Rural and Remote Health www.rrh.org.au
James Cook University ISSN 1445-6354

Original Research

A comparative study of self-esteem in secondary school adolescents in urban and rural settings of Oyo State, Nigeria

AUTHORS


Abieyuwa O Fagbohun[1] MPH, Lecturer * [https://orcid.org/0000000349387058]


Adebola Orimadegun[2] PhD, Professor [https://orcid.org/0000000167528502]


Olusegun O Akinyinka[1] PhD, Professor

CORRESPONDENCE

*Dr Abieyuwa O Fagbohun mailyuwa@yahoo.com

AFFILIATIONS

[1] Department of Paediatrics, University of Ibadan, Ibadan, Nigeria

[2] Institute of Child Health, University of Ibadan, Nigeria

PUBLISHED

5 August 2025 Volume 25 Issue 3

HISTORY

RECEIVED: 4 April 2024

REVISED: 27 May 2025

ACCEPTED: 9 June 2025

CITATION

Fagbohun AO, Orimadegun A, Akinyinka OO. A comparative study of self-esteem in secondary school adolescents in urban and rural settings of Oyo State, Nigeria. Rural and Remote Health 2025; 25: 9143. https://doi.org/10.22605/RRH9143

Abstract

Introduction: Self-esteem plays a crucial role in adolescent development, influencing psychological wellbeing, academic performance, and social interactions. However, there is limited research examining self-esteem differences between urban and rural adolescents in Nigeria. This study investigates the self-esteem levels of secondary school students in urban and rural settings in Oyo State, Nigeria, and identifies key predictors of low self-esteem.

Methods: A cross-sectional comparative study was conducted among 1638 secondary school adolescents (1181 urban; 457 rural). Participants were recruited from randomly selected schools in Ibadan (urban) and Igbo-Ora (rural). Self-esteem was assessed using the Rosenberg Self-Esteem Scale, which was analyzed as both a continuous and categorical variable. Hierarchical linear modelling and logistic regression were used to account for clustering effects and identify factors associated with low self-esteem.

Results: Urban adolescents had significantly higher self-esteem scores than their rural counterparts (mean 14.2 v 12.1, $p<0.001$). The prevalence of low self-esteem was higher among rural adolescents (11.2% males, 8.2% females) compared to urban adolescents (7.8% males, 4.7% females). In the urban setting, attending a public school (odds ratio (OR)=2.24, 95% confidence interval (CI): 1.52–3.31) and identifying as Muslim (OR=2.10, 95%CI: 1.41–3.12) were significant predictors of low self-esteem. No single

predictor was statistically significant for rural adolescents, suggesting self-esteem variability may be influenced by multiple interacting factors.
Conclusion: This study highlights significant disparities in self-esteem levels between urban and rural adolescents, emphasizing the role of educational and sociocultural factors. Findings underscore the need for targeted interventions to enhance self-esteem, particularly among rural adolescents and public school students. Gender-sensitive strategies and improved access to psychological support services should be integrated into adolescent development programs.

Keywords

adolescents, education, hierarchical modelling, Nigeria, psychological wellbeing, self-esteem, urban–rural comparison.

Introduction

Self-esteem is a psychological construct that embodies an individual's overall self-evaluation, affecting various aspects of life, including but not limited to educational attainment, psychological wellbeing, and social relations and has profound implications for the mental and emotional wellbeing of adolescents[1]. Rosenberg et al assert that one's attitude towards oneself, whether positive or negative, has a direct bearing on their level of life satisfaction[2].

Adolescence, a formative stage of life, is characterized by rapid physiological and psychological changes, which pose the risk of a heightened vulnerability to self-esteem fluctuations, which can have long-term effects into adulthood[1]. Self-esteem among adolescents is paramount, for not only psychological development but also broader societal advancement[3]. Studies have shown that low self-esteem is associated with negative life outcomes, including poor academic performance, higher susceptibility to mental health disorders such as depression and anxiety, and an increased risk of substance abuse[4-6]. Conversely, high self-esteem correlates positively with life satisfaction, resilience, and general wellbeing[7,8].

The role of self-esteem in adolescent health and development has become an issue of public health importance[8,9]. Despite the recognized importance of self-esteem in adolescent wellbeing, there remains a dearth of research examining self-esteem differences across urban and rural settings, particularly in Nigeria[10,11]. These limited local data leave a considerable gap in the understanding of how geographic location may influence self-esteem and, consequently, the mental and social wellbeing of adolescents. It also constrains targeted intervention strategies, potentially exacerbating existing health disparities in these populations.

Several national and international studies have examined the self-esteem of adolescents in various settings. Factors previously associated with low self-esteem include parental education level[12], peer influence[13], depression[5], inadequate parental care[14], body image dissatisfaction[15], and poor academic performance[16]. Gender, socioeconomic status, and the level of urbanization have also been identified as influential factors[17].

