

The Prevalence and Patterns of Suicidal Ideation Among In-School Adolescents in Ogun State, Nigeria: A mixed-method survey

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Abstract

Introduction: This study aimed to determine the prevalence, patterns, and associated factors of suicidal ideation among in-school adolescents in Ogun State, Nigeria.

Methods: A mixed-methods design was employed, comprising a cross-sectional survey of 1,444 adolescents aged 10–19 years from 16 secondary schools, and qualitative in-depth interviews with eight adolescents reporting suicidal ideation and their parents. Data were collected using structured questionnaires. Quantitative data were analysed using descriptive statistics, bivariate tests, and multivariate logistic regression; qualitative data were analysed thematically.

Results: The prevalence of suicidal ideation was 3.9% (95% CI: 3.0–5.1). Mid-adolescents (14–16 years) and those in Senior Secondary Schools had significantly higher odds of suicidal ideation. Key risk factors included previous suicide attempts, living without both parents, psychological disorders (attention deficit, conduct disorder, PTSD, eating disorders), economic hardship, excessive internet use, family instability, childhood sexual violence, and insomnia. Protective factors included high self-esteem, strong social support, a sense of purpose in life, agreeableness, emotional stability, openness, grit, and self-care coping strategies. Thematic analysis of interviews highlighted the lived experiences of adolescents, revealing the role of stigma, secrecy, and cultural taboos surrounding mental health, as well as the protective roles of supportive relationships, religious faith, and personal coping strategies.

Conclusion: Suicidal ideation among in-school adolescents in Ogun State is influenced by a complex interplay of individual, interpersonal, and socio-economic factors. School-based mental health screening, resilience-building programs, and family-focused interventions are recommended to mitigate risk and promote protective factors.

Keywords: Adolescent, Adolescent Mental Health, Suicidal Ideation, Prevalence, Risk Factors, Protective Factors, Nigeria

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Introduction

Suicide and suicidal behaviours represent a critical public health challenge globally, particularly among adolescents and young adults. According to the World Health Organisation (WHO), suicide is the fourth leading cause of death among older adolescents aged 15–19 years, with a

disproportionate burden in low- and middle-income countries (LMICs) where over 75% of global suicides occur (1). Suicidal ideation, defined as thoughts about, considering, or planning for suicide, is a significant precursor to suicide attempts and death, making its early identification and management a key prevention strategy (2).

The developmental period of adolescence is marked by heightened vulnerability due to biological, psychological, and social transitions. In LMICs, including Nigeria, this vulnerability is compounded by limited access to mental health services, pervasive stigma surrounding mental illness, and socioeconomic adversities (3). Available estimates of adolescent suicidal ideation in sub-Saharan Africa vary widely. A meta-analysis of 59 LMICs reported a pooled prevalence of 16.9%, with the African region recording the highest rate at 20.4% (4). Within Nigeria, studies have reported disparate prevalence rates, ranging from 6.1% in Lagos to over 20% in Ibadan, underscoring significant contextual variations and the need for localised data (5, 6).

Ogun State, located in southwestern Nigeria, has a substantial adolescent population and is characterised by a mix of urban and rural communities, varied socioeconomic conditions, and a high concentration of secondary schools. Despite this, it lacks representative data on suicidal ideation. Understanding the prevalence, patterns, and associated factors in this setting is essential for developing contextually relevant prevention programs. Furthermore, validated screening tools for suicidal ideation are scarce in Nigerian adolescent populations. This study, therefore, aimed to determine the prevalence and patterns of suicidal ideation, identify associated risk and protective factors, and assess the psychometric properties of selected screening tools among in-school adolescents in Ogun State, Nigeria. To our knowledge, this is the first mixed-methods study in this region to integrate quantitative surveys with in-depth qualitative interviews, and to evaluate locally relevant screening tools for suicidal ideation in adolescents.

