International Journal of Human Capital in Urban Management
(IJHCUM)

Homepage: http://www.ijhcum.net/

ORIGINAL RESEARCH PAPER

Unveiling the shadows: investigating the substance use among street children

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ARTICLE INFO

ABSTRACT

BACKGROUND AND OBJECTIVES: Street children are a global phenomenon affecting urban areas with varying degrees of severity. These vulnerable children face significant challenges, including the lack of basic rights, educational opportunities, and social integration. Substance use compounds their difficulties, often serving as a coping mechanism in their harsh environment. While existing research has predominantly focused on substance use among street children in Asia and Latin America, there is a notable gap in understanding within the African context, particularly in Nigeria. This study aims to address this gap by investigating substance usage patterns among street children in Nigeria. The objective is to inform the development of targeted interventions and policies to support street children better and address the underlying causes of substance use in their communities.
METHODS: Accidental sampling was utilized to recruit 384 street children from nine Data Delineated Areas in three selected cities. Data collection involved the administration of interviewer-administered questionnaires, which gathered information on socio-economic characteristics, substance knowledge, and usage among street children. The collected data underwent analysis using frequency counts, chi-square tests, and binomial logistic regression.
FINDINGS: The study found that the predominant substances used by street children were alcohol (60%), nicotine (40%), and cannabis (35%). Although addiction evidence was limited, the prevalence of multiple drug and substance use was notable. The binomial logistic regression results indicated that certain demographic and situational factors were associated with a decreased likelihood of drug use among street children. Specifically, children aged 4 to 10 years (90%, P = 0.000), females (80%, P = 0.000), school attendees (70%, P = 0.000), those spending fewer than 8 hours on the street (60%, P = 0.000), those sleeping at home (70%, P = 0.000), and those from relatively stable families (60%, P = 0.0001) were less likely to engage in drug use.
CONCLUSION: The study underscores the importance of adopting a holistic approach to address substance use among street children. By aligning urban and regional planning with general recommendations, policymakers can address the interconnected social, economic, physical planning, and educational factors contributing to substance use. Through targeted interventions and policies, stakeholders can provide effective support to street children and mitigate substance use within their communities, ultimately improving their well-being and prospects for the future.

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
32	1	5

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INTRODUCTION

The problem of street children presents a pressing social issue that demands immediate attention and decisive action. Despite concerted efforts to tackle this phenomenon, it continues to persist and even worsens in many urban areas worldwide (Ogunkan, 2024; Vameghi *et al*., 2023; Obimakinde and Shabir, 2023). At its core, the issue of street children encompasses several critical aspects that must be addressed comprehensively. The sheer number of children living and working on the streets is alarming. This pervasive problem spans urban centers globally, with varying degrees of severity, yet it remains a persistent issue affecting the lives of countless children. Street life is a modality of existence and an adaptive stress response observed among vulnerable groups residing in impoverished conditions globally (Reid, 2023; Roks *et al*., 2021). This phenomenon primarily impacts children, particularly in developing nations (Ogunkan and Adeboyejo, 2021; Kaime-Atterhogi, 2012; Aptekar, 2001; Faloore, 2009). While street activities present opportunities for income generation (Gunhidzirai, 2023; Ofosu-Kusi, 2023) and a semblance of freedom (Ojebuyi and Ajao, 2023), they simultaneously compromise the dignity and well-being of children, resulting in detrimental effects on their physical, mental, emotional, moral, and overall health (Obimakinde and Shabir, 2023). Numerous studies have extensively documented the challenges faced by street children globally (Ogunkan, 2024; Vameghi *et al*., 2023; Obimakinde and Shabir, 2023; Ojebuyi and Ajao, 2023; Mishra *et al*., 2020; Kobulsky *et al*., 2020, Omit). These studies consistently reveal the absence of protection in an environment devoid of the safety inherent in traditional workplaces, despite the necessity of driving many street children to work. The harsh conditions of street culture, coupled with influences from sex workers, drug lords, and professional thieves, expose these children to counterproductive behaviors (Rizzini and Lusk, 1995). The unrestrained freedom characterizing street life further reinforces detrimental habits, including smoking, gambling, substance use, and prostitution (Ndlovu and Tigere, 2022; Chikoko *et al*., 2022). Street children are minors who endure life on the streets, detached from conventional family structures and social support systems. Deprived of necessities, these children navigate the harsh urban terrain, often resorting to unconventional means to fulfill their needs. In this struggle for survival, drugs become an enticing escape from the harshness of their daily existence. The constant exposure to the street environment increases the vulnerability of street children to a poignant and often overlooked issue - their involvement in substance use. These vulnerable young souls, grappling with the harsh realities of life on the margins, find themselves entangled in a web of substance abuse that further exacerbates their already precarious circumstances. The term "substance" encompasses psychoactive substances that alter cognitive and sensory functions. Alarmingly, an estimated 25-90 percent of global street children engage in substance use (World Health Organization (WHO), 2012). This vice is often initiated with legal substances like inhalants, cigarettes, and alcohol, which are readily accessible in many countries (Ayenew *et al*., 2020). However, substance use has evolved into a significant impediment to the prospects of street children leading stable, content, and fulfilling lives, posing serious threats to their mental and physical health and hindering their reintegration into communities and broader society. Despite extensive research on substance use among street children, the majority of studies focus on Asia and Latin America (Tuladhar, 2002; Pagare *et al*., 2003; Carvalho *et al*., 2006; Moura, 2012, among others). Except for a study in a Nigerian local government (Egwuaba & Adeyi, 2023), few investigations within Africa (Kayembe, 2008; Buruh, 2014; Bah, 2018; Jakaza and Nyoni, 2018, among others) have been conducted outside Nigeria. Despite the considerable research conducted on street children within major Nigerian urban centers, this particular gap in the existing literature demands urgent consideration. Consequently, this study endeavors to address this gap by investigating the socio-economic profiles of street children, as well as their patterns of substance use and the types of drugs they encounter, within chosen cities in Southwestern Nigeria during the year 2023.