A key limitation of existing studies is their reliance on data from regions that may not be directly applicable to the Nigerian population. The sociocultural and economic landscape of Nigeria differs significantly from other settings where prior research has been conducted. For instance, while previous studies suggest that urban adolescents are more likely to engage in risk-taking behavior due to higher peer pressure and media exposure[18], rural adolescents tend to experience lower academic motivation due to inadequate educational infrastructure[19]. This underscores the need for context-specific research to better understand self-esteem dynamics in Nigeria.

Given these gaps, this study seeks to compare self-esteem levels among secondary school adolescents in urban and rural settings in Oyo State, Nigeria, while identifying key predictors of low self-esteem in each setting. The study aims to answer the following research questions: 'Are there significant differences in self-esteem levels between urban and rural adolescents?' and 'What are the key predictors of low self-esteem among adolescents in these two settings?' By addressing these questions, the study will provide an evidence-based framework for public health practitioners, policymakers, and educators to design interventions tailored to the needs of adolescents in both urban and rural contexts.

Methods

Study design and setting

The study employed a cross-sectional comparative design, allowing for a comparison of self-esteem levels between urban and rural adolescents at a single point in time. The analysis was adjusted to account for the clustering effect within schools by applying hierarchical linear modelling. This approach was used to ensure that the correlation among adolescents from the same school did not bias the results. The study was conducted in selected secondary schools within Ibadan, representing the urban setting, and Igbo-Ora, representing the rural setting, both located in Oyo State, Nigeria. Igbo-Ora is predominantly an agrarian community characterized by small-scale agricultural enterprises and local markets, while Ibadan is a large metropolitan area with better access to educational and psychological resources. Both areas have a predominantly Yoruba ethnic composition, with cultural traditions playing a significant role in shaping adolescent development.

Study population and sample size

The study targeted secondary school adolescents between the ages of 10 and 19 years. This age group was selected because adolescence represents a critical developmental phase where self-esteem is particularly sensitive to external influences. The sample size was calculated using G*Power software v 3.1.9.7 (Heinrich-Heine-Universität Düsseldorf; https://www.psychologie.hhu.de/arbeitsgruppen/allgemeine-psychologie-und-arbeitspsychologie/gpower). The anticipated prevalence of low self-esteem was estimated at 30% among urban adolescents and 40% among rural adolescents. These estimates were based on informed assumptions derived from local trends and the researchers' contextual understanding of disparities in adolescent wellbeing across urban and rural settings in Nigeria. The study aimed to detect a medium effect size with Cohen's *d* value of 0.5, while maintaining a statistical power of 80% at a 95%

confidence level. To account for potential participant dropout and ensure the robustness of the findings, a 10% adjustment was applied to the final sample size, ensuring adequate statistical power.

Selection of schools and participants

A list of all registered secondary schools in Ibadan North local government area and Igbo-Ora was obtained from the Oyo State Ministry of Education. Using this list as the sampling frame, schools were assigned serial numbers, and a simple random sampling technique was employed. Random numbers were generated using Microsoft Excel to select six schools in Igbo-Ora (rural) and 10 schools in Ibadan (urban). In Igbo-Ora, this process yielded four public schools and two private schools. In Ibadan, six public and four private schools were selected. This method ensured that each school had an equal probability of being included in the study.

Data collection instruments

A self-administered paper questionnaire was used to obtain demographic and socioeconomic data, in addition to measuring self-esteem among the participants. The questionnaire collected information on variables such as parental education, parental occupation, gender, religion, ethnicity, and academic level. Parental occupation and education were used to classify participants into socioeconomic groups following the Oyedeji social stratification system.

Self-esteem was assessed using the Rosenberg Self-Esteem Scale (RSES), which is a widely validated 10-item instrument that utilizes a four-point Likert scale. Positively worded statements were scored from 0 ('strongly disagree'), to 3 ('strongly agree'), while negatively worded statements were reverse-scored. The cumulative RSES score ranged from 0 to 30, with higher scores indicating higher levels of self-esteem. In response to the reviewers' concerns regarding the loss of explanatory power in the previous analysis, self-esteem was analyzed both as a continuous variable and as a categorical variable in order to retain statistical information. The reliability of the RSES in this study, as measured by Cronbach's alpha, was determined to be 0.89, which is consistent with findings from previous studies conducted in diverse populations, including those by Maluka and Grieve[20] and Oyedeji[21].

Data analysis

The collected data were analyzed using descriptive and inferential statistical methods to examine self-esteem levels among adolescents and identify factors associated with variations in self-esteem scores. All statistical analyses were conducted using the Statistical Package for the Social Sciences v25 (IBM Corp; https://www.ibm.com/products/spss-statistics [https://www.ibm.com/products/spss-statistics]), and statistical significance was set at a *p*-value of less than 0.05.

Descriptive statistics were used to summarize the sociodemographic characteristics of the study participants. Frequencies and percentages were computed for categorical variables, while means and standard deviations were calculated for continuous variables. The distribution of self-esteem scores was examined using histograms and normality tests to determine the appropriateness of parametric or non-parametric statistical methods. To compare mean self-esteem scores between urban (Ibadan) and rural (Igbo-Ora) adolescents, independent *t*-tests were performed. This analysis provided insights into whether significant differences existed in self-esteem levels based on geographical setting. Additionally, χ^2 tests were used to compare the prevalence of low self-esteem across different demographic subgroups.

