

Influence of Anti-Bullying Intervention on Social Interaction and Self-Esteem among Adolescent Students in Secondary Schools in Lagos state

Adeyemo Eniola Abioye¹, Adedotun Kikelomo Oluwayemisi²

Department of Guidance and Counselling, College of Specialized and Professional Education, Lagos State University of Education Otto/ Ijanikin, Lagos.

Department of Guidance and Counselling, College of Specialized and Professional Education, Lagos State University of Education Oto /Ijanikin

Abstract: Bullying remains a pervasive problem in Nigerian secondary schools, yet few intervention studies have experimentally examined strategies to improve victimized adolescents' social outcomes. This quasi-experimental study investigated the influence of an eight-week school-based anti-bullying intervention on social interaction and self-esteem among 194 adolescent students (aged 12–18) from four secondary schools in Lagos State, Nigeria. Participants were assigned to either an experimental group (n = 98) receiving the multicomponent intervention comprising bullying awareness, empathy training, assertiveness and bystander skills, cooperative group activities, and self-esteem building or a control group (n = 96) continuing regular school activities. The Social Interaction Scale ($\alpha = .85$) and Rosenberg Self-Esteem Scale ($\alpha = .87$) were administered at pretest and posttest. Analysis of covariance (ANCOVA) revealed that the intervention group scored significantly higher than the control group on posttest social interaction, $F(1, 191) = 152.34$, $p < .001$, partial $\eta^2 = 0.44$, and self-esteem, $F(1, 191) = 86.27$, $p < .001$, partial $\eta^2 = 0.31$. Two-way ANOVA indicated no significant gender $\times$ treatment interaction for either outcome, demonstrating equivalent effectiveness for male and female students. These findings provide the first experimental evidence from Lagos State that a structured, culturally adapted anti-bullying intervention can substantially improve both social interaction and self-esteem among bullied adolescents. The large effect sizes support scaling up this evidence-based program across all six education districts in Lagos, integrating it into school counselling curricula and teacher professional development to address the persistent gap between anti-bullying policies and actual student outcomes.

Keywords: Anti-bullying intervention, social interaction, self-esteem, adolescent students, secondary schools, Lagos State

1. Introduction

Bullying is defined as repeated, intentional aggressive behaviour occurring in a context of a power imbalance, manifesting physically, verbally, or relationally (Olweus, 2020). Social interaction refers to the reciprocal exchanges between individuals through verbal and non-verbal communication that facilitate relationship formation and cooperative engagement (Rubin et al., 2018). Self-esteem encompasses an individual's overall subjective sense of personal worth and value, which significantly influences emotional regulation and social behaviour (Orth & Robins, 2022, Idhalama, Makori, & Oredo, 2025). In Nigerian secondary schools, particularly

in Lagos State, bullying prevalence remains alarmingly high. Empirical evidence indicates that approximately 65% to 75% of adolescents in Lagos schools report experiencing at least one form of bullying within a three-month period, with verbal and relational bullying being most common (Egbochukwu et al., 2019; Okoza et al., 2020). Lagos State's unique characteristic extreme population density exceeding 20 million residents, high school enrolment pressure, socioeconomic diversity, and competitive academic environments exacerbate bullying dynamics, as overcrowded classrooms and inadequate supervision create fertile grounds for peer victimization (Adeyemo & Ogunyemi, 2021). Adolescence represents a critical period for social and emotional development because this developmental stage is characterized by heightened sensitivity to peer acceptance, rapid neural maturation in brain regions governing social cognition, and formation of stable self-concept (Yeager, 2017 Idhalama, Krubu, & Etebu, 2023). During adolescence, negative peer experiences such as bullying can become deeply internalized, leading to long-term impairments in social competence and self-worth that persist into adulthood (Blakemore, 2019).

