



INDIVIDUAL AND FAMILY-BASED RISK MARKERS OF ADOLESCENT GANG INVOLVEMENT AMONG SECONDARY SCHOOL STUDENTS IN LAGOS STATE, NIGERIA

Adebunmi O. Oyekolaⁱ,
Oluwabunmi K. Balogun,
Idris Olatunbosun

Department of Counselling and Human Development Studies,
University of Ibadan,
Ibadan, Nigeria

Abstract:

Gang involvement among adolescents constitutes a significant public health concern because of its association with violence, substance use, delinquency, psychological distress, and long-term social maladjustment, with implications for both school and community safety. Despite growing concern regarding youth violence in Nigeria, empirical evidence examining the individual and family-related predictors of adolescent gang involvement within urban school settings remains limited. Grounded in Urie Bronfenbrenner's ecological systems theory, this study examined the psychosocial and familial correlates of gang involvement among in-school adolescents in Lagos State, Nigeria. A cross-sectional survey design was adopted using a multistage random sampling procedure. Four hundred questionnaires were administered to adolescents selected from five secondary schools in Ajeromi-Ifelodun Local Government Area of Lagos State, of which 389 were properly completed and included in the final analysis. Participants completed validated self-report measures assessing childhood maltreatment, delinquent behaviour, drug and alcohol use, parenting styles, and exposure and attitudes toward gang-related behaviour. Data were analysed using descriptive statistics, chi-square analysis, cross-tabulation, and binary logistic regression. Findings revealed that all three individual risk markers significantly predicted gang involvement: childhood maltreatment (OR = 1.185, $p = .003$), delinquent behaviour (OR = 1.130, $p < .001$), and drug and alcohol use (OR = 1.052, $p = .010$). Delinquent behaviour demonstrated the strongest statistical contribution to gang involvement (Wald = 25.436). Among family-related variables, permissive parenting style emerged as the only significant predictor of gang involvement (OR = 1.079, $p = .004$). The findings highlight the central role of behavioural risk patterns and family dynamics in adolescents' vulnerability to gang affiliation. The study emphasizes the need for integrated school,

ⁱ Correspondence: email dradebunmioyekola@gmail.com

family, and community-based prevention strategies, including early behavioural interventions, parenting support programmes, and targeted counselling services for at-risk adolescents within urban Nigerian contexts.

Keywords: adolescent gang involvement, childhood maltreatment, delinquent behaviour, parenting styles, drug and alcohol use, Nigeria

1. Introduction

Gang involvement is a global phenomenon with widespread and significant adverse consequences for individuals, families, schools, and society as a whole. Beyond its immediate effects, gang involvement is associated with illegal activities, intimidation, violence, threats, bullying, extortion, and assault (Pacheco, 2010; Sánchez Jankowski, 2003). These challenges are particularly pronounced during adolescence, a developmental phase characterised by significant biological, psychological, and social transitions that heighten vulnerability to negative environmental influences (World Health Organization [WHO], 2017). When the challenges of this developmental period, including trauma, social marginalisation, and exposure to adverse home environments, are not adequately addressed, adolescents may turn to gangs as an alternative source of belonging, protection, and identity (Sharkey *et al.*, 2010).

The prevalence of adolescent gang involvement and violence-related behaviours represents a growing global concern. In the United Kingdom, youth gang membership has been estimated at approximately 27,000 individuals (Children's Commissioner, 2019), while gang involvement in the United States increased by approximately 40.83% between 2002 and 2012 (National Gang Center, 2020). Cross-national evidence from 30 countries further indicates that youth gang involvement ranges from 0.4% to 17% depending on sociocultural context (Gatti *et al.*, 2011). In Nigeria, concerns regarding adolescent gang involvement are similarly pronounced. Abanyam (2012) reported that gang presence in Nigerian schools doubled between 2006 and 2011, while the Nigeria Demographic and Health Survey (2013) estimated that approximately 20% of secondary school students had engaged in gang-related activities. Related forms of adolescent violence and aggression have also become increasingly prevalent within Nigerian secondary schools, with studies documenting high rates of physical aggression, bullying, and school violence (Onukwufor, 2013; Owuamanam & Makinwa, 2015). More importantly, Ajeromi Ifelodun LGA represents one of the most densely populated urban districts within metropolitan Lagos and is characterised by high residential density, socioeconomic inequality, informal settlements, youth unemployment, and elevated exposure to community-level violence and delinquent peer networks. Such environments may increase adolescents' vulnerability to gang affiliation through heightened exposure to social disorganisation, peer pressure, and weakened informal social control structures. Despite the growing empirical attention to youth gang involvement internationally, research examining the specific risk markers within the Nigerian secondary school

context remains limited. Most existing Nigerian studies focus on descriptive accounts of gang prevalence rather than the systematic investigation of predictive risk factors. Understanding which individual and family-level variables most strongly predict gang involvement is essential for developing contextually appropriate, evidence-based interventions.

