorder, I would encourage her/him to see a psychiatrist	6 (3.8%)	5 (3.1%)	3 (1.9%)	80 (50.0%)	66 (41.3%)
18.If I had a mental disorder I would seek my friends' help	1 (0.6%)	9 (5.6%)	3 (1.9%)	75 (46.9%)	72 (45.0%)
29. If I had a mental disorder I would seek a psychiatrist's help	30 (18.8%)	26 (16.3%)	8 (5.0%)	63 (39.4%)	33 (20.6%)
Self-Help Strategies					
1.Physical exercise contributes to good mental health	0 (0.0%)	11 (6.9%)	6 (3.8%)	31 (19.4%)	112 (70.0%)
7.Sleeping well contributes to good mental health	0 (0.0%)	5 (3.1%)	9 (5.6%)	36 (22.5%)	110 (68.8%)
19.A balanced diet contributes to good mental health	3 (1.9%)	9 (5.6%)	5 (3.1%)	28 (17.5%)	115 (71.9%)

26. Doing something enjoyable contributes to good mental health	0 (0.0%)	0 (0.0%)	2 (1.3%)	33 (20.6%)	125 (78.1%)
---	----------	----------	----------	------------	-------------

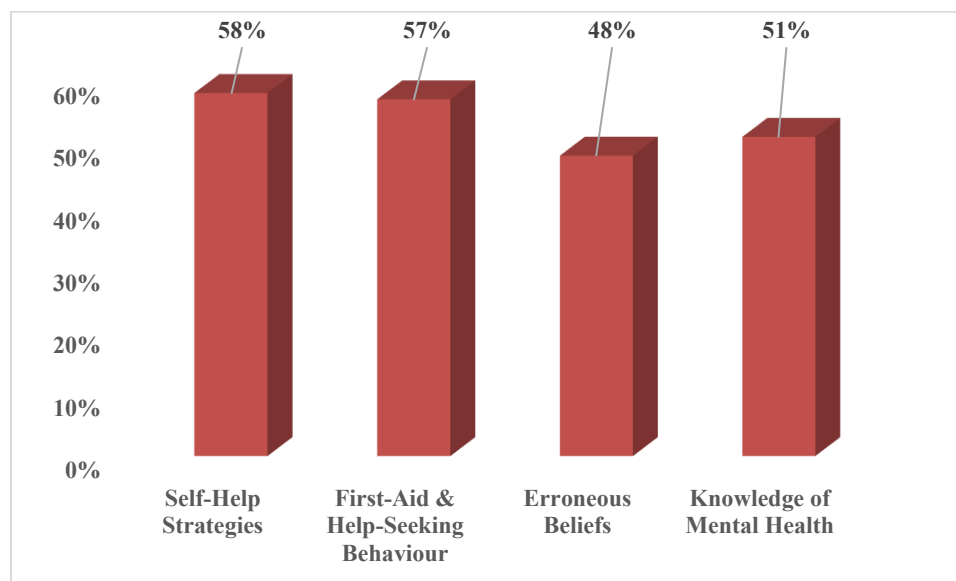


Figure 1: Mental Health Literacy Level among Adolescents

Mental Health Literacy among Parents

The majority, 120 (75.0%) of parents knew that when adolescents always feel emotionally supported by their parents, they are likely to have better mental health, and 125 (78.1%) knew that parents should always support adolescents to manage their mental health problems. Less than a quarter, 30 (18.8%) and a quarter, 41 (25.6%) of the respondents never understood what is meant by mental health and mental health problems. A minimal proportion, 67 (41.9%) of respondents always knew the difference between common adolescent behaviours and signs of mental health problems. One-fourth, 40 (25.0%) always believed that they have to be a professional to help

286 someone experiencing a mental health emergency. A very low percentage, 51 (31.9%), always
 287 knew how to help if their children told them they were experiencing mental health problems.
 288 More than half of the respondents (53%) had poor mental health literacy, while a good mental
 289 health literacy level among parents was low (47%). See Table 3, Figure 2.