Methods

Study Design and Setting:

A concurrent mixed-methods design was employed, integrating a quantitative cross-sectional survey with a qualitative exploratory component. The study was conducted in Ogun State, Nigeria, between June and November 2024. Ogun State has an estimated adolescent population of 1.15 million, with approximately 501,201 students enrolled in secondary schools.

Participants and Sampling:

For the quantitative component, a minimum sample size of 1,480 was calculated using the Leslie Kish formula, assuming a 20% prevalence of suicidal ideation from a previous study in southwest Nigeria, a 99% confidence level, a 3% margin of error, and a 20% non-response adjustment (6). A multi-stage random sampling technique was used. First, four Local Government Areas (two urban, two rural) were randomly selected. From these, 16 secondary schools (four per LGA) were selected by balloting. Eligible participants were adolescents aged 10–19 years, duly enrolled in the selected schools. Adolescents residing in the Aro psychiatric village were excluded due to likely bias from high mental health literacy.

Within each school, participants were selected via proportionate allocation to class levels (JSS1–SSS3) and systematic random sampling from class registers. A total of 1,480 questionnaires were administered, and 1,444 were retained for analysis after data cleaning, resulting in a 97.6% response rate.

For the qualitative component, a purposive sample of eight adolescents who reported suicidal ideation in the survey was selected using maximum variation sampling to ensure diversity in sex, age group (10–14 and 15–19 years), and location (urban/rural). Their parents or guardians were also interviewed.

Data Collection and Tools

Quantitative data were collected via face-to-face interviews using a structured questionnaire. The instrument included:

1. Socio-demographic and family characteristics.
2. Validated measures for potential risk factors (e.g., Patient Health Questionnaire-9 for depression, SCOFF for eating disorders, AUDIT for alcohol use, GHQ-12 for mental distress) and protective factors (e.g., Rosenberg Self-Esteem Scale, social support scale, gratitude and grit scales, Measure of Adolescent Coping Strategies), several of which have been used or adapted in prior Nigerian adolescent studies.
3. Anthropometric measurements (height, weight, waist circumference) were taken to compute BMI and waist-to-height ratio.
4. The primary outcome, suicidal ideation, was assessed with a single direct question: “Have you had thoughts of taking your own life at any time in the past year?” (Yes/No). While brief, this approach is consistent with prior epidemiological surveys in low-resource settings and was chosen for its clarity and acceptability among adolescents.

Qualitative data were collected through separate, confidential, in-depth interviews with adolescents and their parents/guardians using semi-structured guides. Interviews explored lived experiences, perceived causes, and protective influences related to suicidal thoughts. All interviews were audio-recorded, transcribed verbatim, and translated where necessary.

Data Analysis:

Quantitative data were analysed using IBM SPSS version 22. Descriptive statistics were computed. The prevalence of suicidal ideation was calculated with a 95% confidence interval. Associations between independent variables and suicidal ideation were examined using chi-square tests (for categorical variables) and t-tests (for continuous variables). Variables with a p-value ≤ 0.25 in bivariate analysis were entered into separate multivariate binary logistic regression models for risk and protective factors, with a final combined model built using a stepwise approach. Model fit was assessed using the Hosmer-Lemeshow test and the area under the ROC curve.

Qualitative data were analysed using thematic content analysis in NVivo version 12. Two researchers

independently coded transcripts, developed a codebook, and identified overarching themes through an iterative process of reading, coding, and discussion. Inter-rater reliability was maintained above 80%.

Results

Socio-Demographic Characteristics

A total of 1,480 questionnaires were administered; 1,444 were retained for analysis after data cleaning, yielding a

97.6% response rate. The socio-demographic characteristics of the participants are presented in Table 1. The sample had a mean age of 14.17 years (SD=2.09), with a slight majority being female (57.9%). The study involved 1,444 adolescents with a mean age of 14.17 years (SD=2.09). Females constituted 57.9% (n=836) of the sample. Most participants were in mid-adolescence (14–16 years, 47.0%), identified as Christian (66.5%), and were of Yoruba ethnicity (92.1%). The majority (99.6%) had no health insurance.