Statement of problem

The plight of street children represents an urgent social concern that requires immediate attention and decisive action. Despite concerted efforts to address this issue, it continues to persist and escalate in numerous urban areas worldwide (Ogunkan, 2024; Vameghi *et al.,* 2023; Obimakinde & Shabir, 2023). At

its core, the problem of street children encompasses several crucial dimensions that necessitate a comprehensive approach. Understanding the underlying causes and factors contributing to the phenomenon of street children is paramount for effective intervention. Poverty, family dysfunction, urbanization, conflict, and social exclusion are primary drivers that compel children onto the streets and perpetuate their presence there (Ogunkan, 2024; Obimakinde & Shabir, 2023). Street children face a myriad of vulnerabilities and risks, including exposure to violence, exploitation, substance abuse, and inadequate access to essential services such as education, healthcare, and shelter (Ogunkan, 2024; Vameghi *et al*., 2023; Obimakinde and Shabir, 2023; Ayenew, Kabeta and Woldemichael, 2020; Moura *et al*., 2012). These vulnerabilities perpetuate a cycle of marginalization and deprivation, hindering their development and prospects for a stable future. The experience of living and working on the streets profoundly impacts their well-being, depriving them of basic rights and opportunities for growth, education, and social integration. Moreover, the presence of street children has broader societal implications, including increased social unrest, crime rates, and strain on social services (Obimakinde and Shabir, 2023). Addressing this issue necessitates not only a focus on the individual well-being of street children but also broader societal responses and interventions. However, despite efforts to support street children, interventions often face numerous challenges, including inadequate resources, lack of coordination among stakeholders, stigma and discrimination, and gaps in policy and implementation (Ojebuyi and Ajao, 2023; Ogunkan, 2021). The issue of drug use among street children further complicates their already challenging circumstances. Drug use among these vulnerable youth is prevalent in many urban areas worldwide, serving as a coping mechanism to alleviate the harsh realities of street life. Factors such as poverty, lack of parental supervision, exposure to violence, and easy access to drugs contribute to their susceptibility to substance abuse (Carvalho *et al*., 2006; Martijn & Sharpe, 2006). Drug use poses significant risks to the physical and mental health of street children, leading to addiction, malnutrition, infectious diseases, mental health disorders, and overdose-related fatalities (Ndlovu and Tigere, 2022; Chikoko *et al*., 2022). Moreover, involvement in drug use becomes intertwined with survival strategies, perpetuating a cycle of exploitation and dependence. Street children face numerous barriers to accessing support and intervention services for drug abuse, including lack of awareness, stigma, and challenges in accessing healthcare (Ogunkan, 2024; 2021). Addressing drug use among street children requires a comprehensive and integrated approach that prioritizes harm reduction, access to appropriate treatment and support services, and holistic interventions addressing underlying factors. Efforts must extend beyond individual-level interventions to encompass broader societal responses addressing the root causes and structural factors contributing to substance abuse among street children. Only through concerted and collaborative action can we hope to break the cycle of poverty, marginalization, and substance abuse among street children. It is on this note that this study examines substance use among street children in Southwestern Nigeria in 2023.

MATERIALS AND METHODS

Research design

The study adopts a quantitative research design to systematically analyze substance use among street children. The utilization of quantitative methods proves particularly advantageous given the extensive and diverse nature of the street children population under investigation, allowing for the generalizability of findings (Muijs, 2022). This approach is recognized for its suitability in ensuring an objective and accurate analysis, effectively mitigating biases inherent in the research process (Borgstede and Scholz, 2021; Kandel, 2020). Consequently, the application of quantitative analysis in investigating substance use among street children establishes a methodologically robust and objective framework. This method enables researchers to draw reliable conclusions, discern patterns, and contribute valuable insights. The outcomes, rooted in quantitative rigor, can serve as a foundation for informing targeted interventions and policies designed to address substance use challenges within this vulnerable population.

Instrument of data collection

The primary tool employed for data collection is the questionnaire. Recognizing the need for careful consideration in crafting a questionnaire tailored for street children, the researchers prioritized ethical

considerations. This involved securing informed consent from both the street children and, when applicable, their legal guardians. Emphasis was placed on the voluntary nature of participation, ensuring confidentiality, and guaranteeing anonymity. Acknowledging the paramount importance of sensitivity to language and culture when engaging with street children, the questions were meticulously formulated. The language used was tailored to be appropriate for the age group and cultural background of the participants. The questions were intentionally kept concise and engaging, avoiding the use of complex terminology. The study adopted an "interviewer-administered" or "assisted" survey administration approach (Liu *et al*., 2022; Rahman, Lee, Ireen and Ahmed, 2021) where, the researcher directly posed questions and filled out questionnaires for children who faced challenges in reading, writing, or comprehending the questionnaire. This approach was chosen to ensure inclusivity and accessibility for all participants. Throughout the questionnaire, a non-stigmatizing tone was maintained to foster an environment conducive to honest responses. The researchers were mindful of the potential vulnerabilities of street children and aimed to create a respectful and supportive space for their participation in the study.