To assess the factors associated with self-esteem, both a multivariate linear regression model and a logistic regression model were employed. The linear regression model was used to examine predictors of self-esteem when treated as a continuous variable. This approach ensured that no statistical power was lost due to arbitrary categorization of self-esteem scores. The independent variables included sex, study area (urban v rural), class level, and ethnicity. The results of this model were expressed in terms of adjusted beta coefficients with corresponding 95% confidence intervals, where negative coefficients indicated lower self-esteem scores.

The logistic regression model was used to analyze self-esteem as a dichotomous outcome variable, distinguishing between low and high self-esteem categories. This model incorporated the same independent variables as the linear regression analysis and presented the results as adjusted odds ratios with their respective 95% confidence intervals. The inclusion of both regression approaches allowed for a more comprehensive understanding of how demographic and contextual factors influenced self-esteem levels.

Given that participants were clustered within schools, hierarchical linear modelling was considered to account for potential intra-cluster correlation. However, preliminary variance component analysis suggested that the clustering effect within schools was not statistically significant. Based on this finding, standard regression techniques were deemed appropriate for analysis.

All regression models were adjusted for potential confounders to improve the accuracy of the estimates. The model fit for the linear regression was evaluated using R^2 values, while the logistic regression model was assessed using goodness-of-fit tests. The results of both models were presented in tabular format to provide a clear and detailed overview of the predictors of self-esteem among adolescents.

Ethics approval

Ethics approval for the study was obtained from the Health Research Ethics Committee of the institution. Written informed consent was obtained from parents or legal guardians of all participants aged less than 18 years. In addition, written assent was obtained from each adolescent participant aged 10–17 years, after providing age-appropriate information about the study. For participants who were 18 years or older, written informed consent was obtained directly. Participation was voluntary, and all responses were anonymized to maintain confidentiality.

Results

Demographic characteristics of participants

The study sample consisted of 1638 secondary school adolescents, with 1181 participants from Ibadan (urban), representing the urban setting; and 457 participants from Igbo-Ora (rural), representing the rural setting. The mean age of the participants was 15.2 years (standard deviation (SD)=1.8), with a range of 10–19 years. A

slightly higher proportion of participants were female, representing 59.7% of the total sample. However, the gender distribution was similar across both locations, with females constituting 60.0% of the sample in Ibadan and 58.9% in Igbo-Ora. The other sociodemographic characteristics of the study participants are as shown in < href="#table1">Table 1.

The distribution of school types differed significantly between urban and rural settings. In Ibadan, 35.7% of students attended private schools, whereas in Igbo-Ora only 0.2% of the students attended private schools, with the vast majority (99.8%) enrolled in public schools. Ethnicity was predominantly Yoruba across both locations, although the percentage of Yoruba participants was significantly higher in Igbo-Ora (97.6%) compared to Ibadan (84.7%). In terms of religious affiliation, Christianity was more common in Ibadan (61.1%), whereas Islam was more prevalent in Igbo-Ora (58.9%). Parental marital status also differed slightly between the two locations, with a higher proportion of married parents in Ibadan (86.9%) compared to Igbo-Ora (81.2%). Additionally, social class disparities were evident, with 17.9% of adolescents in Ibadan belonging to the high socioeconomic class, compared to only 3.1% in Igbo-Ora.

Table 1: Demographic characteristics of study participants by study area

Variable	Characteristic	Total (*N*=1638)		Ibadan (*N*=1181)		Igbo-Ora (*N*=457)		*p*-value
		n	%	*n*	%	*n*	%	
Gender	Female	978	59.7	709	60.0	269	58.9	0.665
	Male	660	40.3	472	40.0	188	41.1	
School type	Private	422	25.8	421	35.7	1	0.2	<0.001***
	Public	1216	74.2	760	64.3	456	99.8	
Ethnicity	Yoruba	1446	88.3	1000	84.7	446	97.6	<0.001***
	Non-Yoruba	192	11.7	181	15.3	11	2.4	
Religion	Christianity	909	55.5	721	61.1	188	41.1	<0.001***
	Islam	729	44.5	460	38.9	269	58.9	
Marital status of parents	Married	1397	85.3	1026	86.9	371	81.2	0.004**
	Not married / Separated	241	14.7	155	13.1	86	18.8	
Living with parents	No	281	17.2	226	19.14	55	12.04	0.001**
	Yes	1357	82.8	955	80.86	402	87.96	
Social class	High	225	13.7	211	17.9	14	3.1	<0.001***
	Middle	1085	66.3	777	65.8	308	67.4	
	Low	328	20.0	193	16.3	135	29.5	

*p<0.05, **p<0.01, ***p<0.001

Self-esteem levels among urban and rural adolescents

The distribution of self-esteem scores of participants is as shown in Figure 1. The mean self-esteem score among all participants was 13.56 (SD=3.94), with scores ranging from 3 to 27. The median self-esteem score was 14, and the interquartile range (IQR) was between 11 and 17. Self-esteem scores were significantly higher among urban adolescents compared to their rural counterparts. The mean self-esteem score for adolescents in Ibadan was 14.2 (SD=3.7), whereas the mean score in Igbo-Ora was 12.1 (SD=4.1). An independent *t*-test confirmed that this difference was statistically significant, with a *t*-statistic of 6.08 and a *p*-value less than 0.0001.