Table 1: Socio-Demographic Characteristics of Study Participants (n=1,444)

Characteristic	Total n (%)	Female n (%)	Male n (%)
Sex			
Female	836 (57.9)	-	-
Male	608 (42.1)	-	-
Age Group			
Early Adolescence (10-13)	554 (38.4)	351 (42.0)	203 (33.4)
Mid Adolescence (14-16)	679 (47.0)	399 (47.7)	280 (46.1)
Late Adolescence (17-19)	211 (14.6)	86 (10.3)	125 (20.6)
School Level			
Junior Secondary (JSS)	734 (50.8)	432 (51.7)	302 (49.7)
Senior Secondary (SSS)	710 (49.2)	404 (48.3)	306 (50.3)
Living Arrangement			
With both parents	605 (41.9)	359 (42.9)	246 (40.5)
With the mother only	621 (43.0)	360 (43.1)	261 (42.9)
With the father only	51 (3.5)	24 (2.9)	27 (4.4)
Not with parents	167 (11.6)	93 (11.1)	74 (12.2)
Location			
Urban	730 (50.6)	423 (50.6)	307 (50.5)
Rural	714 (49.4)	413 (49.4)	301 (49.5)

Prevalence of Suicidal Ideation

The overall prevalence of suicidal ideation in the past year was 3.9% (n=56; 95% CI: 3.0–5.1). The distribution of suicidal ideation across key demographic subgroups is shown in Table 2. The prevalence was higher among mid-

adolescents (5.0%) compared to early (2.5%) and late adolescents (3.3%), and among students in Senior Secondary Schools (5.8%) versus Junior Secondary Schools (2.4%). There was no statistically significant difference by sex (p=0.421).

Table 2: Crude and Specific Prevalence Rates

Characteristic	n	Suicidal Ideation n (%)	95% CI
Overall	1444	56 (3.9)	3.0 – 5.1
Sex			
Female	836	36 (4.3)	3.1 – 5.9
Male	608	20 (3.3)	2.1 – 5.0
Age Group			
Early Adolescence (10-13)	554	14 (2.5)	1.5 – 4.2
Mid Adolescence (14-16)	679	34 (5.0)	3.6 – 6.9
Late Adolescence (17-19)	211	7 (3.3)	1.6 – 6.7
School Level			
Junior Secondary (JSS)	734	18 (2.4)	1.5 – 3.8
Senior Secondary (SSS)	710	38 (5.8)	4.2 – 7.4

Risk Factors Associated with Suicidal Ideation

The associations between potential risk/protective factors and suicidal ideation were first examined using bivariate analysis. Variables significant at p < 0.25 were entered into a

multivariate logistic regression model. The full results, including both crude and adjusted odds ratios, are provided in Table 3.

For risk factors, bivariate analysis revealed numerous significant associations. In the final adjusted multivariate logistic regression model, several factors emerged as independent predictors of increased odds of suicidal ideation. Adolescents in mid-adolescence had 1.89 times higher odds of suicidal ideation compared to other age groups (95% CI: 1.02–3.48). Attending Senior Secondary School was associated with 2.34 times greater odds (95% CI: 1.31–4.20). A history of a previous suicide attempt markedly increased the odds, with an adjusted odds ratio of 10.25 (95% CI: 4.23–24.86). Not living with both parents was also a significant risk factor, yielding an AOR of 3.45 (95% CI: 1.85–6.42). Psychological distress was associated with nearly three times higher odds (AOR=2.91, 95% CI: 1.52–5.57), while conduct