Sampling procedure

The participants of this research, specifically street children, were identified at key locations such as junctions, motor parks, and markets. The selection of these research sites was purposeful, guided by existing studies indicating a higher concentration of street children in these areas (Ogunkan, 2018). Consequently, three significant junctions, the most frequented markets, and the busiest motor parks in Ibadan, Akure, and Osogbo were purposively chosen (Table 1). Through accidental sampling, a total of three hundred and eighty-four (384) street children were included in the study, following their voluntary agreement to participate. The sample size of 384 street children was selected purposefully to encompass diverse socio-economic backgrounds across key locations in the studied urban centers. This ensures representation and statistical power to detect significant associations between variables. Accidental sampling facilitated recruitment from areas known for high street child concentrations, with participants voluntarily agreeing to participate, upholding ethical standards. This sample size balances feasibility with statistical robustness, enabling comprehensive insights into substance use patterns among street children.

Data analysis

Descriptive statistics, such as frequencies for categorical variables and measures of central tendency and dispersion for continuous data, were calculated. To explore the relationship between socioeconomic variables and substance use, bivariate analysis using the chi-square test was conducted. The choice of the chi-square test is informed by its suitability for analyzing categorical data, its capability to evaluate the independence of variables, its non-parametric foundation, its effectiveness with large sample sizes, its straightforward application and interpretation, and its adaptability to various research contexts. These characteristics make it an ideal starting point for exploring the relationship between socioeconomic variables and substance use in bivariate analyses. Subsequently, a logistic regression model, with a significance level of probability value (p-value) < 0.25 at 95% confidence, was employed to evaluate the strength of association among the variables under examination. This model provided insights into predicting the likelihood of street children engaging in substance use. The computation of Odds Ratios (OR) was facilitated by selecting reference categories for each variable, shaping a model that emphasizes potential protective factors. Notably, an odds ratio lower than 1 signifies a level of protection against substance use within this context. Logistic regression models are selected due to their proficiency in

Table 1: Selected locations and research subjects

Locations	Ibadan	No	Akure	No	Osogbo	No	Total
Markets	Gbagi-Dugbe Market	59	Oja-Oba Market	69	Igbona Market	43	170
Junctions	Dugbe junction	40	Post Office Junction	13	Ola-Iya junction	46	99
Motor Parks	Gbagi–Ogunpa Motor Park	55	Benin Garage Motor Park	35	Ogbomoso Garage Motor Park	24	114
Total		154		117		113	384

Table 2: Socio-economic characteristics of street children

Variables	Frequency	Percent
Gender		
Male	259	67.5
Female	125	32.5
Age		
4-10 yrs	116	30.1
11-14 yrs	183	47.7
15-17 yrs	85	22.2
Categories		
Home Sleeping	258	67.1
Street Sleeping	126	32.9
Schooling Status		
Schooling	243	63.2
Drop out	89	23.3
Never enrolled	52	13.5
Daily Income		
Below N200	107	27.9
N200- N 500	81	21.2
N501- N1000	109	28.5
N1001- N1500	48	12.4
Above N1500*	39	10
Parent Marital Status		
Married	202	52.6
Divorced	74	19.3
Widowed	46	12.0
Separated	35	9.1
Never Married	27	7.0
Hours on the Street		
8 hours and above	223	58
Less than 8 hours	161	42

managing binary outcome variables, calculating odds ratios, addressing non-linear associations, controlling for potential confounders, offering predictions, handling diverse predictor variables, and preserving result interpretability. These capabilities make it exceptionally appropriate for research focused on examining and predicting substance use behaviors among street children.

RESULTS AND DISCUSSION

Demographic profile of street children

384 street children participated in the study, comprising 259 males (67.5%) and 125 females (32.5%). The age distribution ranged from 4 to 17 years, with the predominant age group being 11-14 years, constituting 47.7% of the total. A substantial portion (63.3%) of the respondents were enrolled in school, while 23.3% had discontinued their education, and 13.5% had never attended formal schooling. An examination of parental marital status revealed that more than half (52.6%) of the street children originated from conjugal families. Approximately 19.3% hailed from single-parent households, with 9.1% having parents separated but not divorced, and 7% coming from single-parent homes. Twelve percent had experienced the loss of both parents due to widowhood. In terms of daily work hours, the majority (58%) of the sampled street children engaged in work for at least eight hours per day, while around 42% worked fewer than eight hours (Table 2).

Knowledge and engagement in substance use

Nearly all the surveyed street children across the three cities (97%) affirmed awareness of drugs and substances, yet the prevalence of usage was notably lower than their knowledge. Among the children acknowledging familiarity with drugs, less than one-third (30.2%) confessed to engaging in substance use. This trend suggests that substance use is relatively less common than the stereotypical association with street children globally (Gaidhane *et al*, 2008; Kliewer and Murelle, 2007).

Table 3: Types and frequency of substance use

Substance	0/ month	Once/ month	2-3/ month	Once/ week	2-3/ week	4-6/ week	Everyday
Alcohol	3 (2.7%)	16 (13.5%)	29 (25.3%)	27 (23.2%)	13 (11.2%)	17 (14.8)	12 (10%)
Nicotine	(59 50.9%)	4 (3.1%)	10 (8.9%)	14 (11.7%)	6 (5.5%)	8 (7.3%)	15 (12.8%)
cannabis	64 (54.8%)	7 (5.7%)	16 (13.5%)	16 (13.8%)	3 (2.9%)	7 (6%)	4 (3.1%)
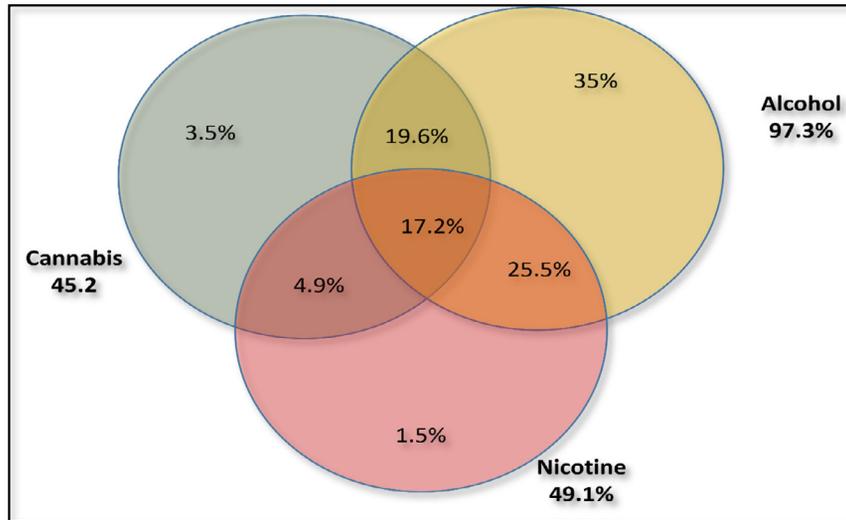
Fig. 1: Overlaps of substance use among street children

