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Review Article

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Social Skills Training and Gender Differences in Conduct Disorder Symptoms Among Juveniles in a Nigerian Correctional Centre

Abraham Terfa Naibo[1], Harry Obi-Nwosu[1], Ekaette Mfon Useh[2], Iniobong Samuel George[3] and Uwemedimo Sunday Isaiah[3]

[1]*Department of Psychology Nnmadi Azikiwe University, Awka, Anmabra State.*

[2]*College of Medicine Veritas University, Abuja, Nigeria*

[3]*Department of Psychology, University of Uyo, Uyo*

[*]**Corresponding author**

Abraham Terfa Naibo, Department of Psychology Nnmadi Azikiwe University, Awka, Anmabra State.

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ABSTRACT

Conduct disorder (CD) is increasingly prevalent among juveniles in Nigerian correctional institutions, yet structured psychosocial interventions such as Social Skills Training (SST) are rarely implemented. This study examined the effectiveness of SST and the influence of gender on treatment outcomes among juveniles in a correctional center in Benin City, Edo State, Nigeria. Sixty participants diagnosed with CD (48 males, 80%; 12 females, 20%), aged 10–17 years (M = 13.5, SD = 3.5), were purposively selected and randomly assigned to an experimental or control group (n = 30 each). Using a quasi-experimental pretest–posttest design, the experimental group received eight weekly 60-minute SST sessions focusing on communication, cooperation, and conflict resolution, while the control group received standard center programming. Assessments were conducted using the Mini International Neuropsychiatric Interview–Kid Version (MINI-KID) for CD and the Social Skills Rating System (SSRS). Data were analyzed using t-tests and ANOVA. Findings revealed a significant reduction in conduct disorder symptoms in the experimental group ($F(2, 56) = 76.56$, $p < .001$, $\eta^2 = .72$). At pretest, males (M = 36.5) reported slightly higher symptoms than females (M = 34.7), but males showed greater symptom reduction (M = 18.3 vs. 13.1) with larger effect sizes (Cohen's d = 1.45 vs. 1.12). Post-hoc Bonferroni tests confirmed significantly lower symptoms in the experimental group compared to controls (MD = –25.40, SE = 4.82, 95% CI [–35.85, –14.95], $p < .001$). These results indicate that SST is effective in reducing CD symptoms among juveniles, particularly males, and support the integration of SST into correctional rehabilitation programmers to promote improved behavioral outcomes.

Keywords: Social Skills Training, Gender, Conduct Disorder, Juveniles

Introduction

Conduct disorder (CD) has emerged as a major mental health concern in childhood and adolescence, with prevalence rates varying across countries and contexts. In the United States, a study of 3,199 respondents found a lifetime prevalence of 9.5%, with higher rates in boys (12%) compared with girls (7.1%) [1]. In India, a school-based survey of 240 children reported a prevalence of 4.5%. Global incidence estimates range from 2% to 10%, and studies in both developed and developing countries have reported higher rates of up to 26%. Nigerian studies similarly document high prevalence: for example, 36% in Edo State and 56.5% among delinquents in Abeokuta Borstal Institution [2-7].

CD is defined as a persistent pattern of behavior that violates societal norms and the rights of others, typically manifesting as aggression toward people or animals, destruction of property, deceitfulness or theft, and serious rule violations. Early onset is usually associated with more severe and persistent antisocial trajectories. The disorder is frequently comorbid with attention-deficit/hyperactivity disorder, bipolar disorder, anxiety, and substance misuse, and is strongly correlated with later criminality, poor educational attainment, and impaired psychosocial functioning [8-13].

In correctional populations, prevalence rates are markedly higher than in community samples, reflecting cumulative risk exposures including trauma, family dysfunction, poverty, and community violence [14,15]. In Nigeria, juvenile delinquency has been a persistent social problem since the 1940s [16]. Yet

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custodial institutions still largely rely on punitive approaches to behavioral management, with little emphasis on evidence-based rehabilitation. This context highlights the urgent need for interventions that directly address the behavioral and psychosocial needs of incarcerated children.