290

291 **Table 3: Mental Health Literacy among Parents**

N = 160

Statement	Never N (%)	Rarely N (%)	Sometimes N (%)	Often N (%)	Always N (%)
When adolescents feel emotionally supported by their parents, they are likely to have better mental health	0 (0.0%)	3 (1.9%)	10 (6.3%)	27 (16.9%)	120 (75.0%)
Parents should support adolescents to manage their mental health problems	1 (0.6%)	2 (1.3%)	8 (5.0%)	24 (15.0%)	125 (78.1%)
I understand what is meant by mental health and mental health problems	30 (18.8%)	41 (25.6%)	26 (16.3%)	18 (11.3%)	45 (28.1%)
A mental illness is a sign of personal weakness*	73 (45.6%)	16 (10.0%)	33 (20.6%)	13 (8.1%)	25 (15.6%)
I know the difference between common adolescent behaviors and signs of mental health problems	11 (6.9%)	33 (20.6%)	26 (16.3%)	23 (14.4%)	67 (41.9%)

If my adolescents had a mental illness, I would not tell anyone	87 (54.4%)	7 (4.4%)	14 (8.8%)	15 (9.4%)	37 (23.1%)
I have to be a professional to help someone experiencing a mental health emergency*	43 (26.9%)	12 (7.5%)	36 (22.5%)	29 (18.1%)	40 (25.0%)
If someone confides in me about their mental health problems, I would share this information with friends and family*	120(75.0%)	5 (3.1%)	15 (9.4%)	7 (4.4%)	13 (8.1%)
If my child told me she/he is experiencing mental health problems, I would know how to help	10 (6.3%)	12 (7.5%)	27 (16.9%)	60 (37.5%)	51 (31.9%)
People are born with a set of characteristics that do not change*	50 (31.3%)	10 (6.3%)	20 (12.5%)	20 (12.5%)	60 (37.5%)
Practicing gratitude can improve one's mental health	32 (20.0%)	14 (8.8%)	23 (14.4%)	30 (18.8%)	61 (38.1%)
Punishing bad behaviors is more effective than encouraging and rewarding good behavior*	25 (15.6%)	12 (7.5%)	38 (23.8%)	33 (20.6%)	52 (32.5%)

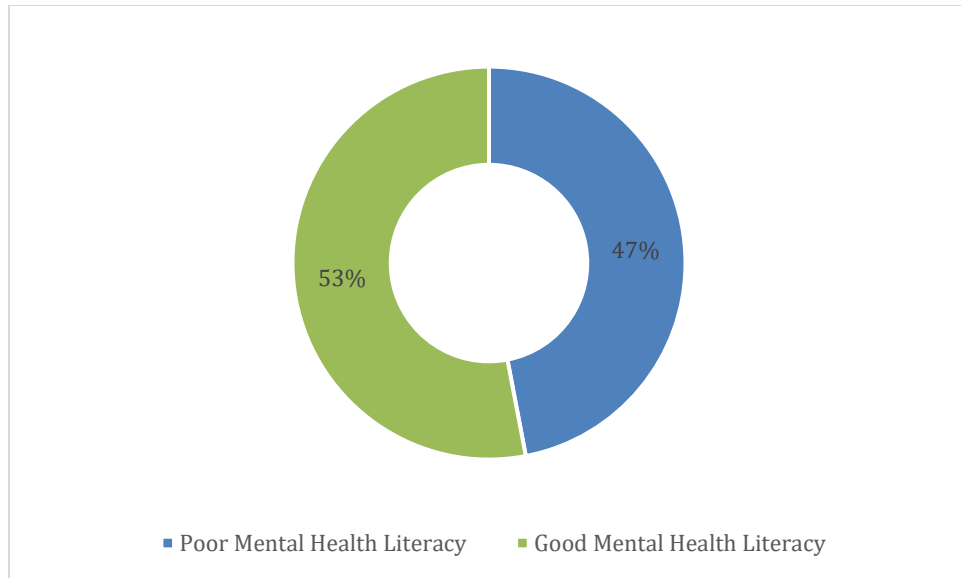


Figure 2: Mental Health Literacy Level among Parents

Mental Health State of Adolescents

Based on respondents' experiences over the past month, the majority, 102 (63.7%), were happy every day; more than average, 97 (60.6%), were interested in life every day; and less than one third, 51 (31.9%), confirmed that they had never felt they had something important to contribute to society. A small proportion of respondents felt that they belonged to a community every day; half, 81 (50.6%), felt that our society is becoming a better place for all people every day; and less than half, 61 (31.1%), felt that people are basically good every day. More than half, 95 (59.4%), felt that the way our society works makes sense to them, and the majority, 99 (61.9%), felt that their lives have a sense of direction.

More than half of the respondents (56.0%) were flourishing in their mental health state, 28.0% were moderate, and 16.0% were languishing. See Table 4, Figure 3.