The classification of self-esteem levels into 'high' and 'low' groups was retained for comparative purposes while also incorporating continuous self-esteem scores in the analysis. In the urban setting, 4.7% of females and 7.8% of males were categorized as having low self-esteem, whereas in the rural setting the prevalence of low self-esteem was 8.2% among females and 11.2% among males.

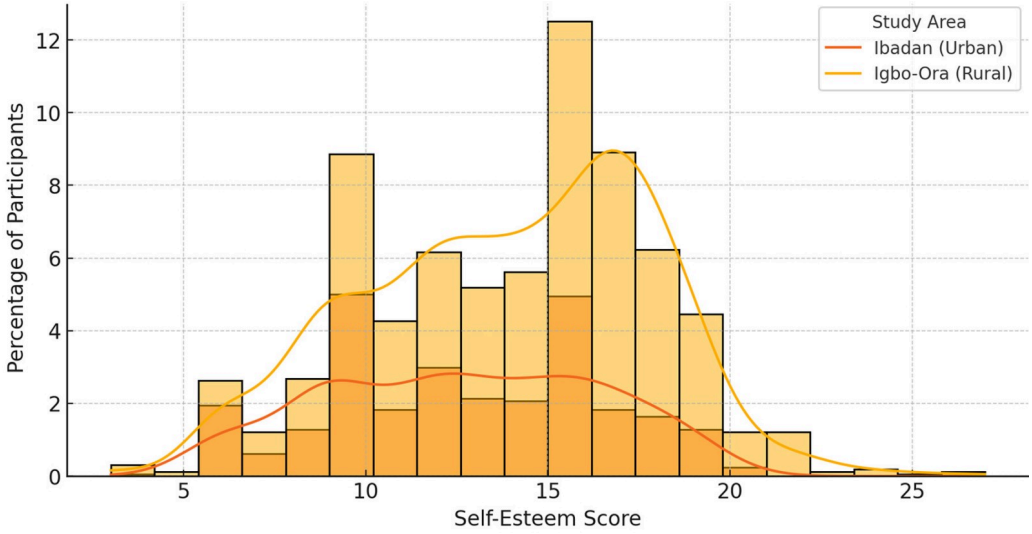

Figure 1: Distribution of participants' scores on Rosenberg Self-Esteem Scale.

Factors associated with low self-esteem

The association between demographic characteristics and low self-esteem was examined using a bivariate approach (Table 2). In the urban setting, attending a public school was significantly associated with low self-esteem. Adolescents attending public schools had a higher likelihood of reporting low self-esteem (OR=2.24, 95% confidence interval (CI): 1.52–3.31, $p<0.001$) compared to their peers in private schools. Religious affiliation was also a significant predictor, with adolescents identifying as Muslim having higher odds of low self-esteem (OR=2.10, 95%CI: 1.41–3.12, $p<0.001$) compared to their Christian counterparts. Additionally, female adolescents in urban settings exhibited a higher likelihood of reporting low self-esteem (OR=1.99, 95%CI: 1.35–2.93, $p<0.001$).

In the rural setting, no single predictor reached statistical significance, indicating that self-esteem variability among rural adolescents was influenced by a combination of multiple factors rather than any single determinant. However, the data suggested a general trend wherein adolescents from lower socioeconomic backgrounds and those in higher academic classes (grades 10–12) tended to have lower self-esteem levels.

Table 2: Factors associated with self-esteem in Ibadan and Igbo-Ora

Variable	Characteristic	Self-esteem in Ibadan (urban)					Self-esteem in Igbo-Ora (rural)				
		Low		Not low		*p*-value	Low		Not low		*p*-value
		n	%	*n*	%		*n*	%	*n*	%	
Gender	Female	62	8.7	647	91.3	0.195	35	13.0	234	87.0	0.464
	Male	52	11.0	420	89.0		29	15.4	159	84.6	
School type	Private	61	14.5	360	85.5	<0.001***	0	0.0	1	100.0	0.686
	Public	53	7.0	707	93.0		64	14.0	392	86.0	
Ethnicity	Yoruba	101	10.1	899	89.9	0.221	62	13.9	384	86.1	0.686
	Non-Yoruba	13	7.2	168	92.8		2	18.2	9	81.8	
Religion	Christianity	78	10.8	643	89.2	0.090	31	16.5	157	83.5	0.201
	Islam	36	7.8	424	92.2		33	12.3	236	87.7	
Marital status of parents	Married	107	10.4	919	89.6	0.020*	54	14.6	317	85.4	0.481
	Not married / Separated	7	4.5	148	95.5		10	11.6	76	88.4	
Living with parents	No	9	4.0	217	96.0	0.001**	9	16.4	46	83.6	0.591
	Yes	105	11.0	850	89.0		55	13.7	347	86.3	
Social class	High	26	12.3	185	87.7	0.165	1	7.1	13	92.9	0.272
	Middle	75	9.7	702	90.3		39	12.7	269	87.3	
	Low	13	6.7				24	17.8	111	82.2	
Academic class	Junior	23	5.8	371	94.2	0.002**	10	8.3	111	91.7	0.034*
	Senior	91	11.6	696	88.4		54	16.1	282	83.9	
Age group (years)	10–13	28	8.2	313	91.8	0.309	3	5.9	48	94.1	0.115
	14–15	56	11.2	446	88.8		15	12.2	108	87.8	
	16–19	30	8.9	308	91.1		46	16.3	237	83.7	