Categories of substance use

The psychoactive substances utilized by street children exhibit diversity, encompassing various types. However, based on the WHO (2012) classification, these substances fall into categories such as alcohol, opioids, hypnosedatives, nicotine, hallucinogens, stimulants, cannabis, and inhalants. Nevertheless, in this study, it was observed that street children were primarily engaged in the use of three major categories of drugs or substances: alcohol, nicotine, and cannabis (Table 3).

Despite the acknowledged possibility of under-reporting, especially concerning substance use among street children, a comparison with findings from other countries (Carvalho *et al.*, 2006; Kliewer and Murelle, 2007; Moura *et al.*, 2012) reveals insights into the habituation patterns, as illustrated in Fig. 1. The data suggests limited evidence of addiction, with 35.9%, 25.5%, and 12.1% reporting heavy use of alcohol, nicotine, and cannabis, respectively. Additionally, 61.4%, 23.6%, and 33.1% reported

frequent use of alcohol, nicotine, and cannabis, while 2.7%, 50.9%, and 54.8% of drug-using street children claimed to have never tasted alcohol, nicotine, or cannabis. However, there is an overlap in the usage of substances among street children, as depicted in Fig. 1.

Fig. 2 illustrates the overlap of substance abuse among street children. Out of the 384 surveyed street children, 116 (30.2%) were engaged in one or more forms of substance abuse. Within this group, 97.3% were alcohol users, 49.17% were nicotine users, and 45.2% were cannabis users. Notably, 67% of substance users reported the use of multiple substances, with only 17.2% engaging in alcoholism, nicotine, and cannabis simultaneously. To identify the associated factors of substance use among street children, socio-economic variables were cross-tabulated with the incidence of substance use among children, as presented in Table 4.

The results reveal a noteworthy trend among participants without a history of drugs/substance

Table 4: Characteristics of street children by substance use

Drug/ Substance use	Yes	No	Total	X^2 value	P-value
Gender					
Male	50.2	49.8	100		
Female	10.2	89.8	100	58.887	0.000
Age					
4-10 yrs	12.2	87.8	100		
11-14 yrs	29.3	70.7	100		
15-17 yrs	56.6	43.4	100	94.170	0.000
Categories					
Home Sleeping	22.3	77.7	100		
Street Sleeping	46.3	53.7	100	47.610	0.000
Schooling Status					
Schooling	18.5	81.5	100		
Drop out	40.9	59.1	100		
Never enrolled	65.5	34.5	100	106.867	0.000
Parents' marital status					
Married	22.2	77,8	100		
Divorced	46.1	53,9	100		
Widowed	36.8	63.2	100		
Separated	31.9	68.1	100		
Never Married	32.7	67.3	100	32.878	0.000
Hours on the Street					
Less than 8 hours	20.5	79.5	100		
8-12 hours	32.1	67.9	100	29.698	0.000
Above 12 hours	42.1	57.9	100		

Table 5: Binomial logistic regression for variables associated with substance use

Variable	Category	B	S.E	Wald	df	Sig.	Exp(B)
Gender	Female	-1.531	.211	52.543	1	.000	.216
	Male	Reference					
Age	4-10 yrs	-2.235	.250	79.834	1	.000	.107
	11-14 yrs	-1.147	.190	36.460	1	.000	.317
	15-17 yrs	Reference					
Categories	Home Sleeping	-1.101	.163	45.849	1	.000	.333
	Street Sleeping	Reference					
Schooling status	Schooling	-2.121	.231	84.033	1	.000	.120
	Drop out	-1.008	.251	16.107	1	.000	.365
	Never enrolled	Reference					
Parents' Marital Status	Married	-1.095	.201	29.613	1	.000	.335
	Single	-.381	.268	2.022	1	.155	.683
	Widowed	-.598	.301	3.959	1	.047	.550
	Never Married	-.562	.330	2.899	1	.089	.570
	Divorced	Reference					
Hours Spent on the street	Less than 8 hours	-1.030	.192	28.652	1	.000	.357
	8-12 hours	-.425	.193	4.834	1	.028	.654
	Above 12 hours	Reference					

use: a higher percentage were female (89.8%), aged between 4 and 10 years (87.8%), home sleeping (77.7%), attending school (81.5%), and hail from relatively stable families (77.8%). Bivariate analysis, using the chi-square test, was conducted to examine the significant association of these variables with substance use. The obtained chi-square values in Table 4 underscore a substantial association between all the examined variables with substance use. To deepen our understanding, a logistic regression model was employed to assess the strength of the relationship between the evaluated variables in predicting the likelihood of street children engaging in substance use (Table 5).