309 Table 4: Mental Health and Well-Being State of Adolescents

N = 160

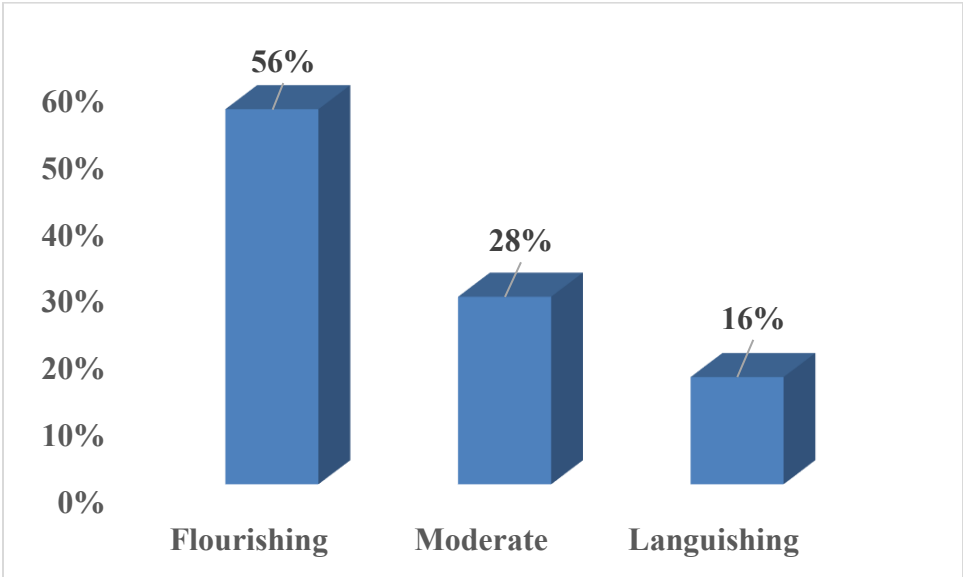
Mental Health and Well-Being Statements In the past one, how often did you feel.....	Never	Once or twice	About once a week	About 2 or 3 times a week	Almost every day	Every day
happy	0 (0.0%)	2 (1.3%)	20 (12.5%)	13 (8.1%)	23 (14.4%)	102(63.7%)
interested in life	1 (0.6%)	10 (6.3%)	9 (5.6%)	13 (8.1%)	30 (18.8%)	97(60.6%)
satisfied with life	2 (1.3%)	6 (3.8%)	13 (8.1%)	9 (5.6%)	33 (20.6%)	97(60.6%)
that you had something important to contribute to society	51 (31.9%)	7 (4.4%)	6 (3.8%)	9 (5.6%)	35 (21.9%)	52 (32.5%)
That you belonged to a community (like a social group, your neighbourhood, your city)	55 (34.4%)	6 (3.8%)	7 (4.4%)	9 (5.6%)	34 (21.3%)	49 (30.6%)
that our society is becoming a better place for all people	20 (12.5%)	9(5.6%)	7 (4.4%)	12 (7.5%)	31 (19.4%)	81(50.6%)
that people are basically good	19 (11.9%)	10(6.3%)	9 (5.6%)	29 (18.1%)	32 (20.0%)	61 (38.1%)

that the way our society works makes sense to you	12 (7.5%)	5 (3.1%)	9 (5.6%)	12 (7.5%)	27 (16.9%)	95 (59.4%)
that you liked most parts of your personality	3 (1.9%)	1 (0.6%)	5 (3.1%)	16 (10.0%)	28 (17.5%)	107(66.9%)
good at managing the responsibilities of your daily life	4 (2.5%)	4 (2.5%)	10 (6.3%)	12 (7.5%)	33 (20.6%)	97 (60.6%)
that you had warm and trusting relationships with others	6 (3.8%)	2 (1.3%)	12 (7.5%)	10 (6.3%)	45 (28.1%)	85 (53.1%)
that you had experiences that challenged you to grow and become a better person	0 (0.0%)	3(1.9%)	8 (5.0%)	7 (4.4%)	26 (16.3%)	116(72.5%)
confident to think or express your own ideas and opinions	2 (1.3%)	5 (3.1%)	11 (6.9%)	22 (13.8%)	32 (20.0%)	88 (55.0%)
that your life has a sense of direction or meaning to it	3 (1.9%)	4 (2.5%)	4 (2.5%)	15 (9.4%)	35 (21.9%)	99 (61.9%)

310

311

312



313

314 **Figure 3: Mental Health and Well-Being Status among Adolescents**

315

316 **Predictors of Mental Health and Well-Being Status of Adolescents**

317

318

319

320

321

322

323

324

325

326

The table below shows a moderate, borderline, to high significant positive association between factors such as age AOR = 3.31 (95% CI = 1.61–6.79, $p < 0.001$), Knowledge of mental health AOR = 2.16 (95% CI = 0.99–4.71, $p = 0.054$), knowledge of first aid and help-seeking behaviours among adolescents AOR = 5.80 (95% CI = 2.55–13.17, $p < 0.001$), knowledge of self-help strategies AOR = 2.51 (95% CI= 1.17–5.41, $p < 0.019$) and the mental health status of adolescents. The mental health literacy among parents and erroneous beliefs among adolescents were insignificant ($p > 0.05$). See Table 5a and 5b for details