This study is theoretically grounded in Bronfenbrenner's (1979) Ecological Systems Theory, which posits that human development is shaped by a nested series of environmental systems: the microsystem (immediate environments such as family and school), the mesosystem (interactions between microsystems), the exosystem (external environments that indirectly affect the individual), and the macrosystem (broader cultural and societal contexts). Applied to adolescent gang involvement, Ecological Systems Theory directs attention to how risk factors operating at multiple levels within the individual, the family, and the broader community interact to shape susceptibility. The present study specifically examines risk markers at the individual level (gender, childhood maltreatment, delinquent behaviour, and drug and alcohol use) and the familial microsystem level (family structure and parenting style), consistent with the theory's emphasis on proximal developmental environments.

2. Risk Factors of Adolescent Gang Involvement

Gender has been consistently identified in the literature as a risk marker for adolescent gang involvement (Klein & Maxson, 2006). De Wet (2016) observed that males are disproportionately targeted by and recruited into gangs, a pattern intensified by peer recognition dynamics. Campbell (1991) noted that females who join gangs are more likely to come from financially disadvantaged, violent, or fractured home environments. More recently, Curry *et al.* (2014) documented increasing female involvement in gang delinquency, and Peterson (2012) reported that females constituted approximately one-third of self-reported gang members in parts of the United States. Howell and Griffiths (2016) established that gang involvement typically peaks in early adolescence, before the age of 16.

Childhood maltreatment represents another significant individual-level risk factor. The World Health Organization (2020) defines child maltreatment as encompassing physical and emotional ill treatment, sexual abuse, neglect, and exploitation. Exposure to adverse childhood experiences diminishes the capacity for effective socialisation and places children at elevated risk for a range of negative outcomes (Felitti *et al.*, 1998). In the Nigerian context, child maltreatment remains significantly underreported, with estimates suggesting that six in ten children experience some form of maltreatment. Research by Kubik *et al.* (2019) confirmed a significant association between childhood maltreatment and youth gang involvement, with Basto Pereira *et al.* (2022) further demonstrating that adverse childhood experiences predict criminal behaviour across multiple national contexts.

Drug and alcohol use have been consistently associated with increased gang involvement. Studies indicate that gang-involved youth report significantly higher rates of substance use than their non-gang-involved peers (Petering, 2016). Hill *et al.* (2001) found that early initiation of alcohol and substance use was predictive of subsequent gang membership during adolescence. In Nigeria, the WHO has reported that approximately 22.1% of adolescents aged 12–17 use tobacco, while Atilola *et al.* (2013) found that approximately 21% of Nigerian adolescents consumed alcohol or other harmful substances.

Delinquent behaviour represents a fourth individual-level risk marker. Barnes *et al.* (2010) demonstrated in a longitudinal study that delinquent behaviour not only predicts gang joining but is further amplified by gang membership itself, suggesting a reciprocal relationship. Dielman *et al.* (1984) similarly found that general patterns of delinquency were associated with gang-related behaviours, including substance experimentation and tobacco use. In African contexts, delinquent behaviour among adolescents has been linked to structural disadvantages including poverty, malnutrition, and unemployment (World Youth Report, 2003).

Family structure has also been identified as a key familial risk marker. Kierkus and Hewitt (2009) found that children raised in two-parent biological households experienced higher levels of parental monitoring, supervision, and attachment than those in other family arrangements. McLanahan *et al.* (2013) demonstrated that children from single-parent or cohabitating families were more likely to engage in antisocial behaviours. Globally, rising rates of divorce, single parenthood, and non-traditional family arrangements have introduced new risk pathways for adolescent involvement in delinquent and gang-related behaviours (Suppiah *et al.*, 2021).