Table 5 briefly presents the results of the binomial logistic regression, revealing that, except for "single" and "never married" variables, all evaluated factors attained significance with varying strengths and directions of association. Remarkably, age, particularly within the 4 to 10-year range, exhibited the most potent inverse connection with substance use. Children within this age bracket were found to be up to 90% (P = 0.000) less likely to engage in drugs or alcohol compared to the reference group (15–17-year-olds). This underscores that despite the early introduction of children to the streets, they are less likely to embrace street culture fully and, consequently, less prone to substance use (Sorsa *et al*., 2002; Gaidhane *et al*., 2008; Moura *et al*., 2012). Conversely, an increase in age correlated with elevated substance use, as evidenced by a 70% (P=0.0001) reduced likelihood of substance use among children aged 11 to 14 compared to their older counterparts. This finding aligns with previous research indicating that advancing age diminishes the protective factor against substance use in children (Moura *et al*., 2012). Contrary to existing literature suggesting that both genders of street children face similar risk behaviors (Moura *et al*., 2012), this study identified gender as one of the influential factors determining substance use. The logistic regression model indicated that females were 80% (P = 0.000) less likely to engage in substance use than their male counterparts. This discrepancy could be attributed to the physical, emotional, and psychological challenges of street life, making females less adept at coping with its demands. Consequently, they are usually introduced to street life more gradually and tend to exit the street earlier in their adolescent lives, before becoming deeply ingrained in street culture. The schooling status of street children emerged as another crucial factor with a robust inverse association with substance use. School-attending street children exhibited a 70% (P = 0.000) reduced likelihood of involvement in substance use compared to their non-enrolled counterparts. Even "drop-out" street children, while more susceptible than their schooling peers, were 60% (P = 0.000) less likely to engage in substance use than street children who were never enrolled in school. The total hours spent on the street emerged as a significant factor related to drug use. Children spending less than 8 hours on the street were 60% (P = 0.000) less likely to be substance users than those spending over 12 hours, while those spending 8 to 12 hours were 30% less likely than their peers spending more than 12 hours. This underscores the association between prolonged exposure to street life and increased vulnerability to substance use, as confirmed by existing literature (Milburn *et al*., 2009; Moura *et al*., 2012). Moreover, a robust connection was identified between street children's sleeping arrangements and substance use. Home-sleeping children were found to be 70% (P = 0.000) less likely to engage in substance use than their street-sleeping counterparts. The logistic model further affirmed that a relatively stable family diminishes children's likelihood of substance use by 60% (P = 0.0001) compared to those from broken homes.

Discussion of the findings

This study elucidates several crucial aspects of substance use among street children in Southwestern Nigeria, drawing on existing literature for support. Firstly, the study reveals that the prevalence of substance use among street children in this region is relatively low compared to other regions, such as Latin America, Asia, and some African countries (Manrique-Millones, 2021; Morojele, Ramsoomar, Dumbili and Kapiga, 2021; Munawar, Choudhry, Hadi and Khan, 2020). This difference is attributed to cultural, religious, and policy factors, including strong social support networks and limited drug accessibility. This implies that public health interventions in Southwestern Nigeria may prioritize other pressing issues affecting street children while still addressing substance use concerns. However, despite the lower prevalence, it is imperative to focus policy attention on this sub-group due to their interactions with non-drug-taking individuals on the street, posing a potential risk of influencing others into substance usage (Aderinto, 2000). Furthermore, the study highlights that there is little evidence of addiction among the sampled street children and no evidence of hard drug use. However, the arbitrary categorization of drugs into "hard" and "soft" lacks clear criteria or definitions and lacks scientific support. Soft drugs, perceived as less physically and mentally addictive and less harmful, can still cause serious health issues such as liver disease, impaired brain function, and various types of cancer (Mishra *et al*., 2015; WHO, 2020). This calls for a more

nuanced approach to drug classification, along with comprehensive public health and education initiatives that address the risks associated with all types of drug use. Additionally, the study underscores the concern that soft drugs can serve as gateway drugs to harder substances for street children in the study area. This study also underscores the precarious nature of multiple substance use among street children and its associated mental and physical health implications. Evidence suggests that the effects of combined substance use differ from those of single substance use. For instance, the combined use of nicotine and marijuana increases the availability of nicotinic acetylcholine receptors in certain brain regions more than either substance alone. This heightened interaction between substances amplifies health risks, including respiratory issues, cardiovascular problems, and mental health disorders.

Additionally, the combined use of alcohol and nicotine has neurological consequences that differ from the use of either substance alone (Brody *et al.*, 2016; Jacobsen *et al.*, 2007; Meyerhoff *et al.*, 2006; Ceballos *et al.*, 2006). This is due to their interactions with different neurotransmitter systems in the brain, enhanced activation of reward pathways, increased neurotoxicity, and heightened risk of addiction. The study emphasizes that school attendance serves as a protective factor against substance use among street children. Those attending school are less likely to be involved in substance use compared to their counterparts who have never enrolled in schooling, aligning with findings in previous studies (Carvalho *et al.*, 2006; Martijn and Sharpe, 2006; Kliewer and Murrelle, 2007). This is because School provides a structured environment, educational opportunities, social integration, and empowerment, which reduce the likelihood of substance use. Additionally, the research indicates that the total time spent on the street by children is associated with drug use. The more hours a child spends on the street, the more they are immersed in street culture and vulnerable to substance use, aligning with existing literature (Ayenew, Kabeta, and Woldemichael, 2020; Moura *et al.*, 2012). Reasons for this association include exposure to street culture, lack of supervision and support, and the use of drugs as coping mechanisms. Another significant finding is the link between sleeping arrangements and substance use among street children. Street-sleeping children are more susceptible to substance use compared to their counterparts who sleep at home, attributed to factors such as exposure to inclement weather conditions, lack of adequate sleeping places, easy access to drug trafficking and sales, and peer pressure (Osei Asibey, Marjadi and Conroy, 2023; Auerswald, 2009). Finally, the study emphasizes the protective role of relatively stable families in preventing children's engagement in substance use. Specifically, the study highlights that children from households where both parents stay married are less likely to indulge in substance use. This finding resonates with existing literature, underscoring the importance of family stability, even if marked by violence, as preferable to complete familial exclusion for children exposed to various forms of adversity from an early age. (Obimakinde and Shabir, 2023; Moura *et al.*, 2012).