Table 5a: Multivariate Ordinal Logistic Regression Analysis of Predictors of Mental Health and Well-Being Status of Adolescents

Predictors	B	SE	AOR	95% CI	P-value

Age	1.197	0.366	3.31	1.61 – 6.79	<0.001*
Monthly income	-0.407	0.369	0.67	0.32 – 1.37	0.270
Knowledge of Mental Health	0.769	0.399	2.16	0.99 – 4.771	0.054*
Erroneous beliefs/ Misconceptions	0.049	0.369	1.05	0.51 – 2.17	0.893
Knowledge of First-Aid and Help-seeking Behaviours	1.758	0.418	5.80	2.55 – 13.17	<0.001*
Knowledge of Self-Help Strategies	0.921	0.391	2.51	1.17 – 5.41	0.019*
Parent's mental health literacy level	0.337	0.365	1.40	0.69 – 2.87	0.35

Table 5b: Model Summary of the Multivariate Ordinal Logistics Regression Analysis

Statistical Analysis	Values
Likelihood Ratio	70.895
P-value	<0.001
Goodness-of-fit Pearson P-value	0.332
Goodness-of-fit Deviance	0.750
Nagelkerke R ²	0.418
P-value for Test of Parallel Lines	0.432

DISCUSSION AND IMPLICATIONS

This study examined several predictors of adolescents' mental health status. It revealed that a range of factors, from socio-demographic characteristics to mental health literacy, influenced adolescents' mental health. Findings from this study highlighted age and class as significant predictors of adolescents' mental health status, with linear relationships observed across all age and class categories. The likelihood of contributions to adolescents' mental health status was constant across all age ranges and classes. These findings are not consistent with other studies, which found an association between age and mental health outcomes among adolescents to be non-linear, with adolescents aged 15-17 years, or those in secondary school alone, having a higher odds ratio [15,8,20-21]. Our findings imply that adolescents, regardless of their age, encounter challenges that impair their mental health outcomes. However, despite the significant effect of age on mental health outcomes, it should be noted that age still interacts with other factors, such as mental health literacy.

Of the four dimensions of mental health literacy among adolescents, only three showed a significant association with adolescents' mental health outcomes. The knowledge of mental health is twice as likely, knowledge of first aid and help-seeking behaviours among adolescents is six times more likely, and knowledge of self-help strategies is twice as likely to contribute to adolescents' mental health outcomes. These findings align with those from a few studies in which adolescents' mental health outcomes were associated with their mental health literacy level [22-24]. Misconceptions among adolescents and the mental health literacy among parents were insignificant.

Furthermore, this study revealed that most respondents were experiencing flourishing mental health and well-being. Less than half were moderate and languishing in their mental health and well-being. These findings contradict a study conducted in Osun State among adolescents, where

less than half of the respondents were flourishing, more than half were in moderate mental health, and a very small proportion were languishing in their mental health and well-being [14]. A study reported findings nearly like ours among late adolescents, where most respondents were flourishing, a quarter were languishing, and were in moderate mental health and well-being [25].

The mental health status of adolescents in this study could be linked to their socio-demographics, mental health first aid skills, and help-seeking behaviour. Findings indicate a significant association between the mental health state of adolescents and their mental health literacy level, which is not peculiar to this study. Evidence from previous studies has pinpointed mental health literacy as a significant determinant of mental health outcomes among adolescents [26-27]. This evidence suggests that the level of mental health literacy of adolescents is directly proportional to mental health and well-being outcomes.

This study revealed the significance of mental health literacy among adolescents, considering its influence on their mental health outcomes. The mental health literacy of adolescents in this study was assessed across four dimensions/factors. The four dimensions measured knowledge of mental health, erroneous beliefs/misconceptions, knowledge of first aid and help-seeking strategies, and knowledge of self-help strategies.

Findings on mental health literacy among adolescents revealed that more than half had good knowledge of what mental health and mental health problems are. This contradicts findings from another study among adolescents in Nigeria, where knowledge of a mental health problem was abysmally low [24]. Although the study focused only on mental health literacy of depression,

depression is a common mental health problem that is generally assessed in mental health literacy globally, and the symptoms were also assessed in this study. Only a few studies have focused on mental health literacy assessment in Nigeria, and these studies present limited data.