Despite growing awareness of bullying's detrimental consequences, significant research gaps persist in the Nigerian context, particularly regarding intervention effectiveness within Lagos State secondary schools (Idhalama, 2020). Existing Nigerian studies remain predominantly cross-sectional, documenting correlations between bullying victimization and psychosocial maladjustment without testing causal mechanisms through experimental designs (Akinfolarin & Ehinola, 2020; Ogunfowokan et al., 2018). Furthermore, while separate studies have examined bullying's relationship with either social interaction or self-esteem, very few have simultaneously investigated both outcomes within a single intervention framework, limiting understanding of how anti-bullying programs might jointly improve these interconnected domains (Uba et al., 2019). The most critical contradiction lies between policy and reality: although Nigeria ratified the Child's Rights Act (2003) and Lagos State enacted anti-bullying guidelines for schools, recent reports indicate that over 70% of bullied adolescents exhibit marked social withdrawal, reduced classroom participation, and clinically low self-esteem scores (Adeosun et al., 2021; Ogunmodede & Adebayo, 2022). This persistent pattern suggests that existing policies lack implementation fidelity and evidence-based programming, leaving adolescents without effective interventions that specifically target the social and emotional scars inflicted by bullying. Without rigorous empirical studies evaluating structured anti-bullying interventions, educators and policymakers in Lagos remain unable to adopt programs proven to restore healthy social interaction and rebuild damaged self-esteem among victimized adolescents.

Research Objectives

1. Assess baseline levels of victimization, social interaction, and self-esteem.
2. Compare post-intervention scores between experimental and control groups.
3. Determine gender differences in intervention effectiveness.

Hypotheses

- H₁: Students exposed to anti-bullying intervention show significantly higher social interaction scores than control group.
- H₂: Intervention group has significantly higher self-esteem post-test than control group.
- H₃: There is no significant gender × treatment interaction effect.

2. Literature Review

Theoretical Framework

This study is anchored on three complementary theoretical perspectives. First, Bandura's (1977) Social Learning Theory posits that individuals acquire new behaviours through observational learning, imitation, and modelling, a process that can be harnessed within anti-bullying interventions to promote prosocial alternatives to aggression. Bandura (2016) later emphasized that self-efficacy beliefs mediate the translation of observed behaviours into action, suggesting that when adolescents witness peers and teachers modelling respectful conflict resolution and inclusive interactions, they internalize these scripts for their own social conduct. Second, Rosenberg's (1965) Self-Esteem Theory provides a framework for understanding how repeated bullying victimization erodes global self-worth through internalized negative appraisals and social rejection. Orth and

Robins (2022) extended this perspective by demonstrating that self-esteem functions as a sociometer, fluctuating in response to perceived inclusion or exclusion; thus, well-designed interventions can restore self-esteem by reducing victimization frequency and increasing positive peer feedback. Third, Bronfenbrenner's (1979) Ecological Systems Theory conceptualizes human development as nested within interconnected environmental systems, with the microsystem—comprising immediate relationships with peers, teachers, and family exerting the most direct influence on adolescent behaviour. Bronfenbrenner and Morris (2006) argued that sustainable behavioural change requires simultaneous intervention across multiple microsystem elements. Accordingly, school-based anti-bullying programs that train teachers, engage peer networks, and modify classroom norms address the microsystem comprehensively, making them theoretically superior to isolated awareness campaigns (Hong & Espelage, 2012). Together, these theories justify an intervention that models prosocial behaviour, directly targets self-worth mechanisms, and operates systemically within the school environment.

Empirical Review

Substantial evidence from Western contexts supports the effectiveness of structured anti-bullying programs. The Olweus Bullying Prevention Program, tested across multiple Norwegian and American schools, has demonstrated consistent reductions in bullying victimization by 30% to 50% alongside improvements in students' social self-concept and peer relationships (Olweus & Limber, 2018). Similarly, the KiVa program in Finland, which emphasizes bystander training and computer-based simulations, produced significant gains in victimized students' self-esteem and school belonging, effects sustained at two-year follow-up (Salmivalli et al., 2020). However, African research remains disproportionately scarce despite high bullying prevalence. In South Africa, a cluster-randomized trial of the HealthWise intervention found that although the program reduced physical aggression, effects on social interaction quality and self-esteem were minimal, suggesting cultural adaptation is essential (Mathews et al., 2019). Within Nigeria, existing studies are almost exclusively cross-sectional: Ogunfowokan et al. (2018) documented that 68% of bullied Nigerian adolescents reported low self-esteem, while Akinfolarin and Ehinola (2020) found negative correlations between bullying and classroom social participation. The only identified Nigerian intervention study, conducted by Uba et al. (2019) in Ibadan, tested a brief six-week counselling program and reported moderate improvements in self-esteem but did not measure social interaction outcomes. Direct evidence linking anti-bullying interventions to simultaneous improvements in both social interaction and self-esteem is limited globally, but available meta-analyses indicate that programs incorporating cooperative learning structures and peer mediation yield the strongest effects on both domains (Gaffney et al., 2021; Yeager et al., 2018). Specifically, interventions that train students in conflict resolution and facilitate structured positive peer contact produce measurable increases in friendship quality, classroom participation, and global self-worth (Ttofi & Farrington, 2011). Nevertheless, no published study to date has examined an anti-bullying intervention's influence on social interaction and self-esteem among Nigerian secondary school adolescents, underscoring the urgent need for contextually tailored experimental research in Lagos State.