Recommendations

Based on the findings of the study, these recommendations are offered as specific practical solutions to the problem of drug/substance use among street children. The study emphasizes that although the prevalence of substance use among street children in this region is relatively low compared to other areas, it is still crucial to prioritize policy attention on this subgroup due to their potential influence on others. Recommendations include the development of targeted prevention programs, ensuring access to support services, community engagement, increasing education and awareness, and advocating for policy changes. By implementing these recommendations, policymakers and stakeholders can effectively mitigate the risks associated with substance use among street children and promote healthier outcomes. The study reveals little evidence of addiction or hard drug use among sampled street children. It also critiques the arbitrary categorization of drugs into "hard" and "soft," highlighting the need for comprehensive substance use education. Despite perceptions of soft drugs being less harmful, they can still pose serious health risks. Therefore, the recommendation is to implement holistic substance use education programs to provide accurate information and promote informed decision-making among street children.

Integrated substance use prevention and intervention programs

Given the study's findings regarding the potential for soft drugs to act as gateway drugs to harder substances among street children, as well as the risks associated with multiple substance use, it is recommended that the integrated substance use prevention and intervention programs tailored to the needs of street children should be developed and implemented. These programs should address both the individual and environmental factors contributing to substance use, provide education about the risks of using multiple substances, and offer support services for those struggling with substance use disorders.

By implementing this recommendation, policymakers, healthcare providers, and community organizations can work together to address the complex issues surrounding substance use among street children and promote healthier outcomes for this vulnerable population.

Comprehensive screening and treatment programs

In light of the study's highlighting of the risks linked to multiple substance use among street children and its effects on their mental and physical health, it is recommended to establish comprehensive screening and treatment programs specifically designed for street children engaging in multiple substance use. These programs should incorporate multidisciplinary teams comprising healthcare professionals, social workers, and counselors. Their role would involve assessing the unique needs of each child and offering customized interventions such as detoxification, counseling, and access to mental health services.

Enhanced access to education

Based on the study's emphasis on the protective role of school attendance against substance use among street children it is recommended that Implement measures to improve access to education for street children, including initiatives to remove barriers to school enrollment and retention. This could involve providing financial assistance for school fees, offering transportation support, and addressing other socio-economic factors that may hinder school attendance.

Outreach and support programs

Given the research findings indicating a link between the total time spent on the street by children and their engagement in drug use, it is recommended to establish targeted outreach programs specifically tailored for street children who spend prolonged periods on the streets. These programs should offer access to various supportive services, including counseling, substance abuse education, and healthcare, to address the root causes contributing to substance use. Implementing these recommendations can mitigate risks associated with prolonged street presence and substance use among children, promoting their well-being and offering pathways to a healthier future.

Safe shelter provision

Considering the notable correlation discovered between sleeping arrangements and substance use among street children, it is advised to prioritize the provision of safe and secure shelters for these vulnerable youth. These shelters should offer protection from adverse weather conditions and ensure sufficient sleeping spaces to guarantee the comfort and safety of the children. Additionally, it is crucial to ensure that street children accessing these shelters have comprehensive access to support services, encompassing counseling, substance abuse education, and healthcare. These services play a pivotal role in addressing the root causes contributing to substance use and offering essential assistance to children in need.

Strengthening family bonds

Recognizing the crucial role of stable family structures as a protective factor against children's substance use, parents should intensify their supervisory efforts. Continuous monitoring of children's activities, fostering strong parent-child relationships, engagement in constructive activities, and maintaining open dialogue contribute significantly to a supportive family environment that deters involvement in substance use.

Urban and regional planning implications

The study holds significant implications for urban and regional planning. The findings of the study unveil critical aspects that warrant attention in the planning and development of urban spaces. Here are some implications for urban and regional planning:

• Inclusive social services planning

Urban planners need to incorporate inclusive social services planning that caters to the needs of vulnerable populations, including street children. This involves designing and implementing social programs, rehabilitation centers, and shelters aimed at addressing the root causes of street life, such as poverty, family instability, and lack of educational opportunities.

• Safe public spaces

The study highlights the role of street environments in influencing substance use among children. Urban planning should focus on creating safe and well-monitored public spaces that discourage risky behaviors. This includes designing recreational areas, parks, and community centers that provide alternatives for children, promote positive engagement, and discourage substance abuse.

• Economic opportunities in urban development

Enhancing economic opportunities for low-income families is identified as a crucial factor in preventing and resolving streetism. Urban and regional planners should integrate strategies for economic development within the urban fabric, ensuring that job opportunities and support systems are accessible to vulnerable communities. This may involve zoning policies that encourage local businesses and industries.

• Community-based awareness programs

Urban planning initiatives should collaborate with public health agencies to implement community-based awareness programs on substance abuse. Planning for community centers and facilities that can host educational campaigns and workshops would contribute to raising awareness among both children and adults.

• School infrastructure and accessibility

Given the preventive role of education in the study, urban planning should prioritize the development of school infrastructure and ensure accessibility for all children. Zoning regulations and educational planning should work hand in hand to establish schools in strategic locations, making education readily available to children from diverse backgrounds.