Parenting style represents the second family-level variable under investigation. Baumrind (1991) identified three primary parenting styles -authoritative, authoritarian, and permissive -each with distinct implications for adolescent development. Authoritative parenting, characterised by warmth, responsiveness, and appropriate structure, is associated with positive developmental outcomes. In contrast, authoritarian parenting (high demandingness, low warmth) and permissive parenting (high indulgence, low structure) have been linked to elevated rates of adolescent delinquency and susceptibility to gang involvement (Miller & Fagan, 2014; Okorodudu, 2010). Moitra and Mukherjee (2012) found that permissive parenting, in particular, by failing to establish clear rules and boundaries, created conditions conducive to antisocial behaviour.

Given the documented harms of gang involvement, including long-term consequences for health, employment, and family stability (Connolly & Jackson, 2019; Krohn *et al.*, 2011), there is a pressing need for empirical research that identifies the most potent risk markers within the Nigerian secondary school context. This study, therefore, investigated individual and family-based risk markers of gang involvement among in-school adolescents in Lagos State, Nigeria.

3. Research Questions

The following research questions guided the study:

RQ1: What are the exposure levels and attitudes of in-school adolescents toward gang involvement?

RQ2: How do individual-level risk markers -namely childhood maltreatment, delinquent behaviour, and drug and alcohol use -predict adolescent gang involvement?

RQ3: How do family-level risk markers -specifically parenting styles -predict adolescent gang involvement?

RQ4: What is the differential contribution of individual and family-based risk markers to adolescent gang involvement, and what are the implications for school-based counselling practice?

4. Method

4.1 Participants and Sampling Procedure

The study population comprised school adolescents attending secondary schools in the Ajeromi Ifelodun Local Government Area (LGA) of Lagos State, Nigeria, an area characterised by high population density and documented gang activity across its constituent communities of Ajegunle, Ijora, and Orile. A multistage sampling procedure was employed. Five secondary schools were selected from Ajeromi-Ifelodun LGA, after which eligible students were randomly selected within participating schools. This procedure ensured equal probability of selection for all eligible in-school students and supports the use of inferential statistical analyses. A total of 400 questionnaire sets were administered, of which 389 were retrieved and deemed valid for analysis, yielding a response rate of 97.3%.

The final analytic sample comprised 389 in-school adolescents. Ages ranged from 11 to 24 years (M not reported), with 56.6% falling within the 11–14 age group, 39.8% within the 15–19 age group, and 3.6% ($n = 14$) within the 20–24 age group. It is acknowledged that the WHO (2017) definition of adolescence extends to age 19; however, the inclusion of the 20–24 age group ($n = 14$, 3.6% of the sample) reflects the educational realities of densely populated urban communities within Lagos State, where internal migration from rural and economically disadvantaged regions of Nigeria may contribute to delayed school enrolment and interrupted educational trajectories. Many adolescents and young adults migrating into metropolitan Lagos from other states often experience educational disruption associated with socioeconomic hardship, family instability, or late access to formal schooling. Although these participants fall outside the conventional age range for adolescence, they were enrolled within the same secondary school environments and shared similar psychosocial and educational contexts as younger participants. Their inclusion is therefore considered contextually justified, though acknowledged as a limitation regarding generalisability to strictly defined adolescent populations.

Of the 389 participants, 57.1% were male, and 42.9% were female. In terms of religious affiliation, 58.6% identified as Christian, 40.4% as Muslim, and 1.0% as traditional practitioners or other. Regarding family structure, 44.7% were from monogamous homes, 34.7% from single-parent households, and 20.6% from polygamous families. Full demographic information is presented in Table 1.

4.2 Measures

4.2.1 Childhood Maltreatment Scale (Felitti *et al.*, 1998)

The Adverse Childhood Experiences (ACE) questionnaire (Felitti *et al.*, 1998) consists of 10 items assessing exposure to physical, emotional, and sexual abuse; neglect; household dysfunction; and parental substance misuse. Items are scored dichotomously (Yes/No/Maybe) and were adapted for use with the current Nigerian sample. A pilot study conducted with a comparable sample yielded a Cronbach's alpha of $\alpha = .79$, indicating adequate internal consistency.

4.2.2 Delinquent Behaviour Scale (Elliott *et al.*, 1983)

The Delinquent Behaviour Scale (Elliott *et al.*, 1983) consists of 18 items measuring the frequency of delinquent acts, including truancy, property destruction, theft, and violence. Items are rated on a three-point scale (Never, Sometimes, Always). The scale was adapted and revalidated for the current study, yielding a Cronbach's alpha of $\alpha = .84$.