Misconceptions and erroneous beliefs regarding mental health among adolescents is a strong factor that birthed stigmatization, delay or hinder seeking help, and negatively influence general mental health and well-being outcomes. The misconception/erroneous belief factor in this study was below average, suggesting limited misconceptions about mental health among adolescents. This is dissimilar to the findings from another study in Ondo State, Nigeria, where most adolescents displayed a high stigmatization towards people experiencing mental health problems [28].

The significant influence of stigmatization on adolescents' mental health and well-being is reflected in their attitudes and help-seeking behaviours towards the situation, either about themselves or in the people around them. Our findings agree with another study conducted in Enugu State, where erroneous beliefs and attitudes towards mental health problems among young adults were less than half [29]. These findings indicate that mental health awareness has progressed in the country, leading to reduced stigmatization rates of mental health problems among adolescents.

The level of knowledge of first aid skills and help-seeking behaviours among many adolescents was quite impressive, indicating willingness and intention to seek help when problems are looming. Contrary to the findings from a study in Nsukka among in-school adolescents, the adolescents were indifferent in their attitudes towards seeking help for depression and anxiety. The study further revealed moderate to severe symptoms of depression and anxiety among the

adolescents [30]. The implication of this finding is reflected in the possibility of a high prevalence of mental health problems, as shown in the study the same study in Nsukka [30]. In other words, there is a tendency for aggravation of mental health conditions if help is not sought early to detect and tackle the problems.

Many of our respondents knew self-help strategies. This finding highlights the ability of adolescents in the regions to utilize coping strategies that enhance the prevention of mental health problems. Studies and reviews in Africa, particularly Nigeria, have shown that self-help strategies promote positive mental health practices, reduce stress, reduce emotional distress, and ultimately promote the mental health and well-being outcomes among adolescents [15,31-32]. One of these studies revealed a high prevalence of anxiety and depression among adolescents who lack self-help strategies or coping skills [31].

Assessing the mental health literacy among adolescents from the four dimensions provides an in-depth and all-encompassing evaluation that allows researchers to view the knowledge of mental health from different perspectives, with a total understanding of where necessary prompt attentions are needed for each adolescent.

Research across different regions in Africa indicates a low mental health literacy level among parents of adolescents, which is in agreement with the findings from this study [33-35]. The findings here also show a low level of mental health literacy among parents, which could be as a result of cultural beliefs, information gaps, access to mental health help services, societal values, and spiritual opinions. The low mental health literacy level among parents could impair the mental

health and well-being of their adolescents through diverse ways, such as delayed screening, diagnosis and treatment, negative attitudes and help-seeking behaviours, and mental health practices [36].

The study explored baseline data from an intervention study to assess mental health literacy among parents and adolescents and to determine the mental health and well-being of adolescents in two LGAs. The mean age in this study was 14.5 years. The study found that adolescents aged 15-17 years were more than other age groups, which aligns with age disparities observed in another study, where adolescents in the same age group outnumbered others [37]. Previous studies have established a correlation between the onset of mental health problems and adolescents' age. This finding buttresses the vulnerability to the onset of mental health problems in adolescence [38-40]. There were more female adolescent respondents than male respondents in this study, and the majority were in secondary school. These findings align with gender and class differences observed in another study among students in Sub-Saharan Africa, where female adolescents reported more mental health problems [39].

Several studies across regions have reported varying results on the influence of the socio-economic status of parents on adolescents' mental health and well-being, emphasizing that low parental average monthly income and educational level, including marital status, impair adolescents' mental health [41-43]. This is closely related to the findings from this study, although the only statistically significant association was between adolescents' mental health status and the marital status of parents. Taking a cue from the previous studies cited above, marital status is an important

variable in family structure that influences the mental health outcomes (anxiety, depression, and social risk behaviours) of adolescents, with the accompaniment of other mediating factors.

Generally, this study revealed that adolescents' mental health outcomes are influenced mostly by combined internal (their socio-demographics) and external factors (their mental health literacy). The predictions showed a weak to high statistically significant association, indicating that a single factor is not enough to influence adolescents' mental health and well-being status, but rather a combination of factors.

Limitations

Although the study explored the predictors of mental health and well-being status among adolescents, causal relationships were not established, subject to the study design. Further research in this area is needed to identify and establish causal relationships. Although the study explored the predictors of mental health and well-being status among adolescents, causal relationships were not established, subject to the study design. Further research in this area is needed to identify and establish causal relationships. Additionally, some predictors were found to have wide confidence intervals even after the mental health and well-being scale was dichotomized into poor mental health and well-being status and good mental health and well-being status, though significantly associated with the mental health status of adolescents; any further re-categorization can jeopardize the result outcome. This could be as a result of the main study design (quasi-experimental) leading to a sparse data in some areas. Such predictor therefore shows a higher uncertainty level of the exact effect size of the predictors on the mental health status of adolescents.