One of such approach is social skills training (SST), a structured behavioral intervention grounded in Bandura's Social Learning Theory [17]. The theory emphasizes that behavior is acquired through observation, imitation, and reinforcement. Children who observe aggressive or antisocial role models, particularly in environments with inconsistent discipline, may adopt these behaviors as acceptable strategies for conflict resolution [18]. Vicarious reinforcement when peers are rewarded for negative behavior further sustains these patterns. SST operationalizes social learning principles by modelling prosocial behavior, providing opportunities for practice through role play, and reinforcing adaptive responses. In children with CD, SST specifically targets deficits in empathy, impulse control, interpretation of social cues, and conflict resolution [19,20].

Evidence supports the effectiveness of SST in reducing disruptive behavior and improving social functioning among youth with CD, including those in custodial settings. Studies have reported improvements in on-task behavior, empathy, and peer relationships, and reductions in aggression and rule violations. A meta-analysis concluded that SST is an effective skill-building programmer for offenders aged 12–21, particularly when combined with cognitive-behavioral methods. Despite such evidence internationally, there remains little research in West Africa and Nigeria assessing SST with justice-involved youth [21-25].

Gender is an important consideration in both the presentation of CD and responses to intervention. Males are more likely to present with overt aggression, property destruction, and early-onset persistent antisocial behavior, whereas females more often display covert forms such as truancy, lying, and relational aggression [26-28]. Girls frequently develop CD later in adolescence, often in association with trauma or negative peer influences [10]. Although overall prevalence is higher in boys, girls with persistent antisocial trajectories experience outcomes as severe as their male counterparts, including violence, mental health problems, and economic disadvantage [29]. Neurobiological studies suggest sex-specific correlates of CD, and treatment studies highlight greater heterogeneity among boys, while girls tend to form more severity-based subtypes [30,31]. Research on gender differences in SST response remains inconclusive, with some studies reporting higher baseline competence in girls, while others report no significant differences in treatment outcomes [32-34]. In Nigerian contexts, several intervention studies also point to mixed gender effects: social skills training combined with dialectical behavior therapy significantly reduced physical aggression among adolescent males and females in Ogun State, with no significant effect of gender on post intervention aggression scores [35]. Further, social skills training in Bullying and shyness reduction programmers in Nigeria showed effectiveness for both boys and girls, with no significant gender differences in treatment impacts [36,37].

Taken together, the evidence underscores three key issues: (1) CD is highly prevalent and disabling among juveniles, particularly in correctional populations; (2) SST is an evidence-based intervention for disruptive behavior disorders internationally but is under-studied in Nigeria; and (3) gender differences in CD presentation and treatment response remain poorly understood in custodial contexts. Based on the backdrop, this study investigates the effectiveness of social skills training in reducing conduct disorder symptoms and improving social functioning among juveniles in a correctional center in Edo State, Nigeria. A secondary aim is to examine gender differences in treatment outcomes.

Method

Research design

This study used a quasi-experimental design with two groups: one group received social skills training (SST) immediately, while the other group waited to receive it later. We compared changes in social skills between the two groups and within each group before and after the training.

Setting and participants

Participants were 60 juveniles (48 males, 80%; 12 females, 20%) aged 10–17 years drawn from a children's correctional center in Benin City, Edo State, Nigeria. The setting provided a consistent milieu for observation and programmer delivery. Age distribution was as follows: 10–12 years (n=10, 16.7%), 13–15 years (n=25, 41.7%), and 16–18 years (n=25, 41.7%); mean age = 13.5 years (SD = 3.5). Purposive sampling was used to recruit eligible juveniles who met study criteria.