*$p<0.05$, **$p<0.01$, ***$p<0.001$

Comparison of self-esteem trends by gender

An analysis of self-esteem levels by gender revealed contrasting trends between urban and rural adolescents. In Ibadan, females demonstrated a lower prevalence of low self-esteem compared to males, with 4.7% of females classified as having low self-esteem versus 7.8% of males. The trend was reversed in Igbo-Ora, where a higher proportion of females (8.2%) had low self-esteem compared to males (11.2%). This finding aligns with previous research suggesting that gender differences in self-esteem may vary based on contextual and environmental factors. Urban females, despite facing societal pressures, may benefit from greater access to social networks and extracurricular opportunities that help bolster their self-esteem. On the other hand, rural females may experience additional challenges related to cultural expectations and limited educational resources, which could contribute to lower self-esteem levels.

Predictors of self-esteem score

A hierarchical linear model was fitted to examine the predictors of self-esteem while accounting for clustering effects within schools (Table 3). The model included individual-level variables such as age, gender, parental education, and school-level variables including school name as a random intercept.

The analysis was conducted using 1580 observations across 14 schools, with a mean group size of 112.9 students per school. The model was estimated using restricted maximum likelihood estimate and demonstrated a log-likelihood of –4321.67. The intraclass correlation coefficient indicated that school-level variance accounted for a portion of the variability in self-esteem scores, justifying the use of a multilevel approach.

Among the fixed effects, the intercept was statistically significant (β=13.282, standard error (SE)=0.896, $p<0.001$). Gender was not a significant predictor of self-esteem (β=–0.097, SE=0.192, $p=0.612$). Maternal and paternal education levels showed no consistent association with self-esteem, except for individuals whose fathers had no formal education (β=1.178, SE=0.511, $p=0.021$), who exhibited higher self-esteem scores compared to those with university-educated fathers. Age was not significantly associated with self-esteem (β=–0.022, SE=0.056, $p=0.691$).

Regarding random effects, the variance estimate for school-level differences in self-esteem was 1.186 (SE=0.150), suggesting modest but meaningful between-school variation. The model confirmed that individual and school-level factors contribute to self-esteem differences among adolescents.

Table 3: Fixed-effects estimates from the hierarchical linear model predicting self-esteem score

Predictor	Characteristic	Coefficient	SE	*p*-value	95%CI
Intercept		13.28	0.90	0.000***	11.527–15.038
Male (compared to female)		–0.10	0.19	0.612	–0.474–0.279
Mother's education (ref: no formal education)	Primary 6	0.18	0.30	0.550	–0.415–0.779
	Secondary	0.11	0.27	0.684	–0.414–0.631
	Post-secondary	0.62	0.65	0.342	–0.658–1.899
Father's education (ref: university degree or higher)	Post-secondary certficate (non-university)	–0.03	0.33	0.931	–0.666–0.610
	Secondary school	0.23	0.28	0.414	–0.315–0.764
	Primary 6	0.47	0.46	0.303	–0.425–1.365
	No formal education	1.18	0.51	0.021*	0.176–2.180
Age		–0.02	0.06	0.691	–0.133–0.088

*$p<0.05$, **$p<0.01$, ***$p<0.001$
CI, confidence interval. SE, standard error.

Predictors of low self-esteem

A multivariate logistic regression model was fitted to examine the predictors of low self-esteem while controlling for potential confounders, including gender, socioeconomic status, school type, religious affiliation, and study area (Table 4). The model included 1580 observations, and the analysis was conducted using the maximum likelihood estimation method. The model demonstrated a pseudo R^2 value of 0.0447 and a log-likelihood of –386.28.

Several variables emerged as statistically significant predictors of low self-esteem. Place of residence was significantly associated with low self-esteem, with adolescents living in Igbo-Ora having lower odds compared to those residing in Ibadan (OR=0.95, 95%CI: 0.92–0.99, $p=0.009$). Similarly, gender was a significant predictor, with males showing slightly lower odds of low self-esteem compared to females (OR=0.97, 95%CI: 0.95–0.10, $p=0.020$).

Attending a public school was also significantly associated with increased odds of low self-esteem compared to attending a private school (OR=1.06, 95%CI: 1.01–1.10, $p=0.015$). However, religious affiliation was not significantly associated with low self-esteem. For instance, adolescents identifying as Muslim had similar odds as their Christian counterparts (OR=1.05, 95%CI: 0.99–1.05, $p=0.300$), and those identifying with traditional worship or with unavailable religious data also did not show significant associations.