Conclusion

This study showed that the adolescents' mental health and well-being status is influenced by several factors ranging from their socio-demographics to the mental health literacy level of their parents. The predictions showed a weak to moderate statistically significant association, indicating that a single factor is not sufficient to influence adolescents' mental health and well-being. Adolescents' mental health outcomes are influenced mostly by combined internal and external factors.

Recommendations

The mental health and well-being status of adolescents in Ibadan North West and Ogbomoso North Local Government Area in Oyo State indicates a need for mental health interventions that will incorporate both parents and adolescents in the community. Up to 16% of adolescents were still languishing in their mental health and well-being status. Government and non-governmental agencies should shift their focus to a more culture-based environment, where factors influencing mental health status would be tackled. More interventions on mental health literacy should be conducted at the community level, involving parents and adolescents. Furthermore, mental health education, screening, and services should be incorporated into the school-based programmes, and also adapted into the community environments so that out-of-school adolescents and parents can benefit from the programmes.

DECLARATIONS

Ethics Approval and Consent to participate: Ethical approval was obtained from the Oyo State Research Ethical Review Committee (reference number NHREC/OYOSHRIEC/10/11/22) in accordance with the Declaration of Helsinki and relevant ethical guidelines and regulations. Written consent was obtained from the heads of selected communities and all study participants before the study commenced. Assent was also obtained from adolescents under the age of 18 years

and oral consent was taken from parents of the adolescents. Respondents were informed of their right to withdraw at any time and were assured of confidentiality, as no identifiers were included in the questionnaire

Consent for publication: Not applicable

Availability of data and materials: The dataset(s) supporting the conclusions of this article are made available based on request from the corresponding author.

Competing interest: The authors declare that they have no competing interests

Funding: The authors received no form of funding or external support from any individuals or organization.

Authors' contributions: O.A conducted the study, analyzed and interpreted all data and developed the manuscript, A.O reviewed the manuscript, and M.M. supervised the study and reviewed the manuscript. All authors read and approved the final manuscript

Acknowledgements: The authors expressed their gratitude to all respondents who willingly participated in the study, the Ward Development Committee representatives, and the communities at large.

REFERENCES

1. Olowe AO, Tshabalala AM, Bruce JC. Self-reported knowledge, attitude and mental health status of in-school adolescents in Nigeria. African Journal of Primary Health Care & Family Medicine. 2025 Apr 10;17(1):4858.
2. Office for Health Improvement and Disparities [OHID], 2022. <https://www.gov.uk/government/news/increased-mental-health-support-for-children-and-young-people>

3. Khanna P, Aeri BT. Association of Depression and Anxiety Symptoms with Body Mass Index (for age cut offs) in non-clinical sample of adolescents studying in public schools of Delhi; cross sectional study. Indian Journal of Community Health. 2020 Jun 30;32(2):386-93.
4. World Health Organization. The adolescent health indicators recommended by the Global Action for Measurement of Adolescent health: guidance for monitoring adolescent health at country, regional and global levels. World Health Organization; 2024 May 22. <https://books.google.com/books?hl=en&lr=&id=A6cOEQAAQBAJ&oi=fnd&pg=PR5&dq=The+adolescent+health+indicators+recommended+by+the+Global+Action+for+Measurement+of+Adolescent+health:+guidance+for+monitoring+adolescent+health+at+country,+regional+and+global+levels&ots=V6LmTvKK-W&sig=4PM1Gxzv5BZbcUt-yInQ-1m0gJA>
5. Ogunlade SB, Abioye AI, Kuyebi MA, Musa J, Abubakar AK, Yisa MN, Olukorode SO, Oyadiran OT, Okusanya TR, Olofin DO, Igho-Osagie E. Prevalence of psychiatric disorders among children and adolescents in Nigeria since 2010: A systematic review and meta-analysis. medRxiv. 2025 Feb 24:2025-02.
6. Ikwuka U. Perceptions of mental illness in south-eastern Nigeria: Causal beliefs, attitudes, help-seeking pathways and perceived barriers to help-seeking.
7. Udeme Samuel Jacob, Naseem Akorede Raji, Habeeb Omoponle Adewuyi, Ojuolape Mumud Olabode, Jace Pillay , "Mental Health among Secondary School Students: Predictive Factor Analysis," Universal Journal of Public Health, Vol. 12, No. 1, pp. 28-36, 2024. DOI: 10.13189/ujph.2024.120103