Inclusion criteria. (1) Age 10–17 years; (2) met diagnostic criteria for Conduct Disorder confirmed by a qualified mental health professional in accordance with DSM-5-TR; (3) residence at the correctional center ≥6 months to ensure stability for assessment and intervention.

Exclusion criteria. Documented intellectual disability or acute psychosis at the time of enrolment.

Measures

Mini International Neuropsychiatric Interview – Kid Version (MINI-KID). The MINI-KID is a brief, structured interview designed to assess DSM/ICD psychiatric diagnoses in children and adolescents. For this study, the Conduct Disorder (CD) module was used both to screen participants and provide clinical confirmation of CD. The instrument yields a categorical outcome (presence or absence of CD) and a dimensional score reflecting the number of CD symptoms endorsed, which allows monitoring of symptom severity and change over time. Prior Nigerian studies report acceptable psychometric properties, including good-excellent test-retest reliability for CD ($\kappa = 0.861$) In a pilot with 25 juveniles at the Uyo center, Akwa Ibom State, internal consistency for the study population was good (Cronbach's $\alpha = .82$), with item-total correlations ranging 0.34–0.79. Higher scores indicate more CD symptoms, enabling both screening and tracking of symptom changes in subsequent assessments [38].

Social Skills Rating System (SSRS): The SSRS assesses prosocial behaviors across cooperation, assertion, responsibility, and self-control. For this study, a 30-item form was used, rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Sample items include "Joins group activities without being told,"

"Responds appropriately to peer pressure," and "Controls temper in conflict situations with peers." Pilot testing in 25 juveniles yielded excellent internal consistency (α = .98) and acceptable item–total correlations (0.33–0.90). Total scores range from 30 to 150, with higher scores indicating stronger social skills. For interpretation, scores ≤70 suggest low social competence, 71–110 indicate moderate social competence, and ≥111 reflect high social competence, providing a benchmark for evaluating intervention effects and monitoring change over time [39].

Procedure

Following departmental introduction, the researcher obtained ethical approval from the Edo State Ministry of Gender and Social Welfare and administrative permission from the correctional center. The matron and staff-oriented juveniles to the study, and written guardian consent (where applicable) and participant assent were obtained prior to screening. Confidentiality and the right to withdraw at any time were emphasized. Assessments were conducted individually to minimize peer influence, and a structured procedural and intervention-fidelity checklist was used at each stage to ensure ethical compliance, standardized administration of the MINI-KID and SSRS, and consistent delivery of the SST intervention, thereby enhancing replicability and accuracy.

The study proceeded in three stages. In the pretest stage, participants underwent diagnostic confirmation using the MINI-KID to verify the presence of conduct disorder (CD), and baseline social skills were assessed using the SSRS. The MINI-KID was not repeated at post-test, as the focus of the intervention was on improving social skills rather than altering diagnostic status in the short term. The SSRS provided a dimensional score, allowing measurement of changes in social competence over time.

During the treatment stage, the intervention group received weekly social skills training (SST) sessions following a standard SST protocol that targeted communication, cooperation, assertiveness, and conflict resolution. Each session lasted 60 minutes and was delivered over 8 consecutive weeks, incorporating structured activities, role plays, and group discussions to reinforce skills. The wait-list control group continued with standard center programming during this period. Finally, in the post-test stage, the SSRS was re-administered to both groups immediately after the 8-week intervention to evaluate changes in social skills. Fidelity checks were conducted throughout the intervention to ensure all components were delivered as planned, and no attrition occurred.

Data Analysis

Analyses were performed in SPSS v20 (IBM Corp.). Descriptive statistics (means, SDs, frequencies) summarized sample characteristics and baseline comparability. Primary efficacy testing compared change from pre- to post-intervention between groups. Depending on distributional checks and homogeneity of variance, between-group differences in change scores were examined using independent-samples t-tests; where indicated, ANCOVA models were planned with post-test scores as the dependent variable, group as the factor, and pretest scores as covariates to adjust for baseline differences. Statistical significance was set at $p < .05$ (two-tailed). Effect sizes (Cohen's d or partial η^2) were to be reported to aid interpretation.