Parental education, both maternal and paternal, showed no statistically significant associations with low self-esteem in this model. For example, adolescents whose mothers had post-secondary education had odds comparable to those with mothers having no formal education (OR=1.05, 95%CI: 0.96–1.14, $p=0.320$); similarly, paternal education levels did not significantly alter the odds. Finally, age was not a statistically significant predictor of low self-esteem, though the odds ratio suggested a marginal decrease in the likelihood of low self-esteem with increasing age (OR=0.99, 95%CI: 0.99–1.00, $p=0.312$).

The hierarchical logistic regression model, which accounted for clustering at the school level, confirmed these findings. The school-level variance component indicated modest variation in the likelihood of low self-esteem between schools. The model

successfully adjusted for individual- and school-level characteristics in the prediction of low self-esteem among adolescents.

Table 4: Multivariate logistic regression model for predictors of low self-esteem

Variable	Characteristic	OR	95%CI	*p*-value
Place of residence	Ibadan	1	–	–
	Igbo-Ora	0.95	0.92–0.99	0.009**
Gender	Female	1	–	–
	Male	0.97	0.95–0.10	0.020*
Type of school	Private	1	–	–
	Public	1.06	1.01–1.10	0.015*
Religion	Christianity	1	–	–
	Islam	1.05	0.99–1.05	0.300
	Traditional worship	0.77	0.58–1.03	0.075
	Not available	1.01	0.61–1.67	0.978
Mother's educational status	No formal education	1	–	–
	Primary 6	1.02	0.97–1.06	0.486
	Secondary	0.99	0.95–1.02	0.407
	Post-secondary	1.05	0.96–1.14	0.320
Father's educational status	University graduate	1	–	–
	Post-secondary certificate, not university	1.01	0.96–1.05	0.77
	Secondary school or grade II certificate	1.02	0.98–1.06	0.29
	Primary 6 certificate	1.02	0.96–1.09	0.51
	No formal education	1.06	0.99–1.12	0.08
Age (years)		0.99	0.99–1.00	0.312

*$p<0.05$, **$p<0.01$, ***$p<0.001$
CI, confidence interval. OR, odds ratio.

Discussion

This study examined self-esteem levels among secondary school adolescents in urban and rural settings of Oyo State, Nigeria, and identified key predictors of low self-esteem in these populations. The findings demonstrate significant disparities in self-esteem between urban and rural adolescents, with urban participants exhibiting higher self-esteem scores on average. These results align with existing literature suggesting that environmental factors such as access to educational resources, peer influence, and family structures contribute to self-esteem variations in adolescents[10,11].

The analysis revealed that urban adolescents had significantly higher self-esteem than their rural counterparts. This finding is consistent with previous studies indicating that urban environments offer greater access to mental health services, extracurricular activities, and social support systems that promote psychological wellbeing[12]. In contrast, rural adolescents may experience challenges such as limited access to educational opportunities, fewer social resources, and economic hardships, which could negatively impact their self-esteem[13,14]. However, previous research also suggests that strong community ties in rural settings can serve as protective factors for self-esteem. The findings from this study indicate that, while these social bonds exist, they may not fully compensate for the structural limitations that rural adolescents face[15].

The study also examined gender differences in self-esteem. Contrary to some prior research suggesting that females generally have lower self-esteem than males, this study found that urban females had a lower prevalence of low self-esteem compared to their male counterparts, whereas in the rural setting females were more likely to have lower self-esteem than males. This pattern suggests that gender differences in self-esteem may be context-dependent, influenced by factors such as societal expectations, educational access, and support systems[16,17]. Urban females may benefit from stronger social networks and a wider range of academic and extracurricular opportunities, while rural females may experience cultural and economic constraints that contribute to lower self-esteem. These findings highlight the importance of considering gender in self-esteem interventions and suggest that targeted support may be needed for rural female adolescents.

The regression analysis identified several key predictors of self-esteem. In urban settings, attending a public school was associated with higher odds of low self-esteem compared to attending a private school. This may reflect differences in the quality of education, availability of extracurricular programs, and in teacher–student interactions between public and private schools[18]. Similarly, adherence to the Islamic faith was found to be a predictor of low self-esteem in urban areas. While the underlying reasons for this association are unclear, potential explanations include differences in cultural norms, religious expectations, and access to psychological support within different religious communities[19,22]. Further research is needed to explore these dynamics in greater depth.

In contrast to the urban setting, no statistically significant predictors of low self-esteem were identified in the rural population. This finding suggests that self-esteem variability in rural adolescents is influenced by a combination of multiple factors rather than by any single determinant. It is possible that economic hardships, educational limitations, and social structures collectively contribute to self-esteem levels in rural adolescents, making it

difficult to isolate specific predictors[23]. Future studies should consider using qualitative methods to explore the lived experiences of rural adolescents and identify factors that influence their self-esteem.