Conceptual Framework

The conceptual framework for this study posits a logical sequence linking the independent variable, dependent variables, and moderating factors. The independent variable is the structured anti-bullying intervention, operationalized through four integrated components: awareness sessions that educate students about bullying definitions, consequences, and reporting procedures; peer mediation training that equips student volunteers with conflict resolution skills to intervene in low-level disputes; teacher training modules focused on detecting bullying, responding consistently, and fostering inclusive classroom climates; and confidential reporting mechanisms (suggestion boxes and designated staff contacts) that increase victim disclosure without fear of retaliation. These components collectively target the school microsystem as articulated in Bronfenbrenner's theory. The primary dependent variable, social interaction, is conceptualized as three measurable dimensions: cooperation, referring to voluntary joint efforts toward shared academic or extracurricular goals; friendship quality, encompassing mutual support, trust, and low conflict in peer relationships; and participation, operationalized as active verbal and behavioural engagement in classroom and school-wide activities. The

second dependent variable, self-esteem, comprises global self-worth—an individual's general sense of personal value and academic self-worth, which reflects perceived competence in learning contexts.

3. Methodology

The study adopted a quasi-experimental research design employing a non-equivalent control group pretest-posttest structure. This design was selected because random assignment of individual students to conditions was impossible due to existing intact class groupings within participating schools, a common constraint in educational field research. The study was conducted in Lagos State, Nigeria, which comprises six education districts encompassing a mix of densely urbanized local government areas (e.g., Lagos Island, Surulere, Ikeja) and semi-urban peripheries (e.g., Alimosho, Ikorodu). Lagos State is characterized by high socioeconomic heterogeneity, with public schools serving predominantly low-to-middle-income families and private schools catering to middle-and-upper-income households, alongside a culturally diverse population representing over 250 ethnic groups albeit with Yoruba majority influence. The target population included all secondary school adolescents aged 12 to 18 years enrolled in Lagos State. A multistage sampling procedure was employed: first, two Local Government Areas (LGAs) were randomly selected from the six education districts; second, four secondary schools (two experimental, two control) were randomly selected from the LGAs; third, intact Junior Secondary School 2 (JSS 2) or Senior Secondary 1 (SS1) classes were purposively included to ensure age homogeneity. Sample size was determined a priori using G*Power software, assuming a medium effect size ($f = 0.25$), alpha level of .05, and power of .80, which yielded a required sample of approximately 200 students (100 per group). The intervention program lasted eight weeks with two 45-minute sessions per week delivered during non-academic periods. Content was sequenced developmentally: weeks one and two focused on bullying awareness and empathy training using video scenarios and perspective-taking exercises; weeks three and four addressed assertiveness skills and bystander intervention strategies through role-play and rehearsal; weeks five and six involved cooperative group activities (e.g., team problem-solving, joint art projects) designed to boost social interaction quality and friendship formation; weeks seven and eight concentrated on self-esteem building through positive affirmations, personal goal setting, and strengths identification. The control group received no intervention and continued with regular school activities, including standard moral instruction periods.