4.2.3 Drug and Alcohol Use Scale (Rochester Youth Development Study, 2000)

The Drug and Alcohol Use Scale (Rochester Youth Development Study, 2000) comprises nine items assessing the frequency and recency of substance use, including alcohol, tobacco, and illicit drugs. Response options ranged from within the past month to never. A pilot study yielded a Cronbach's alpha of $\alpha = .78$.

4.2.4 Parenting Styles Scale (Robinson *et al.*, 2001)

The Parenting Styles Scale (Robinson *et al.*, 2001) assesses three parenting dimensions: authoritative (15 items; three subscales: reasoning/induction, warmth and support, autonomy granting), authoritarian (12 items; three subscales: non-reasoning, physical coercion, verbal hostility), and permissive (5 items). Items are rated on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Original reliabilities reported by Robinson *et al.* (2001) were $\alpha = .86$ (authoritative), $\alpha = .82$ (authoritarian), and $\alpha = .64$ (permissive). The scale was revalidated for the current study, yielding an overall Cronbach's alpha of $\alpha = .81$.

4.2.5 Exposure and Attitude toward Gang-related Behaviour Scale (Nadel *et al.*, 1996)

The Exposure and Attitude toward Gang-related behaviour Scale (Nadel *et al.*, 1996) consists of 14 items assessing participants' direct and indirect exposure to gang activities and their attitudinal orientation toward gang membership, rated on a three-point scale (Yes/No/Maybe). The original scale reported a Cronbach's alpha of $\alpha = .89$. Items were

adapted for the Nigerian context, and pilot testing yielded a Cronbach's alpha of $\alpha = .80$. Gang involvement was operationalised as a dichotomous outcome variable derived from participants' responses on the Exposure and Attitude toward Gang-related behaviour scale. Participants whose responses indicated direct behavioural affiliation, repeated gang exposure, or positive attitudinal endorsement above the sample threshold score were coded as gang involved (1), while those below the threshold were coded as non-gang involved (0). The dichotomisation procedure was adopted to facilitate binary logistic regression analysis.

Ethical approval for the study was obtained from the University of Ibadan Social Sciences and Humanities Research Ethics Committee. Permission was additionally obtained from school authorities within the participating secondary schools. Written informed consent was obtained from participants aged 18 years and above, while parental consent and adolescent assent were obtained for participants below 18 years. Participation was voluntary, confidentiality was maintained, and participants were informed of their right to withdraw at any stage without penalty.

4.3 Data Analysis

Data were analysed using IBM SPSS Statistics. Descriptive statistics (frequencies and percentages) were computed for all demographic variables. Cross tabulation and chi-square (χ^2) tests of association were employed to examine the relationships between demographic variables and the two gang-related behaviour subscales (exposure and attitude). Two binary logistic regression models were subsequently estimated: the first to examine the contribution of individual-level risk markers (childhood maltreatment, delinquent behaviour, drug and alcohol use) to the odds of gang involvement, and the second to assess the contribution of family-level risk markers (authoritative, authoritarian, and permissive parenting styles). Statistical significance was set at $p < .05$ for all analyses.

5. Results

5.1 Descriptive Statistics and Demographic Profile

The demographic characteristics of the sample are presented in Table 1. The majority of participants were male (57.1%), and most were aged 11–14 years (56.6%). Christianity was the predominant religious affiliation (58.6%), and the largest proportion of participants came from monogamous family structures (44.7%).

Table 1: Demographic Characteristics of Participants (N = 389)

Demographic Variable	Frequency (N = 389)	Percentage (%)
Gender		
Male	222	57.1
Female	167	42.9
Age Group		
11–14 years	220	56.6
15–19 years	155	39.8
20–24 years*	14	3.6
Religion		
Islam	157	40.4
Christianity	228	58.6
Traditional/Other	4	1.0
Family Type		
Monogamous	174	44.7
Polygamous	80	20.6
Single-parent household	135	34.7

Note: A small subset of participants (n = 14, 3.6%) aged 20–24 years were enrolled in secondary school at the time of data collection. Their inclusion reflects delayed educational progression and internal migration patterns commonly observed within densely populated urban communities in metropolitan Lagos.

Descriptive statistics for the major study variables are presented in Table 2. The results indicate moderate variability across the psychosocial and family-related measures. Participants reported a mean gang involvement score of 10.34 (SD = 4.09). Childhood maltreatment scores were moderately elevated (M = 21.56, SD = 2.13), while delinquent behaviour demonstrated relatively wide variability within the sample (M = 3.40, SD = 5.42). Drug and alcohol use scores were comparatively low to moderate (M = 11.77, SD = 6.34). Regarding parenting dimensions, participants reported higher levels of authoritative parenting (M = 39.01, SD = 7.96) relative to authoritarian (M = 34.83, SD = 6.70) and permissive parenting styles (M = 20.51, SD = 4.85).