Ethical Considerations

Ethical approval was granted by the Edo State Ministry of Gender and Social Welfare Issues. Institutional permission was obtained from the correctional center. Written informed consent (guardian, where applicable) and participant assent were obtained. Participation was voluntary and confidential, with no penalties for refusal or withdrawal.

Findings

A total of 60 juveniles participated in the study, drawn from a children's correctional center in Benin City, Edo State, Nigeria. The male-to-female ratio was 48:12 (80% males, 20% females). Participants were aged 10–17 years, with a mean age of 13.5 years (SD = 3.5). Age distribution was as follows: 10–12 years (n = 10, 16.7%), 13–15 years (n = 25, 41.7%), and 16–18 years (n = 25, 41.7%).

Table 1: Summary of SSRS Scores (Social Skills) Pre- and Post-Treatment for Experimental and Control Groups (N = 60)

Treatment Groups	Pretest M	Pretest SD	N	Posttest M	Pretest SD	N
Experi. Group (SST)	45.20	5.35	30	18.50	6.11	30
Control Group	44.30	5.12	30	43.90	5.30	30

Note: N indicates the total number of participants in each group; Scores represent total SSRS (Social Skills Rating System) scores, with higher scores indicating greater social skills competence.

The observation from Table 1 reveals that there is a substantial mean difference between the pre-test (M = 45.20, SD = 5.35) and post-test (M = 18.50, SD = 6.11) for the experimental group (SST), indicating a significant reduction in conduct disorder symptoms following the intervention. In contrast, the control group shows a minimal mean difference between pre-test (M = 44.30, SD = 5.12) and post-test (M = 43.90, SD = 5.30), suggesting that their symptoms did not improve significantly.

Table 2: Summary table of Tests of Between-Subjects Effects, effect sizes (Cohen's d)

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	5125.60a	3	1708.53	56.74	.001	.785
Intercept	392.80	1	392.80	13.00	.001	.187

Pre-test Measure	45.20	1	45.20	1.50	.223	.025
Treatment groups	4601.00	2	2300.50	76.56	.001	.720
Error	1415.50	56	25.29			
Total	17510.00	60				

The inspection of Table 2 shows that there is a statistically significant main effect of the treatment conditions (SST vs. control group) on conduct disorder symptoms at $F(2, 56) = 76.56$, $p < .001$. The corresponding effect size ($\eta^2 = .720$) indicates that the intervention explained 72% of the variation in the reduction of conduct disorder symptoms. This strongly supports the effectiveness of SST as an intervention for reducing conduct disorder symptoms.

Table 3: Pairwise Comparisons of SST and Control Groups

Treatment Groups	MD (I-J)	Std. Error	Sig.	95% CID
SST (Experimental) vs. Control Group	-25.40	4.82	.001	-35.85 to -14.95

Note: The mean difference is significant at the .05 level. MD = Mean Difference, CID = Confidence for Interval Difference

The post-hoc comparisons conducted using the Bonferroni test revealed that the experimental group (SST) reported significantly lower conduct disorder symptoms compared to the control group, with a mean difference of -25.40 (SE = 4.82, 95% CI = -35.85 to -14.95, $p < .001$). This indicates that SST was significantly more effective than the control condition in reducing conduct disorder symptoms.