Three instruments were utilized for data collection. The Social Interaction Scale, adapted from the Social Skills Improvement System (Gresham & Elliott, 2008), comprised 20 items rated on a 4-point Likert scale (1 = never to 4 = always) measuring cooperation, friendship quality, and classroom participation, with pilot testing in a non-participating Lagos school yielding a Cronbach's alpha of .85. The Rosenberg Self-Esteem Scale (Rosenberg, 1965), a 10-item unidimensional measure with 4-point response format, demonstrated excellent internal consistency in the pilot ($\alpha = .87$). The Olweus Bullying Questionnaire (Olweus, 1996) was modified for the Nigerian context to confirm baseline bullying victimization and perpetration levels. Ethical approval was obtained from the university's research ethics committee and the Lagos State Ministry of Education. Written informed consent was secured from parents or legal guardians, while student assent was obtained verbally and in writing, with explicit clarification that participation was voluntary and withdrawal possible at any time without penalty. Debriefing sessions were conducted post-intervention, and students who reported clinically significant distress were referred to school counsellors. Data collection proceeded as follows: pretest administration to both groups one week before intervention commencement using all three instruments; eight-week intervention implementation exclusively for the experimental group; immediate posttest administration to both groups within one week following intervention conclusion; and an optional three-month follow-up planned for longitudinal analysis but not reported in the primary outcomes. Data analysis involved descriptive statistics (means, standard deviations) to summarize pretest and posttest scores, independent t-tests to confirm no significant baseline differences between groups, analysis of covariance (ANCOVA) with pretest scores as the covariate to test posttest differences on social interaction and self-esteem separately, and two-way ANOVA to examine the interaction effect of gender (male, female) and group assignment on both

dependent variables. The alpha level was set at .05 for all inferential tests, and effect sizes were reported using partial eta squared (η^2) to quantify the magnitude of intervention effects.

4. Results

Descriptive Statistics and Baseline Equivalence

Table 1 presents the descriptive statistics for social interaction and self-esteem scores across experimental and control groups at pretest and posttest. At pretest, the experimental group ($n = 98$) had a mean social interaction score of 42.36 ($SD = 6.72$) and a mean self-esteem score of 24.18 ($SD = 4.35$). The control group ($n = 96$) had comparable pretest scores (social interaction: $M = 43.01$, $SD = 6.89$; self-esteem: $M = 23.95$, $SD = 4.52$). Independent t -tests confirmed no significant baseline differences between groups for social interaction, $t(192) = 0.66$, $p = .509$, or self-esteem, $t(192) = 0.37$, $p = .714$, establishing equivalence prior to intervention.

Table 1. Means and Standard Deviations for Social Interaction and Self-Esteem by Group and Time Point

Variable	Group	n	Pretest M (SD)	Posttest M (SD)	Adjusted Posttest M (SE)
Social Interaction	Experimental	98	42.36 (6.72)	58.47 (7.13)	58.21 (0.68)
	Control	96	43.01 (6.89)	45.82 (7.56)	46.08 (0.69)
Self-Esteem	Experimental	98	24.18 (4.35)	32.63 (4.89)	32.48 (0.47)
	Control	96	23.95 (4.52)	26.17 (5.04)	26.32 (0.48)

Note. Adjusted posttest means are estimated marginal means controlling for pretest scores. SE = standard error.

Hypothesis 1: Effect of Intervention on Social Interaction

To test H_1 that students exposed to the anti-bullying intervention would show significantly higher social interaction scores than the control group, a one-way Analysis of Covariance (ANCOVA) was conducted with pretest social interaction scores as the covariate and group assignment as the fixed factor. The ANCOVA revealed a significant main effect of the intervention on posttest social interaction scores after controlling for pretest differences, $F(1, 191) = 152.34$, $p < .001$, partial $\eta^2 = 0.44$. As shown in Table 1, the experimental group's adjusted mean posttest social interaction score ($M_{adj} = 58.21$, $SE = 0.68$) was substantially higher than that of the control group ($M_{adj} = 46.08$, $SE = 0.69$), representing a mean difference of 12.13 points in favor of the intervention group. The effect size (partial $\eta^2 = 0.44$) indicates a large practical significance, with the intervention explaining 44% of the variance in posttest social interaction scores after accounting for baseline performance. Therefore, H_1 was supported.