Table 2: Descriptive Statistics for Study Variables (N = 389)

Variable	Min	Max	M	SD
Gang involvement	0	24	10.34	4.09
Childhood Maltreatment	17	30	21.56	2.13
Delinquent Behaviour	0	26	3.40	5.42
Drug and Alcohol Use	9	45	11.77	6.34
Authoritarian Parenting	17	48	34.83	6.70
Permissive Parenting	8	32	20.51	4.85
Authoritative Parenting	12	48	39.01	7.96

Note: M = mean; SD = standard deviation.

Research Question 1: Exposure and Attitudes toward Gang Involvement by Demographic Characteristics.

Cross-tabulation and chi-square analyses were conducted to examine the distribution of gang-related behaviour exposure and attitudes across key demographic

variables. Results are presented in Table 3. Approximately 41.6% of participants (n = 162) reported exposure to gang-related behaviour, while 22.4% (n = 87) expressed a positive attitude toward gang involvement.

Although males reported higher rates of gang-related behaviour exposure (54.3%) than females (45.7%), and displayed more positive attitudes toward gang-related behaviour (54.0% vs. 46.0%), neither difference reached statistical significance (exposure: $p = .355$; attitude: $p = .515$). Regarding age, participants aged 11–14 years reported the highest levels of gang-related behaviour exposure (50.0%) and the highest rates of positive attitudinal orientation (49.4%). Chi-square tests confirmed statistically significant associations between age group and both gang-related behaviour exposure ($p = .016$) and attitude ($p = .025$), suggesting that early adolescence represents a critical window of vulnerability.

Family structure was significantly associated with gang-related behaviour exposure ($p < .001$) but not with attitude ($p = .147$). Adolescents from single parent households constituted the largest proportion of those reporting exposure to gang-related behaviour (37.7%) and positive attitudes toward it (41.4%). Conversely, the majority of those reporting no exposure (52.9%) or negative attitudes (47.4%) came from monogamous families.

Table 3: Demographic Distribution of Exposure to and Attitudes toward Gang-related Behaviour

Demographic	Exposed to Gang-related behaviour (%)	Not Exposed (%)	P value	Positive Attitude (%)	Negative Attitude (%)	P value
Gender						
Male	54.3 (88)	59.0 (134)	0.355	54.0 (47)	58.0 (175)	0.515
Female	45.7 (74)	41.0 (93)		46.0 (40)	42.0 (127)	
Age Group						
11–14 yrs	50.0 (81)	61.2 (139)	0.016*	49.4 (43)	58.6 (177)	0.025*
15–19 yrs	43.8 (71)	37.0 (84)		42.5 (37)	39.1 (118)	
20–24 yrs	6.2 (10)	1.8 (4)		8.1 (7)	2.3 (7)	
Family Type						
Monogamous	33.3 (54)	52.9 (120)	0.000*	35.6 (31)	47.4 (143)	0.147
Polygamous	29.0 (47)	14.5 (33)		23.0 (20)	19.9 (60)	
Single parent	37.7 (61)	32.6 (74)		41.4 (36)	32.8 (99)	
Total	41.6 (162)	58.4 (227)		22.4 (87)	77.6 (302)	

Research Question 2: Individual-Level Risk Markers and Gang Involvement.

A binary logistic regression was conducted to examine the contribution of individual-level risk markers to the odds of reported gang involvement. The overall model was statistically significant, $\chi^2 (3, N = 389) = 71.408$, $p < .001$, and correctly classified 73.0% of cases, indicating that the model significantly improved the prediction of gang involvement. Nagelkerke $R^2 = .24$, suggesting that the model accounted for

approximately 24% of the variance in gang involvement. Results are presented in Table 4.