• Family-centric planning

The study underscores the importance of stable family structures in protecting children from substance use. Urban planning should incorporate family-centric approaches by promoting housing policies that strengthen family bonds. Creating affordable housing and supportive social services within urban areas contributes to family stability.

• Integrated policies

Urban and regional planning should advocate for integrated policies that address social issues comprehensively. Policies focused on poverty alleviation, education, and public health should be interconnected to provide a holistic approach to mitigating the factors that contribute to substance abuse among street children.

• Public safety measures

The study emphasizes the vulnerability of street-sleeping children to substance use. Urban planning should prioritize public safety measures, including secure sleeping arrangements for vulnerable populations. This may involve the provision of safe shelters and accommodations.

CONCLUSION

This study investigated the socio-economic profiles and substance use patterns among street children in Southwestern Nigeria in 2023, shedding light on their socio-economic backgrounds and the factors contributing to their engagement in substance abuse. By adopting a quantitative research design, the study ensures systematic and rigorous analysis, enabling researchers to draw reliable conclusions and inform targeted interventions and policies. Through meticulous data collection using questionnaires, the study captured a comprehensive picture of the socio-economic characteristics of street children, revealing significant insights into their demographics, schooling status, parental marital status, and daily work hours. This detailed profiling lays the groundwork for a nuanced understanding of the factors influencing substance use among this vulnerable population. One notable finding of the study is the relatively low prevalence of substance use among street children compared to global trends, challenging stereotypical perceptions. Despite high awareness of drugs, less

than one-third of the surveyed children reported engaging in substance use. This discrepancy between awareness and actual usage underscores the need for targeted interventions to prevent substance initiation among street children. Moreover, the study identifies alcohol, nicotine, and cannabis as the primary substances used by street children, highlighting the diverse range of psychoactive substances encountered in their environment. By categorizing substance use patterns, the study provided valuable insights into the prevalence and frequency of drug consumption, enabling policymakers to tailor interventions to address specific substance-related challenges. The findings also revealed significant associations between socioeconomic variables and substance use among street children. Factors such as age, gender, schooling status, hours spent on the street, and sleeping arrangements emerge as key determinants of substance use behavior. The integration of urban and regional planning implications with general recommendations offers a comprehensive strategy to create environments that foster the well-being of street children. By prioritizing safe spaces, economic opportunities, education, family support, and awareness, urban planners, policymakers, and stakeholders can work together to mitigate the factors contributing to substance abuse and contribute to the overall development of vulnerable populations in urban areas. This collaborative and holistic effort is essential for creating sustainable solutions and fostering inclusive urban development. The study's findings provide valuable insights for policymakers, Non-Governmental Organisations (NGOs), public health professionals, educators, urban planners, and community members. Policymakers can use the data to formulate evidence-based policies targeting substance abuse among street children, while NGOs can tailor interventions to better suit the needs of this population. Public health professionals can develop targeted campaigns and treatment programs, educators can implement preventive measures in schools, and urban planners can create safer environments. Community members can gain awareness and support initiatives to improve the well-being of street children.

AUTHOR CONTRIBUTIONS

D.V. Ogunkan was responsible for data collection, analysis, and interpretation, as well as the preparation of Tables and Figures, and the final manuscript. A.T. Adeboyejo contributed to the literature review, created additional Tables, and edited the manuscript. D.O. Adejumobi conceptualized the research design and conducted additional quantitative analysis. T.B. Giwa assisted with the literature review and manuscript preparation

CONFLICT OF INTEREST

The authors declare no potential conflict of interest regarding the publication of this work. In addition, the ethical issues including plagiarism, informed consent, misconduct, data fabrication and, or falsification, double publication and, or submission, and redundancy have been completely witnessed by the authors.

PUBLISHER'S NOTE

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ABBREVIATIONS

NGOs	Non-Governmental Organisations
OR	Odd Ratio
p-value	Probability value
WHO	World Health Organization

REFERENCES

Ayenew, M.; Kabeta, T.; Woldemichael, K., (2020). Prevalence and factors associated with substance use among street children in Jimma town, Oromiya national regional state, Ethiopia: a community based cross-sectional study. Subst Abuse Treat Prev Policy., 15(61): 1-9 **(9 pages).**

Bah, Y. M., (2018). Drug abuse among street children. Biomed J Sci Tech Res., 10(4): 7939-7957 **(19 pages)**.

Barczak, G., (2015). Publishing qualitative versus quantitative research. J. Prod. Innov. Manag., 32(5): 658-658 (**1 page**).

Borgstede, M.; Scholz, M., (2021). Quantitative and qualitative approaches to generalization and replication–A representationalist view. Front. Psychol., 12: 1-9 (**9 pages**).

Carvalho, F. T. d.; Neiva-Silva, L.; Ramos, M. E. B.; Evans, J. L.; Koller, S. H.; Piccinini, C. A.; Page, K., (2006). Sexual and drug use risk behaviors among children and youth in street circumstances in Porto Alegre, Brazil. AIDS Behav., 10(S1): 57-66 (**10 pages**).

Egwuaba, E. U.; Adeyi, S. B., (2023). Substance Abuse and Its Devastating Health Effect on the Youths of Onitsha Metropolis, Nigeria. JEHMSS., 1(2): 60-78 (**19 pages**).

Gunhidzirai, C., (2023). The quest for survival: street children and the informal sector in Zimbabwe. S. Afr. J. Soc. Work Soc. Dev. 35(1): 1-20 (**20 pages**).

Kayembe, P. K.; Mapatano, M. A.; Fatuma, A. B.; Nyandwe, J. K.; Mayala, G. M.; Kokolomami, J. I.; Kibungu, J. P., (2008). Knowledge of HIV, sexual behavior and correlates of risky sex among street children in Kinshasa, Democratic Republic of Congo. East Afr J Public Health., 5(3): 186-192 (**7 pages**).