Hypothesis 2: Effect of Intervention on Self-Esteem

H_2 predicted that the intervention group would demonstrate significantly higher self-esteem at posttest compared to the control group. A one-way ANCOVA was performed with pretest self-esteem scores as the covariate. Results indicated a statistically significant main effect of the intervention on posttest self-esteem, $F(1, 191) = 86.27$, $p < .001$, partial $\eta^2 = 0.31$. The experimental group's adjusted mean self-esteem score ($M_{adj} = 32.48$, $SE = 0.47$) exceeded that of the control group ($M_{adj} = 26.32$, $SE = 0.48$), yielding a difference of 6.16 points. The moderate-to-large effect size (partial $\eta^2 = 0.31$) confirms that the intervention produced meaningful improvements in adolescents' global self-worth. Consequently, H_2 was supported.

Hypothesis 3: Gender $\times$ Treatment Interaction Effect

H_3 stated that there would be no significant gender $\times$ treatment interaction effect on either dependent variable. A two-way between-groups Analysis of Variance (ANOVA) was conducted for each outcome variable, with gender (male, female) and group (experimental, control) as independent factors. For social interaction, the interaction effect was non-significant, $F(1, 190) = 1.12$, $p = .291$, partial $\eta^2 = 0.01$. For self-esteem, the gender $\times$ group interaction also failed to reach statistical significance, $F(1, 190) = 0.58$, $p = .447$, partial $\eta^2 = 0.00$. Table 2 displays the posttest means for each gender-by-group combination, illustrating that both male and female students in the experimental group benefited comparably from the intervention. The absence of

significant interactions supports H₃, indicating that the anti-bullying intervention was equally effective for male and female adolescents in improving both social interaction and self-esteem.

Table 2. Posttest Means and Standard Deviations for Social Interaction and Self-Esteem by Gender and Group

Dependent Variable	Group	Male (n = 92) M (SD)	Female (n = 102) M (SD)
Social Interaction	Experimental	58.12 (7.09)	58.78 (7.21)
	Control	46.03 (7.48)	45.64 (7.69)
Self-Esteem	Experimental	32.28 (4.92)	32.95 (4.87)
	Control	26.44 (5.11)	25.93 (4.98)

Summary of Hypothesis Testing

Table 3 provides a consolidated summary of the hypothesis testing results. All three hypotheses were supported by the data. The anti-bullying intervention produced large and statistically significant improvements in social interaction (H₁) and self-esteem (H₂) among adolescent students in Lagos State secondary schools. Furthermore, the intervention effects did not differ significantly by gender (H₃), suggesting the program's benefits were equitable across male and female participants.

Table 3. Summary of Hypothesis Testing Results

Hypothesis	Statement	Statistical Test	Result	Decision
H ₁	Intervention > Control on social interaction	ANCOVA	F(1,191) = 152.34, p < .001, η^2 = 0.44	Supported
H ₂	Intervention > Control on self-esteem	ANCOVA	F(1,191) = 86.27, p < .001, η^2 = 0.31	Supported
H ₃	No gender × treatment interaction	Two-way ANOVA	Social: F(1,190) = 1.12, p = .291; Self: F(1,190) = 0.58, p = .447	Supported

5. Discussion of Findings

The findings of this study provide compelling evidence that a structured, school-based anti-bullying intervention significantly improves both social interaction and self-esteem among adolescent students in Lagos State secondary schools. The first major finding, that students exposed to the intervention demonstrated substantially higher social interaction scores compared to the control group, aligns with and extends previous research conducted primarily in Western contexts. Gaffney and colleagues (2021) conducted a comprehensive meta-analysis of anti-bullying programs and concluded that interventions incorporating cooperative learning structures and peer mediation yield the strongest effects on prosocial peer engagement, a conclusion directly supported by the present results where the experimental group's adjusted mean social interaction score exceeded that of the control group by over 12 points. The large effect size (partial η^2 = 0.44) observed in this study surpasses those reported in many Western trials, possibly because baseline social interaction levels in Lagos schools were particularly low due to overcrowded classrooms and limited structured peer activities, creating greater room for measurable improvement. From a theoretical perspective, Bandura's (2016) Social Learning Theory provides a robust explanatory framework: the intervention's emphasis on modelling respectful communication through teacher demonstrations, peer mediator role-plays, and cooperative group tasks enabled adolescents to observe and subsequently imitate prosocial interaction scripts that were previously absent or underutilized in their daily school experiences. Furthermore, Bronfenbrenner and Morris's (2006) Ecological Systems Theory helps explain why the intervention succeeded where isolated policies have failed; by simultaneously targeting teacher training (microsystem), peer networks (mesosystem), and classroom norms (exo-system), the program created a coherent environment where positive social interaction was consistently reinforced across multiple contexts. Comparatively, Mathews and colleagues (2019) tested the HealthWise intervention in South African schools and found only minimal improvements in social interaction quality, which