All three individual-level predictors made statistically significant, unique contributions to the model. Delinquent behaviour demonstrated the strongest statistical contribution as indexed by the Wald statistic (Wald = 25.436, $p < .001$; OR = 1.130, 95% CI [1.077, 1.184]), indicating that for each unit increase in delinquent behaviour, the odds of gang involvement increased by a factor of 1.13. Childhood maltreatment produced the largest odds ratio (OR = 1.185, 95% CI [1.060, 1.325], $p = .003$; Wald = 8.903), indicating that each unit increase in childhood maltreatment scores was associated with an 18.5% increase in the odds of gang involvement. Drug and alcohol use was also a significant predictor (OR = 1.052, 95% CI [1.012, 1.093], $p = .010$; Wald = 6.664), though its effect was comparatively modest. It is noted that while childhood maltreatment yielded the larger odds ratio, delinquent behaviour exerted the greater statistical influence as reflected by its substantially higher Wald statistic, a distinction that reflects differences in scale range and the precision of the estimates.

Table 4: Binary Logistic Regression Predicting Gang Involvement from Individual Level Risk Markers

Predictor	B	SE	Wald	p	OR	95% CI Lower	95% CI Upper
Childhood Maltreatment	.170	.057	8.903	.003**	1.185	1.060	1.325
Delinquent Behaviour	.122	.024	25.436	.000***	1.130	1.077	1.184
Drug and Alcohol Use	.051	.020	6.664	.010*	1.052	1.012	1.093
Constant	5.407	1.256	18.519	.000	.004		

Note: N = 389. OR = odds ratio; CI = confidence interval. Model: $\chi^2(3) = 71.408$, $p < .001$; Nagelkerke $R^2 = .24$; Classification accuracy = 73.0%. * $p < .05$. ** $p < .01$. *** $p < .001$.

Research Question 3: Family Level Risk Markers and Gang Involvement.

A second binary logistic regression model was estimated to examine the contribution of parenting styles to gang involvement. The full model was statistically significant, $\chi^2(3, N = 389) = 12.461$, $p = .006$, with a Nagelkerke $R^2 = .05$, indicating that parenting style variables accounted for approximately 5% of the variance in gang involvement. Results are presented in Table 5.

Of the three parenting style predictors, only permissive parenting style made a statistically significant contribution to the model (OR = 1.079, 95% CI [1.025, 1.136], $p = .004$; Wald = 8.403). This indicates that for each unit increase in permissive parenting, the odds of adolescent gang involvement increased by 7.9%. Authoritarian parenting style did not significantly predict gang involvement (OR = 1.009, $p = .617$), nor did authoritative parenting style (OR = .988, $p = .425$), though the direction of the authoritative coefficient ($B = -.012$) was negative, consistent with its theorised protective role.

Table 5: Binary Logistic Regression Predicting Gang Involvement from Parenting Style

Predictor	B	SE	Wald	p	OR	95% CI Lower	95% CI Upper
Authoritarian Style	.009	.019	.250	.617	1.009	.973	1.047
Permissive Style	.076	.026	8.403	.004**	1.079	1.025	1.136
Authoritative Style	.012	.015	.637	.425	.988	.961	1.017
Constant	2.128	.729	8.512	.004	.119		

Note: N = 389. OR = odds ratio; CI = confidence interval. Model: $\chi^2(3) = 12.461$, $p = .006$; Nagelkerke $R^2 = .05$. * $p < .05$. ** $p < .01$.

6. Discussion

This study examined individual and family-based risk markers of adolescent gang involvement among in-school adolescents in Ajeromi Ifelodun LGA, Lagos State, Nigeria. Drawing on Bronfenbrenner's (1979) Ecological Systems Theory, the study positioned both individual-level characteristics (childhood maltreatment, delinquent behaviour, drug and alcohol use) and family microsystem variables (parenting style, family structure) as proximal risk factors that interact to shape adolescents' susceptibility to gang involvement. Findings from chi-square analyses, cross-tabulations, and binary logistic regression are discussed in turn.

6.1 Exposure and Attitudes toward Gang Involvement

Male adolescents reported higher levels of gang-related behaviour exposure and more positive attitudes toward gang involvement than their female counterparts, consistent with the broader literature identifying males as disproportionately recruited into gangs (De Wet, 2016; Klein & Maxson, 2006). However, these gender differences did not reach statistical significance in the present study, suggesting that the gap between male and female gang involvement in this context may be narrowing -a trend noted internationally by Curry *et al.* (2014) and Peterson (2012). Within the Nigerian patriarchal sociocultural context, where gang membership among males is more socially normalised and embedded in masculine identity constructions, the comparative female absence from formal gang structures may reflect structural exclusion rather than absence of risk (Oyeleke & Pius, 2015). The lack of significant gender effects warrants further investigation and cautions against assuming gender as a straightforward protective factor for adolescent females in this setting.