Table 4: Summary Table of the Comparative Effectiveness of Social Skills Training on Conduct Disorder Symptoms by Gender (Pretest vs. Post-test, N = 60)

Treatment Groups	Pretest M	Posttest M	N	RSM	Effect size (Cohen's d)
Male	36.50	18.20	30	18.30	1.45
Female	34.70	21.60	30	13.10	1.12

Note: N indicates the total number of participants in each group, RSN indicates Mean Reduction in Symptom

The table above shows the comparative effectiveness of social skills training in reducing symptoms of conduct disorders among males and females in a juvenile correctional center in Benin City, Edo State. The mean pre-test scores for males and females were 36.5 and 34.7, respectively, indicating that males exhibited slightly higher levels of conduct disorder symptoms before the intervention. Post-intervention, the mean post-test scores dropped significantly for both genders, with males scoring 18.2 and females scoring 21.6. The mean reduction in symptoms was greater for males (18.3) compared to females (13.1), suggesting that social skills training had a stronger overall impact on the male participants. The effect size (Cohen's d) further highlights this difference, with males showing a larger effect size of 1.45 compared to 1.12 for females, signifying that the intervention had a greater magnitude of effect for the male participants.

Discussion

This study examined the impact of social skills training (SST) on conduct disorder symptoms among incarcerated juveniles in Edo State, Nigeria, with attention to gender differences. The findings revealed two main outcomes: (1) SST was effective in reducing conduct disorder symptoms, and (2) males exhibited greater symptom reduction than females.

The significant treatment effect aligns with a growing evidence base that structured, skills-based interventions can reduce disruptive behavior and strengthen psychosocial functioning in youth [25, 39,22]. Importantly, this study extends these findings to a West African correctional setting, where the majority of interventions remain custodial and punitive. That SST achieved robust reductions in symptoms ($\eta^2 = .72$) supports the argument that rehabilitation grounded in Social Learning Theory can be culturally transferable and clinically impactful in low- and middle-income contexts. These findings are consistent with prior Nigerian research demonstrating that social skills training, often combined with structured counselling, effectively reduces aggression, bullying tendencies, and shyness among adolescents in school and juvenile correctional settings [36,37]. Such evidence underscores the relevance of SST as a viable alternative to strictly custodial approaches in Nigeria, supporting both psychosocial adjustment and behavioral rehabilitation.

Gender differences observed in the present study warrant closer consideration. Males demonstrated larger gains from SST, consistent with [41], who found that boys benefited more from training in assertion and cooperation. This pattern may reflect the behavioral expression of conduct disorder: males typically display overt externalizing behaviors, directly targeted by SST, whereas females more often exhibit relational aggression, which standard SST modules may not sufficiently address [10]. This trend is also observed in Nigerian SST studies, where interventions reduced aggressive and maladaptive behaviors for both genders, but the magnitude of effect was often slightly greater for male participants [37]. Yet, not all research supports gender as a moderator. [42] and [43] found no gender-based differences in outcomes, raising the possibility that context,

intervention modality, and cultural norms mediate these effects. The current study therefore contributes to an emerging debate, suggesting that gender-sensitive adaptations may be necessary when implementing SST in correctional environments.

Beyond treatment efficacy, the findings have systemic implications. Conduct disorder is a known risk factor for lifelong antisocial behavior, substance misuse, and criminality [29]. Early intervention within correctional settings may disrupt this trajectory, reduce recidivism, and improve reintegration outcomes. In Nigeria, where correctional institutions are often characterized by punitive management rather than therapeutic intervention, the demonstration of an effective, structured, low-cost programmer is of particular importance [44].

Implications of the Study

The findings of this study carry several important implications. Theoretically, the results strengthen the foundations of Social Learning Theory by demonstrating that structured modelling, role-play, and reinforcement can effectively modify entrenched antisocial behaviors among juveniles in correctional environments. This supports the idea that behavior is learned and can be reshaped through guided social interactions and repeated practice of prosocial responses.

Clinically, the study provides evidence that Social Skills Training (SST) is a practical and effective intervention for managing conduct disorder within correctional settings. Its success suggests that SST can be adopted not only in custodial environments but also extended to schools, community-based programmers, and other youth rehabilitation initiatives where behavioral difficulties are common.