The decision to analyze self-esteem as both a continuous and categorical variable addressed a key concern raised by the reviewers. The RSES provides a nuanced measure of self-esteem, and dichotomizing it into 'high' and 'low' categories may result in a loss of explanatory power. By presenting both types of analysis, this study ensures a more comprehensive interpretation of self-esteem trends among adolescents in Oyo State. Additionally, the use of hierarchical linear modelling accounted for the clustering effect within schools, strengthening the validity of the results[24,25].

While this study provides valuable insights into adolescent self-esteem, certain limitations must be acknowledged. The cross-sectional design prevents causal inferences, meaning that the observed associations cannot be interpreted as direct cause-and-effect relationships. Additionally, self-reported data may be subject to social desirability bias, with participants potentially modifying their responses to align with perceived societal expectations[26,27]. Furthermore, while the study controlled for key demographic factors, other potential influences on self-esteem – such as peer relationships, parental involvement, and mental health conditions – were not assessed. Future research should incorporate these variables to provide a more comprehensive understanding of self-esteem determinants[28].

Despite these limitations, the findings of this study have important implications for public health interventions and educational policies. Efforts to enhance self-esteem among adolescents should be tailored to the specific needs of urban and rural populations. In urban areas, improving the quality of public school education and promoting inclusive psychological support within religious communities may help mitigate self-esteem disparities[29]. In rural areas, expanding access to educational resources, fostering mentorship programs, and strengthening community-based support systems could enhance adolescent self-esteem.

Additionally, gender-sensitive interventions should be developed to address the unique challenges faced by male and female adolescents in different settings[30].

The broader societal implications of these findings suggest that addressing self-esteem disparities among adolescents requires a multi-sectoral approach. Policymakers should consider integrating mental health education into school curricula to enhance awareness of self-esteem and its impact on adolescent development. Schools should also implement peer support programs that encourage students to discuss self-esteem-related challenges openly. Community-based organizations could play a crucial role in offering mentorship and leadership training to help adolescents build self-confidence and resilience[31].

Furthermore, it is essential to conduct longitudinal studies to track self-esteem changes over time and assess how different life events impact adolescent self-worth. Future research should explore how digital engagement, social media exposure, and evolving societal norms influence adolescent self-esteem in both urban and rural settings[32,33]. Addressing these knowledge gaps will contribute to a more comprehensive understanding of adolescent self-esteem and inform the development of targeted interventions.

Conclusion

This study highlights the complex interplay of demographic, social, and educational factors in shaping adolescent self-esteem. By identifying key differences and predictors of low self-esteem in urban and rural contexts, these findings contribute to a deeper understanding of adolescent psychological wellbeing in Nigeria. Future research should build on these insights to develop targeted interventions that promote self-esteem and mental health among adolescents across diverse settings[34,35].

Funding

No funding was received for this research.

Conflicts of interest

The authors declare no conflicts of interest.

References

1 Gasser-Haas O, Sticca F, Wustmann Seiler C. The longitudinal role of early family risks and early social-emotional problems for friendship quality in preadolescence - A regression model. *PloS ONE* 2021; **16(7):** e0253888. DOI link, PMid:34197542

2 Rosenberg M, Schooler C, Schoenbach C, Rosenberg F. Global self-esteem and specific self-esteem: Different concepts, different outcomes. *American Sociological Review* 1995; 141-156. DOI link

3 National Academies of Sciences, Engineering, and Medicine. *Adolescent Development. The promise of adolescence: realizing opportunity for all youth.* Washington, DC: National Academies Press, 2019.

4 Fekry CM, Mahfouz EM, Kamal NN, Rahman A-E, Ahmed T, Hassan EE. Contribution of low level self-esteem and self-efficacy in adverse mental outcome among secondary school adolescents in Minia city. *Minia Journal of Medical Research* 2023; **34(1):** 15-24. DOI link

5 Nguyen DT, Wright EP. Low self-esteem and its association with anxiety, depression, and suicidal ideation in Vietnamese secondary school students: a cross-sectional study. *Frontiers in Psychiatry* 2019; **10:** 438641. DOI link, PMid:31611825

6 Latief NSA, Retnowati E (Eds). Loneliness and self esteem as predictor of internet addiction in adolescents. *Proceedings of the 3rd International Conference on Current Issues in Education (ICCIE 2018).* 2019; **June.** DOI link

7 Liu Q, Jiang M, Li S, Yang Y. Social support, resilience, and self-esteem protect against common mental health problems in early adolescence: A nonrecursive analysis from a two-year longitudinal study. *Medicine* 2021; **100(4):** e24334. DOI link, PMid:33530225

8 Park J, Kim Y-H, Park S-J, Suh S, Lee H-J. The relationship between self-esteem and overall health behaviors in Korean adolescents. *Health Psychology and Behavioral Medicine* 2016; **4(1):** 175-185. DOI link

9 Yun EK, Hanna L, Lee JU, Park JH, Noh YM, Song YG, et al. Longitudinal effects of body mass index and self-esteem on adjustment from early to late adolescence: A latent growth model. *Journal of Nursing Research* 2019; **27(1):** e2. DOI link, PMid:29877910