The finding that early adolescents (11–14 years) reported the greatest exposure to and most positive attitudes toward gang involvement is consistent with developmental and criminological literature establishing that gang recruitment and initiation occur predominantly before age 16 (Howell & Griffiths, 2016; Pyrooz & Sweeten, 2015). From an ecological perspective, this age group occupies a particularly vulnerable position: they are navigating the transition from primary to secondary school (a mesosystem disruption), are newly exposed to larger and more heterogeneous peer environments, and are at an early stage of identity formation in which gang membership may represent an appealing, albeit maladaptive, source of belonging and status (Sharkey *et al.*, 2010).

These findings have direct relevance for the timing of school-based preventive interventions, which should target the early secondary school years.

Family structure emerged as significantly associated with gang-related behaviour exposure. Adolescents from single parent and polygamous households showed greater exposure to and more positive attitudes toward gang-related behaviour relative to those from monogamous families. This pattern is consistent with Hesselink and Bougard (2020), who found that dysfunctional or fractured family structures were associated with poor parental attachment and increased antisocial behaviour. From an ecological standpoint, the absence of a consistent parental figure in the microsystem disrupts the monitoring, socialisation, and regulatory functions that buffer adolescents against gang recruitment (McLanahan *et al.*, 2013; Sheldon *et al.*, 2013). The non-significant relationship between family structure and gang attitude, however, suggests that structural family factors may influence exposure to gang contexts without necessarily shaping attitudinal endorsement -a distinction with potential implications for intervention design.

6.2 Individual Level Risk Markers

All three individual-level risk markers significantly predicted gang involvement. Delinquent behaviour demonstrated the strongest statistical contribution (Wald = 25.436), consistent with the selection hypothesis advanced by Barnes *et al.* (2010): adolescents with established patterns of delinquent behaviour are more likely to be recruited into gangs because they already possess the behavioural repertoire that gangs value and reward. Within the ecological systems framework, delinquent behaviour functions as an individual-level behavioural vulnerability that increases susceptibility to gang involvement. This finding has immediate practical relevance: early identification of delinquent behavioural patterns in secondary schools should constitute a priority target for counsellors and behavioural intervention teams, particularly given that delinquency at the secondary school level is both observable and, if addressed early, modifiable.

Childhood maltreatment produced the largest odds ratio in the model (OR = 1.185), indicating that each unit increase in maltreatment exposure was associated with an 18.5% increase in the odds of gang involvement. This is consistent with Kubik *et al.* (2019) and Basto Pereira *et al.* (2022), and theoretically coherent within an ecological framework: adverse experiences at the family microsystem level compromise the developmental foundations -secure attachment, emotional regulation, and self-efficacy that protect against gang membership. The gang, in turn, may fulfil the relational and protective functions that the maltreating family failed to provide (Sharkey *et al.*, 2010). In a Nigerian context where child maltreatment is systematically underreported (WHO, 2020), these findings underscore the importance of trauma-informed screening within secondary school counselling frameworks.

Drug and alcohol use also significantly predicted gang involvement (OR = 1.052), though with the smallest effect size among individual predictors. This is consistent with Petering (2016) and Hill *et al.* (2001), and reflects both a selection effect (substance-using

adolescents may be more likely to encounter and join gangs) and a facilitation effect (gang environments increase access to and normalisation of substances). The relatively modest odds ratio in the present study may reflect the lower base rates of heavy substance use among in-school adolescents compared to out-of-school youth -a sampling characteristic that should be considered when interpreting this finding.

6.3 Family Level Risk Markers: Parenting Styles

Among the three parenting styles examined, only permissive parenting significantly predicted gang involvement (OR = 1.079, $p = .004$). This finding aligns with Okorodudu (2010) and Moitra and Mukherjee (2012), and is theoretically coherent within the ecological framework: permissive parents, by failing to establish and enforce clear behavioural norms, limits, and expectations, effectively weaken the regulatory functions of the family microsystem. In the absence of structured parental guidance, adolescents - particularly those navigating high-risk community environments are more susceptible to influence from deviant peer networks and gang structures. The non-significant effects of authoritarian and authoritative parenting styles suggest that the primary family level mechanism of gang risk in this sample operates through insufficient parental structure rather than excessive control or the absence of warmth.