disorder, post-traumatic stress symptoms, and eating disorder symptoms each approximately doubled the odds (AOR=2.20, 95% CI: 1.21–4.00; AOR=2.65, 95% CI: 1.45–4.85; and AOR=2.18, 95% CI: 1.16–4.10, respectively). General mental distress, as measured by the GHQ-12, was associated with an AOR of 2.98 (95% CI: 1.61–5.52). Experiencing economic hardship due to fuel subsidy removal increased the odds by a factor of 2.41 (95% CI: 1.33–4.37). High internet and social media use, defined as more than four hours daily, was associated with an AOR of 2.77 (95% CI: 1.50–5.12). A history of childhood sexual violence demonstrated a strong association, with an AOR of 4.90 (95% CI: 1.65–14.52). Finally, insomnia was linked to 2.56 times higher odds of suicidal ideation (95% CI: 1.38–4.74).

Table 3: Factors Associated with Suicidal Ideation: Bivariate and Multivariate Logistic Regression Analysis

Factor	Category	Crude OR (95% CI)	Adjusted OR (95% CI)
DEMOGRAPHIC & SOCIAL			
Age Group	Mid vs. Early/Late Adolescence	2.05 (1.15–3.67)	1.89 (1.02–3.48)*
School Level	Senior vs. Junior Secondary	2.45 (1.41–4.26)	2.34 (1.31–4.20)*
Living Arrangement	Not with both parents vs. With both parents	4.12 (2.30–7.38)	3.45 (1.85–6.42)*
PSYCHOLOGICAL & BEHAVIOURAL			
Previous Suicide Attempt	Yes vs. No	15.20 (6.80–33.97)	10.25 (4.23–24.86)*
Psychological Distress	Yes vs. No	4.50 (2.50–8.10)	2.91 (1.52–5.57)*
Conduct Disorder	Yes vs. No	3.20 (1.85–5.53)	2.20 (1.21–4.00)*
PTSD Symptoms	Yes vs. No	3.85 (2.20–6.74)	2.65 (1.45–4.85)*
CONTEXTUAL & ENVIRONMENTAL			
Childhood Sexual Violence	Yes vs. No	8.90 (3.20–24.75)	4.90 (1.65–14.52)*
Economic Hardship (Fuel Subsidy)	Yes vs. No	3.55 (2.05–6.15)	2.41 (1.33–4.37)*
High Internet Use (>4 hrs/day)	Yes vs. No	3.30 (1.85–5.88)	2.77 (1.50–5.12)*
PROTECTIVE FACTORS			
High Self-Esteem	Yes vs. Low/Normal	0.25 (0.14–0.45)	0.38 (0.20–0.74)*
Strong Social Support	Per unit increase	0.85 (0.81–0.89)	0.89 (0.84–0.94)*
Sense of Purpose in Life	Yes vs. No	0.22 (0.11–0.44)	0.31 (0.14–0.66)*
High Grit Score	Yes vs. Low	0.65 (0.52–0.81)	0.76 (0.60–0.96)*

Statistically significant (p < 0.05)

Protective Factors Associated with Suicidal Ideation

Conversely, the analysis also identified several factors that served as significant protective buffers, independently associated with reduced odds of reporting suicidal ideation in the adjusted model (Table 3). High self-esteem demonstrated a substantial protective effect, with adolescents possessing high self-esteem being 62% less likely to experience suicidal ideation (AOR=0.38, 95% CI: 0.20–0.74). Strong social support was also markedly protective, with each unit increase in social support score associated with an 11% reduction in the odds of ideation (AOR=0.89 per unit increase, 95% CI: 0.84–0.94). A strong sense of purpose in life emerged as one of the most powerful protective factors, reducing the odds of suicidal ideation by 69% (AOR=0.31, 95% CI: 0.14–0.66). Certain personality traits were also significantly protective; higher levels of agreeableness (AOR=0.85, 95% CI: 0.73–

0.99) and emotional stability (AOR=0.82, 95% CI: 0.70–0.96) were each linked to lower odds. Furthermore, a high grit score, reflecting perseverance and passion for long-term goals, was associated with a 24% reduction in odds (AOR=0.76, 95% CI: 0.60–0.96). Finally, the use of self-care as a deliberate coping strategy showed a modest but significant protective effect (AOR=0.92, 95% CI: 0.86–0.99).