8. Borg ME, Heffer T, Willoughby T. Generational shifts in adolescent mental health: A longitudinal time-lag study. *Journal of Youth and Adolescence*. 2025 Apr;54(4):837-48.
9. Green L, Kreuter M. The precede–proceed model. *Health promotion planning: an educational approach*. 3rd ed. Mountain View (CA): Mayfield Publishing Company. 1999:32-43.
10. Bronfenbrenner U. Ecological models of human development. *International encyclopedia of education*. 1994 Mar 4;3(2):37-43.
11. National Bureau of Statistics. 2025 <https://www.nigerianstat.gov.ng>
12. Corey K. Brief Description of the Mental Health Continuum Short Form (MHC-SF)* [Internet]. 2009.
13. Chowdhury D, Raguram A, Mehrotra S. Contours of positive mental health: An exploratory Delphi study from India. *Behavioral Sciences*. 2019 Jun 26;9(7):66.
14. Folorunso OE, Ojo TO, Akinsulore A, Inyangudo G. Adolescent mental well-being and household food security: insights from a cross-sectional study in Irewole local government area, Osun State, Nigeria. *BMC Public Health*. 2026 Dec;26(1):30.
15. Adewuya AO, Oladipo OE, Esangbedo A. School protective factors and adolescent mental health in Nigeria: an investigation of cumulative effects, buffering mechanisms, and gender differences. *BMC psychology*. 2026 Feb 16;14(1):399.
16. Appiah R, Wissing MP, Wilson Fadiji A, Schutte L. Factorial validity of the Twi version of the mental health continuum-short form and prevalence of mental health in a rural Ghanaian sample. In *Embracing well-being in diverse African contexts: Research perspectives* 2022 May 20 (pp. 73-98). Cham: Springer International Publishing.

17. Campos L, Dias P, Palha F, Duarte A, Veiga E. Development and psychometric properties of a new questionnaire for assessing mental health literacy in young people. <https://repositorio.ucp.pt/bitstreams/95bb1623-9899-4561-afbc-44b4d884e411/download>
18. Costa D, Costa M, Moreira WC, Nóbrega MD, Fritz B, Wessa M, Kalaitzaki A, Meintani F, Aturu O, Mien Yong TS, Johari MZ. Mental Health Literacy questionnaire short-version: psychometric properties in young adults from Brazil, Germany, Greece, Lithuania, Malaysia, Nepal, Nigeria, Pakistan, Poland, Serbia and Turkey. medRxiv. 2025 Feb 27:2025-02. <https://www.medrxiv.org/content/medrxiv/early/2025/02/27/2025.02.25.25322614.full.pdf>
19. Alemu RE, Nyatete H, Baseke R, Ngatia V, Osborn TL, Wasanga CM. Group-based psychoeducational workshop for parents in Kenya: findings from a pilot study. Frontiers in public health. 2023 Sep 15;11:1223804.
20. Obosi AC, Fatunbi AM, Oyinloye O. Peer pressure and substance use as predictors of mental health among in-school adolescents in Nigeria. Ianna Journal of Interdisciplinary Studies. 2022 Oct;4(1):1-9. [ul](#)
21. Ogonna PN, Iheanacho PN, Ogonnaya NP, Mbadugha CJ, Ndubuisi I, Chikeme PC. Prevalence of mental illness among adolescents (15–18 years) treated at Federal Neuropsychiatric Hospital, Enugu Nigeria, from 2004 to 2013. Archives of Psychiatric Nursing. 2020 Feb 1;34(1):7-13.
22. Aisiku OA, Edobor IP. Mental Health Literacy, Stigma, and Help-Seeking Behavior: A Study Among Teenagers in Rumuolumeni, Rivers State. African Journal of Medicine, Surgery and Public Health Research. 2025;2(2):150-82.

23. Dedeké I, Fakorede O, Soyannwo T, Osinubi M, Adekambi A, Ogundeyi M, Fasiku M, Oyewole O, Ogunmuyiwa S, Adesina A, Ekundayo A. Mental health literacy among adolescents in Nigeria exposed to a school-based multidimensional intervention. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*. 2025 Mar 1;34(1):17.
24. Aluh DO, Anyachebelu OC, Anosike C, Anizoba EL. Mental health literacy: what do Nigerian adolescents know about depression?. *International journal of mental health systems*. 2018 Feb 16;12(1):8.
25. Khumalo IP, Appiah R, Wilson Fadiji A. Measuring positive mental health and depression in Africa: a variable-based and person-centred analysis of the dual-continua model. *Frontiers in psychology*. 2022 Jun 20;13:885278.
26. Wadende P, Sodi T. Mental health literacy: perspectives from Northern Kenya Turkana adolescents. *Cambridge Prisms: Global Mental Health*. 2023 Jan;10:e35.
27. Sodi T, Quarshie EN, Oppong Asante K, Radzilani-Makatu M, Makgahlela M, Nkoana S, Mutambara J. Mental health literacy of school-going adolescents in sub-Saharan Africa: a regional systematic review protocol. *BMJ open*. 2022
28. Akinbode O, Tolulope T. Factors influencing adolescents stigmatising attitudes and perception of community reaction towards mental illness in Nigeria. *Sudan Journal of Medical Sciences*. 2017;12(4):240-52.
29. Idoko CA, Udo K, Idoko CI. A Nigerian Tertiary Institution Students' Knowledge and Attitude to Mental Health and Services. *International Journal of Medicine and Health Development*. 2021 Sep 1;26(3):183-9.