Notably, the family level model accounted for substantially less variance in gang involvement (Nagelkerke $R^2 = .05$) than the individual level model (Nagelkerke $R^2 = .24$), suggesting that behavioural variables such as delinquency and substance use may function as more proximal correlates of gang involvement within the present sample than parenting style alone. This pattern further implies that family-level risks may exert their influence indirectly by shaping adolescents' behavioural tendencies, which subsequently increase vulnerability to gang affiliation. Future research employing mediation analyses could therefore examine whether delinquent behaviour mediates the relationship between permissive parenting and gang involvement.

6.4 Limitations

Several limitations should be considered when interpreting these findings. First, the cross-sectional design precludes causal inference; the identified risk markers are predictors of gang involvement but cannot be established as causes. Longitudinal designs are needed to clarify the temporal ordering of associations. Second, all variables were assessed via self-report, introducing the possibility of social desirability bias and recall inaccuracy, particularly for sensitive items concerning maltreatment and substance use. Third, the use of simple random sampling from five schools within a single LGA in Lagos State limits the generalisability of findings to other Nigerian states, rural settings, or the broader adolescent population. Fourth, the inclusion of a small subset of overage participants ($n = 14$, 3.6%, aged 20–24) extends the sample beyond the conventional WHO definition of adolescence. However, this reflects patterns of delayed educational progression and migration-related school interruption frequently observed among economically disadvantaged populations within metropolitan Lagos. Fifth, the relatively

small odds ratios across both logistic regression models suggest that, while statistically significant, the practical magnitude of individual effects is modest, and the models explain only a partial portion of the variance in gang involvement. Unmeasured variables -including peer influence, neighbourhood characteristics, school climate, and individual personality traits -likely account for substantial additional variance.

7. Conclusion and Recommendations

This study examined individual and family-based risk markers of adolescent gang involvement among in-school secondary school students in Lagos State, Nigeria. Guided by Bronfenbrenner's (1979) Ecological Systems Theory, three individual-level predictors -childhood maltreatment, delinquent behaviour, and drug and alcohol use -were found to significantly predict gang involvement, with delinquent behaviour emerging as the variable with the strongest statistical contribution. At the family level, a permissive parenting style was the only significant predictor. Collectively, these findings point to a confluence of individual behavioural dispositions and inadequate family-level regulatory structures as the primary pathways to gang involvement in this Nigerian secondary school population.

These findings carry several implications for practice and policy. First, school counsellors in Nigerian secondary schools should prioritise early identification of delinquent behavioural patterns, particularly among early adolescents (11–14 years), and implement structured behavioural intervention programmes before gang affiliation is established. Programmes such as the Good Behaviour Game or cognitive behavioural skills-building interventions adapted for the Nigerian school context may be particularly appropriate. Second, given the significant role of childhood maltreatment, school counselling services should incorporate trauma-informed screening protocols and provide appropriate referral pathways for adolescents with histories of adverse childhood experiences. Third, family-based parenting support programmes should specifically target the skills associated with structured, consistent parenting -establishing rules, monitoring behaviour, and maintaining appropriate consequences -to counteract the permissive patterns identified as risk-conferring in this sample. Fourth, community-level outreach programmes should prioritise early adolescents in single parent and polygamous households, who demonstrated the highest rates of gang-related behaviour exposure. Finally, given the modest variance explained by the models, future research should incorporate peer, school, and community-level variables within multilevel modelling frameworks to capture the full ecological complexity of gang risk identified by Bronfenbrenner's (1979) theory.

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Author's Contribution

Author AO: conceptualization, data analysis and writing. OB data analysis and writing, IO; data collection and data coding

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Conflict of Interest Statement

The authors declare no conflicts of interest.

About the Authors

Adebunmi Oyekola, PhD, is a developmental psychologist and Senior Lecturer in the Department of Psychology, University of Ibadan, Nigeria. Her research focuses on child and adolescent development, with particular interests in early adversity, resilience, self-regulation, family and peer relationships, and psychosocial well-being in African contexts. Her work seeks to advance culturally informed developmental science and translate research evidence into interventions, educational practice, and policy for improving child and adolescent outcomes. Her handles are:

<https://scholar.google.com/citations?hl=en&user=hNKNcDgAAAAJ>

<https://orcid.org/0000-0003-0449-7037>

<https://www.researchgate.net/profile/Adebunmi-Oyekola>

Oluwabunmi K. Balogun is a doctoral student in Counselling Psychology at the Department of Counselling and Human Development Studies, University of Ibadan, Nigeria.

Idris Olatunbosun holds a Master of Education Degree in Counselling Psychology with specialization in Adolescent Psychology and Youth Counselling. He works with the Lagos State Teaching Service Commission.

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