Qualitative Findings

Thematic analysis of interviews with eight adolescents and their parents provided depth to the quantitative findings. Key themes identified are summarised in Table 5. Participants described pathways to vulnerability, including academic pressure, family conflict, and stigma—illustrated by one adolescent’s reflection: “When I failed math, my father said

I was useless... I thought ending it would be better.” Protective themes highlighted the role of supportive relationships, religious faith, and personal coping strategies, as expressed by another participant: “My friend checked on

me every day. And praying... it made me feel I wasn’t alone.” The cultural context of secrecy and shame surrounding mental health was a pervasive finding.

Table 5: Summary of Key Themes from Qualitative Interviews

Overarching Theme	Key Sub-themes	Illustrative Quote
Pathways to Vulnerability	Academic Pressure; Family Conflict; Stigma	“When I failed math, my father said I was useless... I thought ending it would be better.” (Male, 16)
Coping & Resilience	Supportive Friendships; Religious Faith; Self-Care	“My friend checked on me every day. And praying... it made me feel I wasn’t alone.” (Female, 15)
Cultural Context	Secrecy; Shame; Need for Confidential Space	“We don’t talk about these things. It’s a silent suffering.” (Parent of 14-year-old)

Pathways to Vulnerability: Participants described feelings of entrapment and hopelessness stemming from academic pressure, family conflict (especially parental absence or discord), bullying, and the stress of economic hardship. Stigma surrounding mental health was a pervasive barrier to seeking help.

Coping and Resilience: Protective themes highlighted the role of supportive friendships, trusting relationships with at least one adult (often a teacher or religious leader), deep religious faith, and personal strategies like journaling or engaging in hobbies.

Cultural Context: Suicidal ideation was universally described as a taboo subject. While religious beliefs strongly condemned suicide, this also contributed to secrecy and shame, preventing disclosure. Adolescents expressed a need for confidential, non-judgmental spaces to talk.

Discussion

This study provides crucial epidemiological data on suicidal ideation among in-school adolescents in Ogun State, Nigeria. The prevalence of 3.9% is lower than the African regional average of 20.4% reported in a recent meta-analysis but aligns with findings from some community-based studies in Nigeria (4, 5). This discrepancy may reflect under-reporting due to stigma, where discussing suicidal thoughts is often considered shameful or taboo within families and communities, cultural reluctance to disclose, or genuine regional variations. In this context, stigma may lead adolescents to conceal ideation for fear of judgment, familial disgrace, or moral/religious condemnation. The significantly higher odds among mid-adolescents and senior secondary students corroborate global evidence that this period involves intensified academic, social, and identity-related stressors, increasing mental health vulnerability (7).

The strong association between a previous suicide attempt and current ideation (AOR=10.25) underscores a critical intervention point. This aligns with the ideation-to-action framework, where prior behaviour is a potent predictor of future risk, necessitating targeted follow-up and safety planning for these high-risk adolescents (8). Family structure emerged as a fundamental social determinant; not living with both parents tripled the odds of ideation. This finding

supports the Social-Ecological Model, highlighting the primary role of the immediate interpersonal environment (microsystem) in adolescent mental health (9). The disruption of core family bonds may weaken attachment, reduce monitoring, and diminish emotional support.

The array of significant psychological risk factors, conduct disorder, PTSD, eating disorders, and general mental distress, confirms the well-established comorbidity between suicidality and psychopathology. This reinforces the necessity of integrated mental health screening in adolescent health services, as treating underlying disorders is a key suicide prevention strategy (10). Novel contextual findings include the impact of macroeconomic policy (fuel subsidy removal) and digital environment (excessive internet use). Economic hardship at the household level can exacerbate family tension and limit access to resources, indirectly affecting adolescent well-being, while unregulated internet use may expose youths to harmful content, cyberbullying, and social comparison (11, 12). Policy responses could include integrating mental health support into social safety-net programmes for affected households, and providing economic counselling or livelihood-support training for parents to mitigate household stress.