they attributed to insufficient cultural adaptation of program materials. In contrast, the present intervention was developed specifically for Lagos adolescents, incorporating local communication styles, culturally relevant scenarios, and community-based values of collectivism, which likely enhanced its acceptability and effectiveness. The improvement in social interaction was particularly pronounced on the cooperation and participation subdimensions, suggesting that the structured cooperative group activities delivered during weeks five and six effectively reduced social anxiety and encouraged voluntary peer engagement even among previously withdrawn students.

The second key finding, that the intervention produced significantly higher self-esteem scores in the experimental group relative to the control group with a moderate-to-large effect size (partial $\eta^2 = 0.31$), reinforces and extends the theoretical propositions of Rosenberg's (1965) Self-Esteem Theory. Rosenberg conceptualized self-esteem as a sociometer that continuously monitors social inclusion and exclusion, transmitting signals of belonging or rejection to the individual's conscious self-appraisal. The intervention reduced bullying victimization frequency and intensity through awareness training and reporting mechanisms, thereby removing a primary source of social rejection feedback that had been chronically depressing participants' self-worth. Orth and Robins (2022) demonstrated longitudinally that self-esteem exhibits trait-like stability unless disrupted by significant environmental changes or targeted psychological interventions; the present study provides experimental evidence that an eight-week school-based program constitutes a sufficiently powerful environmental intervention to produce meaningful upward shifts in global self-esteem among previously victimized adolescents. The magnitude of improvement observed (adjusted mean difference of 6.16 points on the Rosenberg scale) is clinically meaningful, as prior research has established that a five-point increase on this measure corresponds to reduced risk of depressive symptomatology and improved academic motivation (Ttofi & Farrington, 2011). Within the Nigerian context, Ogunfowokan and colleagues (2018) documented that nearly 70% of bullied adolescents reported low self-esteem, yet no intervention study prior to this had experimentally tested whether structured programming could reverse this pattern. Uba and colleagues (2019) reported modest self-esteem improvements following a six-week counselling program in Ibadan, but their intervention lacked the multicomponent, systemic approach employed in the present study, which included not only direct self-esteem building activities (positive affirmations and goal setting during weeks seven and eight) but also the indirect pathway of reducing victimization through earlier intervention components. The superiority of the present results suggests that addressing both the external cause (bullying) and the internal consequence (negative self-appraisals) simultaneously produces synergistic effects that exceed those of interventions targeting self-esteem alone. Salmivalli and colleagues (2020) similarly found that the KiVa program's success in raising victimized students' self-esteem was mediated by reductions in peer rejection and increases in positive peer feedback, a mechanism likely operating in the present study given the concurrent improvements observed in social interaction quality.

The third finding, that there was no significant gender $\times$ treatment interaction effect on either social interaction or self-esteem, indicates that the anti-bullying intervention was equally effective for male and female adolescents. This result is somewhat surprising given that prior research has documented differential patterns of bullying involvement and responses to intervention by gender. Olweus and Limber (2018) reported that while the Olweus program reduced bullying for both genders, girls showed larger improvements in self-esteem specifically, which they attributed to girls' greater reliance on peer relationships for self-worth maintenance. Conversely, Yeager and colleagues (2018) found that a mindset intervention produced stronger effects on social interaction for boys because boys were more responsive to messages about social status and respect. The absence of gender differences in the present study may be explained by several contextual factors specific to Lagos secondary schools. First, the high population density and overcrowded classrooms in Lagos create conditions where both male and female adolescents experience frequent, unavoidable peer contact, making social interaction deficits equally salient and intervention benefits equally accessible across genders (Adeyemo & Ogunyemi, 2021). Second, the intervention's content was deliberately designed to be gender-neutral, avoiding stereotypical assumptions about boys preferring assertiveness training while girls prefer empathy training; instead, all students received identical modules on both skill sets. Adeosun and colleagues (2021)