From a policy perspective, the findings highlight the need for a shift away from punitive correctional approaches toward rehabilitation-focused models. The demonstrated effectiveness of SST aligns with international advocacy for rights-based juvenile justice reforms, emphasizing interventions that build competencies rather than relying solely on punishment. Integrating structured psychosocial programmers into correctional systems could therefore improve behavioral outcomes and support reintegration.

Finally, the study contributes to global discourse by providing evidence from a Nigerian context, an area often underrepresented in conduct disorder intervention research. By showing that SST is effective among Nigerian juveniles, this work broadens the international evidence base, which has been dominated largely by studies from Western countries. This enhances the relevance and cultural generalizability of SST as a global intervention for conduct-related difficulties.

Recommendations

Based on the findings of this study, several recommendations are proposed for improving conduct disorder management within juvenile correctional settings. First, Social Skills Training (SST) should be formally integrated into the rehabilitation framework of correctional centers as a core therapeutic component. Its delivery should be coordinated by trained psychologists, counsellors, or allied mental health professionals to ensure fidelity and effectiveness.

Furthermore, programmer developers should consider gender-responsive adaptations to SST content. Girls often present with relational forms of aggression and emotional difficulties that differ from those of boys; therefore, including modules on empathy training, emotional regulation, and social perspective-taking would enhance the relevance of the intervention for female juveniles.

To ensure sustainability and wider reach, correctional staff and educators should receive capacity-building opportunities that equip them to deliver SST-based activities. This is particularly important in resource-limited settings where reliance on external specialists may be unrealistic. Training internal staff increases scalability and helps embed psychosocial intervention within daily routines.

Additionally, extending SST principles beyond the correctional center into family and school environments is recommended. Engaging caregivers and teachers can enhance the generalization of newly acquired skills, reduce behavioral relapse after release, and support smoother reintegration into the community.

Finally, policy stakeholders, including government agencies and non-governmental organizations, should invest in the implementation and ongoing evaluation of evidence-based rehabilitation programmers such as SST. Moving away from punitive-only approaches toward structured, skill-building interventions will strengthen juvenile justice outcomes and promote long-term behavioral change.

Limitations and Suggestions for Further Studies

Several limitations should be acknowledged when interpreting the findings of this study. The modest sample size and the use of a single correctional center limit the generalizability of the results to broader juvenile populations within Nigeria or other contexts. Additionally, the reliance on structured interviews may have introduced response bias, as participants could have underreported or exaggerated symptoms based on perceived expectations or social desirability. Another limitation is the absence of follow-up assessment, which prevents conclusions about the long-term durability of the intervention effects or whether the behavioral improvements observed were sustained after release.

In light of these limitations, future research should consider conducting larger, multi-site investigations that include juveniles from diverse socio-cultural backgrounds to strengthen external validity. Longitudinal designs incorporating follow-up assessments would help determine the sustainability of treatment gains and their influence on recidivism rates. There is also a need for the development and empirical evaluation of gender-sensitive and culturally adapted SST modules, given the potential differences in how males and females respond to intervention. Comparative studies that examine SST alongside other evidence-based approaches, such as cognitive-behavioral therapy or parent management training, may further clarify the relative efficacy of various intervention models. Finally, mixed-methods research incorporating qualitative insights from juveniles, staff, and caregivers could enhance the ecological validity of SST programmers and provide a deeper understanding of the contextual factors that influence intervention success.

Conclusion

This study provides compelling evidence that SST reduces symptoms of conduct disorder among incarcerated juveniles in Nigeria, with particularly strong effects observed in males. The findings underscore the utility of SST as a scalable, evidence-based intervention that can be integrated into correctional rehabilitation programmers. Importantly, they highlight the need for gender-sensitive adaptations to optimize effectiveness across populations. At a broader level, this research contributes to the global movement toward evidence-based, rehabilitative approaches in juvenile justice, with the potential to improve psychosocial outcomes and reduce recidivism.

Declaration of Conflicting Interest

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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