On the protective side, the powerful roles of self-esteem, social support, and purpose in life offer clear avenues for strength-based interventions. These factors are core components of psychological resilience, which can buffer the effects of adversity (13).

The qualitative insights enrich these findings by illustrating how risk and protective factors are experienced in daily life. The themes of stigma, secrecy, and the search for non-judgmental support underscore the need for anti-stigma campaigns and the creation of adolescent-friendly, confidential support channels within schools and communities.

Study limitations

This study has limitations. Its cross-sectional design precludes causal inferences, and observed associations cannot be interpreted as directional or causal. The focus on in-school adolescents excludes out-of-school youth, who may constitute a higher-risk group, thus limiting

generalizability to the broader adolescent population in the state. Self-reported data are susceptible to social desirability bias, particularly for sensitive topics like suicidality and sexual violence, and may also be subject to recall bias given the 12-month recall period for suicidal ideation. Nevertheless, the use of mixed methods, a relatively large, randomly selected sample, and validated measurement tools strengthens the validity and depth of the findings. Furthermore, suicidal ideation was assessed using a single binary item, which may lack the sensitivity of multi-item scales but was selected for practical administration in a school-based setting.

Conclusion

Suicidal ideation among in-school adolescents in Ogun State, Nigeria, is a multifaceted issue influenced by a complex interplay of individual vulnerabilities, family dynamics, psychological comorbidities, and broader socio-economic stressors. While the prevalence is relatively low, the identified risk factors point to significant areas of need, particularly among older students and those from unstable family environments.

A comprehensive, multi-level prevention strategy is warranted. School-based mental health literacy programs, including modules on emotion regulation, help-seeking, and stigma reduction, confidential peer support networks with trained facilitators, and life-skills education focused on building resilience through problem-solving and goal-setting exercises, should be implemented. To ensure confidentiality in a context of secrecy, designated safe spaces (e.g., school-based counselling rooms with strict privacy protocols) and anonymous reporting channels (e.g., suggestion boxes, digital platforms) should be established. At the family and community level, interventions should support parental engagement and address economic stressors. Finally, policy efforts must work to reduce stigma and strengthen the broader mental health system for adolescents.

Abbreviations

LMIC: Low- and Middle-Income Country
 SIS: Suicidal Ideation Scale
 SIDAS: Suicidal Ideation Attributes Scale
 PANSI: Positive and Negative Suicide Ideation Inventory
 PANSI-NSI: PANSI-Negative Suicide Ideation subscale
 PTSD: Post-Traumatic Stress Disorder
 AOR: Adjusted Odds Ratio
 CI: Confidence Interval
 CFA: Confirmatory Factor Analysis
 WHO: World Health Organisation

Declarations

Ethics Approval and Consent to Participate: Ethical approval was obtained from the Ogun State Health Research Ethics Committee (OGHREC/467/2025/546/APP). Permission was secured from school authorities and the State

Ministry of Education. Written informed consent was obtained from parents/guardians, and written assent from adolescents. Participation was voluntary, with no penalties for withdrawal. Confidentiality was strictly maintained through the de-identification of data. Adolescents identified at risk received immediate, free counselling and referral to a collaborating psychiatrist.

Data Availability: The datasets used and analysed during the current study are available from the corresponding author on reasonable request.

Competing Interests: The authors declare that they have no competing interests.

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Author contributions: AOA: Conceptualisation, Methodology, Investigation, Formal analysis, Writing – original draft, Project administration. LWM: Supervision, Validation, Writing – review & editing. TC: Supervision, Validation, Writing – review & editing. AIE: Supervision, Validation, Writing – review & editing.

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