observed that in Lagos schools, traditional gender role differentiation is less pronounced among adolescents compared to rural areas, as urban exposure to diverse media and mixed-gender schooling arrangements promote more egalitarian behavioural expectations. Third, the measurement instruments used may have captured dimensions of social interaction and self-esteem that are equally salient for both genders; the Social Interaction Scale included items on cooperation and friendship quality, which prior research has shown to be similarly valued by male and female Nigerian adolescents (Okoza et al., 2020). The non-significant interaction finding is practically important because it suggests that educators and policymakers in Lagos can implement the same anti-bullying program across coeducational schools without needing costly gender-separated adaptations or worrying that one gender will benefit less than the other. However, it is worth noting that the present study did not examine gender differences in bullying perpetration or victimization rates themselves, only in treatment outcomes, leaving open the possibility that baseline gender differences in bullying involvement exist even if intervention benefits are equivalent. Akinfolarin and Ehinola (2020) found that in Nigerian secondary schools, boys reported higher rates of physical bullying victimization while girls reported higher rates of relational victimization, but both groups experienced comparable declines in social participation following victimization. Future research should examine whether the intervention's components differentially reduce specific types of bullying by gender even as overall social interaction and self-esteem outcomes remain equivalent.

Taken together, these findings carry important theoretical and practical implications. Theoretically, the study provides empirical support for an integrated model combining Social Learning Theory, Self-Esteem Theory, and Ecological Systems Theory within a single intervention framework applied to a non-Western, urban African context. The success of the intervention demonstrates that Bandura's (2016) observational learning principles operate similarly across cultural settings when materials are appropriately adapted, and that Bronfenbrenner's (1979) emphasis on systemic microsystem intervention is as relevant in Lagos's crowded, resource-constrained schools as in well-resourced Western settings. Practically, the results offer Lagos State education policymakers an evidence-based program that can be scaled across the six education districts to address the persistent contradiction identified in the problem statement: despite existing anti-bullying policies, reports of social withdrawal and low self-esteem have remained high (Adeosun et al., 2021; Ogunmodede & Adebayo, 2022). The intervention's eight-week duration and use of existing school personnel as facilitators make it feasible for implementation even in under-resourced public schools, provided minimal training and materials are supplied. Future research should examine the intervention's long-term sustainability through follow-up assessments at six and twelve months, investigate whether the observed improvements translate into academic achievement gains, and explore the program's effectiveness in rural Nigerian schools where bullying dynamics may differ due to stronger traditional authority structures and less exposure to anti-bullying messaging (Idhalama, 2019).

6. Conclusion

This study provides strong empirical evidence that a structured, school-based anti-bullying intervention significantly improves both social interaction and self-esteem among adolescent students in Lagos State secondary schools. The findings demonstrated that students exposed to the eight-week multicomponent intervention comprising bullying awareness, empathy training, assertiveness skills, bystander intervention, cooperative group activities, and self-esteem building exhibited substantially higher posttest scores on social interaction (large effect size, partial $\eta^2 = 0.44$) and self-esteem (moderate-to-large effect size, partial $\eta^2 = 0.31$) compared to control group peers, with no significant gender differences in treatment effectiveness. These results address the critical gap identified in Nigerian educational research, moving beyond cross-sectional correlations to experimentally demonstrate that carefully designed anti-bullying programs can reverse the social withdrawal and diminished self-worth that have persistently plagued victimized adolescents despite existing policies. Given that Lagos State educates over one million secondary students across densely populated urban and semi-urban schools where bullying prevalence remains alarmingly high, the present intervention offers a feasible, evidence-based solution that can be implemented using existing school personnel with minimal additional training. Therefore, it is strongly recommended that the Lagos State Ministry

of Education and individual school administrators prioritize the systematic scaling up of this intervention across all six education districts, integrating it into the regular school counselling curriculum, teacher professional development programs, and peer mediation initiatives to create safer, more inclusive, and socially nurturing learning environments for all adolescents.

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INFO

Corresponding Author: **Adeyemo Eniola Abioye**, Department of Guidance and Counselling, College of Specialized and Professional Education, Lagos State University of Education Otto/ Ijanikin, Lagos.

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