10 Folayan MO, Oginni O, Arowolo O, El Tantawi M. Association between adverse childhood experiences, bullying, self-esteem, resilience, social support, caries and oral hygiene in children and adolescents in sub-urban Nigeria. *BMC Oral Health* 2020; **20:** 1. DOI link, PMid:31892323

11 Ying M, Wang S, Bai C, Li Y. Rural-urban differences in health outcomes, healthcare use, and expenditures among older adults under universal health insurance in China. *PloS ONE* 2020; **15(10):** e0240194. DOI link, PMid:33044992

12 Mustapha M, Odedıran D. Influence of parental factors on self-esteem of adolescents from separated homes in Nigeria. *Erzincan Üniversitesi Eğitim Fakültesi Dergisi* 2020; **22(3):** 653-667. DOI link

13 Agubosi LA. Predisposing factors to drug abuse among in-school adolescents in Ilorin, Kwara State, Nigeria. *Canadian Journal of Family and Youth/Le Journal Canadien de Famille et de la Jeunesse* 2022; **14(1):** 180-191. DOI link

14 Mustapha MLA, Odediran D. Impact of parental separation on the self-esteem of in-school adolescents in Nigeria. *International Journal of Instruction* 2019; **12(1):** 1281-1298. DOI link

15 Kaur N, Jiwan T, Pooni PA. Body image perception, self esteem and eating behaviour among adolescents. *Body Image* 2014; 1.

16 Fiossi-Kpadonou E. Self-esteem, personal characteristics and school performance. *International Journal of Contemporary Research and Review* 2017; **25:** 2-5.

17 Ahmad R, Imran H, Khanam SJ, Riaz Z. Gender differences in domain specific self-esteem of adolescents. *Asian Journal of Social Sciences & Humanities* 2013; **2(2):** 432-440.

18 Chen X, Ma R. Adolescents' self-esteem: the influence factors and solutions. *Journal of Education, Humanities and Social Sciences* 2023; **8:** 1562-1566. DOI link

19 Ukkali SB, Kulkarni N, Thobbi A, Siddiqua A, Reddy S. Comparative study of attitude of adolescents studying in junior colleges of rural and urban areas of Vijayapura towards social aspects of life. *Journal of Evolution of Medical and Dental Sciences* 2021; **10(18):** 1280-1286. DOI link

20 Maluka CS, Grieve K. Determining the suitability of the Satisfaction With Life and the Rosenberg Self-esteem scales in a cross-cultural setting. *New Voices in Psychology* 2008; **4(1):** 41-50.

21 Oyedeji G. Socio-economic and cultural background of hospitalized children in Ilesa. *Niger Journal of Paediatrics* 1985; **12:** 111-117.

22 Patel V, Flisher AJ, Hetrick S, McGorry P. Mental health of young people: a global public-health challenge. *The Lancet* 2007; **369(9569):** 1302-1313. DOI link, PMid:17434406

23 Santrock JW. *Adolescence.* 16th edn. New York: McGraw Hill, 2021.

24 Eccles JS, Roeser RW. Schools as developmental contexts during adolescence. *Journal of Research on Adolescence* 2011; **21(1):** 225-241. DOI link

25 Steinberg L, Morris AS. Adolescent development. *Annual Review of Psychology* 2001; **52(1):** 83-110. DOI link, PMid:11148300

26 Larson RW. Toward a psychology of positive youth development. *American Psychologist* 2000; **55(1):** 170. DOI link, PMid:11392861

27 Valkenburg PM, Peter J. Social consequences of the Internet for adolescents: A decade of research. *Current Directions in Psychological Science* 2009; **18(1):** 1-5. DOI link

28 Twenge JM, Campbell WK. Media use is linked to lower psychological well-being: Evidence from three datasets. *Psychiatric Quarterly* 2019; **90:** 311-331. DOI link, PMid:30859387

29 Goodman E, Slap GB, Huang B. The public health impact of socioeconomic status on adolescent depression and obesity. *American Journal of Public Health* 2003; **93(11):** 1844-1850. DOI link, PMid:14600051

30 Harter S. *The construction of the self: Developmental and sociocultural foundations.* Guilford Publications, 2015.

31 Furman W, Buhrmester D. Age and sex differences in perceptions of networks of personal relationships. *Child Development* 1992; **63(1):** 103-115. DOI link, PMid:1551320

32 Rideout V. *The common sense census: Media use by kids age zero to eight in America, A Common Sense Media Research Study, 2013, 2017.* Inter-university Consortium for Political and Social Research (distributor), 2021. DOI link

33 Nesi J, Prinstein MJ. Using social media for social comparison and feedback-seeking: Gender and popularity moderate associations with depressive symptoms. *Journal of Abnormal Child Psychology* 2015; **43:** 1427-1438. DOI link, PMid:25899879

34 Baumeister RF, Campbell JD, Krueger JI, Vohs KD. Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? *Psychological Science in the Public Interest* 2003; **4(1):** 1-44. DOI link, PMid:26151640

35 Masten AS, Reed M-GJ. Resilience in development. In: CR Snyder, SJ Lopez (Eds). *Handbook of positive psychology.* 2002; 74-88. DOI link