Kliewer, W.; Murrelle, L., (2007). Risk and protective factors for adolescent substance use: findings from a study in selected Central American countries. J Adolesc Health., 40(5): 448–455 (**8 pages**).

Liu, A.; Zhang, J.; Wu, Q.; Zhang, Y.; Velthoven, M.V., (2022). Comparison of the agreement between WeChat-based self-administered and interviewer-administered data on infant and young child feeding in China: a test-retest study. J Glob Health., 12: 1-13 (**13 pages**).

Manrique-Millones, D.; Wiium, N.; Pineda-Marín, C.; Fernández-Arata, M.; Alfonso-Murcia, D.; López- Martínez, J. L.; Millones-Rivalles, R., (2021). Association between substance use behaviors, developmental assets and mental health: a glance at Latin American young college students. F r o n t .

Psychol., 12: 1-12(**12 pages**).

Mishra, A.; Sharmila, K.; Agarwal, S., (2020). Exploring the problems faced by school going and non- school going street children. Int. J. Home Sci., 6(3): 327-331 (**5 pages**).

Morojele, N. K.; Ramsoomar, L.; Dumbili, E. W.; Kapiga, S., (2021). Adolescent health series – alcohol, tobacco, and other drug use among adolescents in sub-Saharan Africa: a narrative review. Tropical Medicine and International Health., 26(12): 1528-1538 (**11 pages**).

Moura, Y. G. D.; Sanchez, Z. M.; Opaleye, E. S.; Neiva-Silva, L.; Koller, S. H.; Noto, A. R., (2012). Drug use among street children and adolescents: what helps? Cadernos De Saude Publica., 28(7): 1371-1380 (**10 pages**).

Muijs, D. (2010). Doing Quantitative Research in Education with SPSS. 2nd., SAGE Publications Ltd.

Munawar, K., Choudhry, F. R., Hadi, M. A., Khan, T. M. (2020). Prevalence of and factors contributing to glue sniffing in the South Asian Association for Regional Cooperation (SAARC) region: a scoping review and meta-analysis. Subst. Use Misuse., 55(5): 752-762 (**11 pages**).

Ndlovu, E.; Tigere, R., (2022). Life in the streets, children speak out: A case of Harare Metropolitan, Zimbabwe. LIFE, 5(1): 25-45 (**21 pages**).

Obimakinde, A. M.; Shabir, M., (2023). Recount and Account of Lived Experience of Children on the Street: A Phenomenology Approach. Int. J. Qual. Res., 2(3): 183-194 (**12 pages**).

Ofosu-Kusi, Y., (2023). Deliberative Disobedience as a Strategy for Claiming Rights and Representation in the Family: The Case of Accra's Street Children. In The Politics of Children's Rights and Representation. Cham: Springer International Publishing., 205-225 (**22 pages**).

Ogunkan D.V., (2021). Spatial and Socio-Economic Dimensions of Street Children in Ibadan, Nigeria. Global J. Hum. Soc. Sci.: H Interdiscip., 21(3): 57-67 (**11 pages**).

Ogunkan, D. V., (2024). A multisource analysis of child streetism in Nigerian urban centres. Dev. Policy Rev. ,42(1): 1–14 (**14 pages**).

Ogunkan, D. V.; Adeboyejo, A. T., (2021). Locational analysis of child streetism in urban centers. Int. J. Hum. Capital Urban Manage., 6(2): 159-172 (**14 pages**).

Ojebuyi, B. R.; Ajao, H. M., (2023). Resilient Dwellers of Urban "Slums": An Ethnographic Study of Struggle and Communication for Survival among Street Children in Ibadan, Nigeria. Comp. Sociol., 22(3): 325-358 (**34 pages**).

Osei Asibey, B.; Marjadi, B.; Conroy, E., (2023). Alcohol, tobacco and drug use among adults experiencing homelessness in Accra, Ghana: A cross-sectional study of risk levels and associated factors. PLoS ONE., 18(3): 1-18 (**18 pages**).

Pagare, D.; Meena, G. S.; Singh, M. M.; Saha, R., (2004). Risk factors of substance use among street children from Delhi. Indian Pediatr., 41(3): 221-225 (**5 pages**).

Rahman, S.; Lee, P.; Ireen, S.; Ahmed, F., (2021). Validation of an interviewer-administered seven-day semi-quantitative food frequency questionnaire for the dietary assessment of preschool children in rural Bangladesh. J. Nutr. Sci., 10: 1-12 (**12 pages**).

Reid, E., (2023). 'Trap Life': The psychosocial underpinnings of street crime in inner-city London. Br. J. Criminol, 63(1): 168-

183 (**16 pages**).

Roks, R.; Leukfeldt, R.; Densley, J. A., (2020). The hybridization of street offending in the Netherlands. Br. J. Criminol., 61(4): 926–945 (**20 pages**).

Tuladhar, R. M., (1982). A note to the lignite occurrence in lukundol, kathmandu. J. Nepal Geol. Soc., 2(1): 47-61 (**15 pages**).

Vameghi, M.; Roshanfekr, P.; Ghaedamini Harouni, G.; Takaffoli, M.; Bahrami, G., (2023). Street children in Iran: what are their living and working conditions? Findings from a survey in six major cities. Int. J. Environ. Res. Public Health., 20(7): 1-14 (**14 pages**).

World Health Organization (WHO). Mental Health Determinants and Populations Team. (2000). Working with Street Children: A Training Package on Substance Use, Sexual and Reproductive Health Including HIV/AIDS [Technical document]. Geneva: World Health Organization.