30. Isiogugu NO, Anosike C, Nwobodo CJ, Alshargi O, Anosike JC, Nwaogidi CS. Mental health and help-seeking behaviour among secondary school adolescents in Nsukka, Nigeria: a cross-sectional survey. *Discover Public Health*. 2026 Apr 7;23(1):473.
31. Hlatshwayo BS, Wild LG. Coping and psychological well-being: Investigating the relations between specific coping strategies, anxiety, and depression among adolescents in a South African township. *Jouguntoyernal of Child & Adolescent Mental Health*. 2025 Aug 21:1-6.
32. Mabrouk A, Mbithi G, Chongwo E, Too E, Sarki A, Namuguzi M, Atukwatse J, Ssewanyana D, Abubakar A. Mental health interventions for adolescents in sub-Saharan Africa: A scoping review. *Frontiers in psychiatry*. 2022 Aug 11;13:937723.
33. Kusaka S, Foo JC, Yamaguchi S, Yukawa A, Arai T, Sawamura F, Togo F, Sasaki T. A survey of mental health literacy in parents and guardians of teenagers. *Frontiers in psychiatry*. 2024 Feb 9;15:1295918.
34. Oguntoye OV, Afolayan JA, Oguntoye M, Ajala DE, Esan DT. Mental health literacy programs in Nigeria: A comprehensive scoping review of interventions, challenges and outcomes. *Archives of Psychiatric Nursing*. 2026 Apr 1;61:152078.
35. Letsoalo DL, Semenya MV, Ngobe AJ, Hlokwe JK. Mental health literacy in sub-Saharan Africa: A scoping review. *Journal of Psychology in Africa*. 2025;35(1):159.
36. Ojuope AV, Ekunudayo OO. Conduct disorder and its relationship with socio-demographics factors among secondary school adolescents in Ondo State, Nigeria. *American Journal of Applied Psychology*. 2020;9(3):60-5.

37. Ng SH, Tan NJ, Luo Y, Goh WS, Ho R, Ho CS. A systematic review of youth and teen mental health first aid: Improving adolescent mental health. *Journal of Adolescent Health*. 2021 Aug 1;69(2):199-210.
38. Hendrickx G, De Roeck V, Maras A, Dieleman G, Gerritsen S, Purper-Ouakil D, Russet F, Schepker R, Signorini G, Singh SP, Street C. Challenges during the transition from child and adolescent mental health services to adult mental health services. *BJPsych bulletin*. 2020 Aug;44(4):163-8.
39. Ike OO, Kwarteng MA, Ogbonna G, Dos Santos IB, Ogiemudia OM, Anyasodor AE, Antwi-Adjei EK, Amaechi OU, Ebele EG, Ezinne NE, Mashige KP. Cross-National variations in mental health: A cross-sectional study on depression, anxiety, and stress among university staff and students in Sub-Saharan African. *PloS one*. 2025 Jun 3;20(6):e0322163.
40. Wen L, Yang K, Cao Y, Qu M, Xiu M. Parental marital status and anxiety symptoms in adolescents: the mediating effect of childhood maltreatment. *European archives of psychiatry and clinical neuroscience*. 2024 Oct;274(7):1719-27.
41. Karhina K, Bøe T, Hysing M, Nilsen SA. Parental separation, negative life events and mental health problems in adolescence. *BMC Public Health*. 2023 Nov 29;23(1):2364.
42. Ajayi AI, Chamdimba E, Sawadogo N, Gitahi N, Tarnagda AM, Ilboudo AK, Munthali A, Thakwalakwa C, Otukpa EO, Ushie BA, Kabiru CW. Socio-ecological factors associated with probable depression among pregnant and parenting adolescent girls: findings from a cross-sectional study in Burkina Faso and Malawi. *Reproductive Health*. 2023 Mar 7;20(1):38.

651 43. Okagbare TE, Naidoo S. Parents' perception of psychosocial factors, health
652 compromising behaviours and oral health among adolescents in South Africa. South
653 African Dental Journal. 2018 May 1;73(4):221-7.