

Comparative Analysis of the Socio-Ecological Effect of Street Children Activities in North-Western Nigerian Cities

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Abstract:- Across the globe, street children has been viewed in different dimensions and the effects of their activities have equally caught the attention of social and environmental analysts. In this study, structured questionnaire on socio-ecological attributes of street children activities were administered to 299,163 and 102 respondents in Kano Metropolis, Kaduna Metropolis and Sokoto through multistage sampling technique. The questionnaire were completely retrieved and analysed through Principal Component Analysis and regression analysis. The study discovered that the impact of street children activities on socio-ecological problems was much pronounced in Kaduna Metropolis than Sokoto and Kano Metropolis. Also, all the regressed factors in the study contributed to socio-ecological problems in Kaduna Metropolis while only three factors influenced the situation in Sokoto and Kano Metropolis. Insecurity was the highest effect of street children activities in the cities, distortion of urban system and environmental abuse were in the second and third place. We suggested a social policy that would emphasise advocacy campaign, constant sensitization, counselling on need for sound education and entrepreneurial education across the federation.

Keywords:- street children, socio-ecological effect, insecurity, urban system distortion, environmental abuse, drug offences and flirting.

I. INTRODUCTION

Attentions have been recently focused on street children activities globally. Any child who has not reached adulthood for whom the street has become his/her habitual abode and/or source of livelihood and who is inadequately protected, supervised or directed by responsible adults is regarded as street child (Bukoye, 2015; Ogan, 2021). Extant literature recognized social, political, familial religious and economic factors as causatives of children streetism (Afolabi, 2016; Hassen & Mañus, 2018), Cumber and Tsoka-gwegweni (2016), Hassen and Mañus (2018) and Salaam (2011) equally documented the deplorable condition of street children in different countries. Differences exist in the societies' consideration of street children activities from one country to another. Activities of street children have been declared illegal in United Kingdom, part of USA, Cameroon, India, Canada, Romania (Bukoye, 2015) and some other countries global north and south. Contrarily, Japan, Lisbon, Portugal, Luxembourg, Finland and Nigeria among some

other countries have not prohibited street children (Endris & Sitota, 2019).

Studies have elaborately revealed the implications of street children activities. Popular among these are sexual assault (Taft & Blyth, 2016), drug abuse (Salaam, 2011), treat to national security (Ahmed, 2018; Fatai, 2020; Nte et al., n.d.) and environmental abuse (Ahmed, 2018; Hosny & Moloukhia, 2007). There is a divided policy focus on the activities of street children worldwide, yet, (Oyeniyi, 2019) noted the unprecedented rate of proliferation of street children in Nigeria; in particular. The practice of street children activities in Kano (Salaam, 2011; Taft & Blyth, 2016), Kaduna Metropolis (Azaager & Terwase, 2013) and Sokoto (Amzat, 2015; Fatai, 2020), all in the north-western Nigeria, is though popular but with seemingly unbearable consequences. This study is designed to investigated the socio-ecological aspect of the implication of street children activities in these cities

II. MATERIAL AND METHOD

Arising from variation in the study population in the study areas, 299, 163 and 102 samples sizes were arrived at in Kano Metropolis, Kaduna Metropolis Sokoto. Multistage sampling technique was adopted in each of the cities having stratified the cities into high, medium and low density areas. Consequently, respondents were selected along the streets in the neighbourhoods through systematic sampling method. The study adopted questionnaire as an instrument to collect the needed data. The close-ended questionnaire contained twenty seven variables on social- ecological component of built environment. Principal Component Analysis (PCA) was used to reduce the variables and extract communalities in some identified domains. Similarly, eigenvalues associated with linear composite factors before and after extraction, and after rotation were derived. Values derived represented the variance (%) explained by particular linear composite. From this analysis variable loading and factor scores were generated, classified and named. Factor scores were thereafter inputted as independent variables in a regression model.

The suitability of data for the Factor Analysis was checked by using Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity values. Results of these tests are presented in Table 1. KMO for Kano Metropolis, Kaduna Metropolis and Sokoto was .573, .689 and .829 respectively. For each of the cities, the result of the Bartlett's Test was significant at .000. Hence, data were suitable and adequate for factor analysis.

City		
Kano	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.573
	Approx. Chi-Square	11958.271
	Bartlett's Test of Sphericity Df	3568
	Sig.	.000
Kaduna Metropolis	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.689
	Approx. Chi-Square	15123.952
	Bartlett's Test of Sphericity Df	5050
	Sig.	.000
Sokoto	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.829
	Approx. Chi-Square	38375.242
	Bartlett's Test of Sphericity Df	5050
	Sig.	.000

Table 1: KMO and Bartlett’s test of Sphericity

The identified variables were inputted in the Factor Analysis. None of the variables has low communality values (below 0.500) for Kano Metropolis data; as such all were used in the analysis. For Kaduna Metropolis and Sokoto, twenty-three (23) and eighteen (18) variables have communality above 0.500. These were respectively used for further analysis

Principal component analysis was also used to reduce the variables to four factors. Total variance explained by each of these factors before and after extraction, and after

rotation are as presented in Tables 2, 3 and 4 respectively for Kano Metropolis, Kaduna Metropolis and Sokoto. For Kano Metropolis, Factor 1 accounted for 25.61% variance before extraction and 15.91% after rotation. In all, Factors 1, 2, 3 and 4 explained 50.44% of variance in the socio-ecological effect of street children activities in Kano Metropolis. In Kaduna Metropolis and Sokoto respectively, 44.57% and 49.55% of variance in the socio-ecological effect of street children were explained by factors 1, 2, 3 and 4.

Factors	Initial Eigenvalues (before extraction)			Extraction Sums of Squared Loadings (after extraction)			Rotation Sums of Squared Loadings (after rotation)		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	25.612	25.358	25.358	25.612	25.358	25.358	16.075	15.916	15.916
2	10.984	10.875	36.234	10.984	10.875	36.234	14.423	14.280	30.196
3	9.134	9.044	45.278	9.134	9.044	45.278	10.782	10.675	40.871
4	6.842	6.774	52.052	6.842	6.774	52.052	9.670	9.575	50.445

Extraction Method: Principal Component Analysis

Table 2: Variance Explained by Socio-ecological Effect of Street Children Activities in Kano Metropolis

Factors	Initial Eigenvalues (before extraction)			Extraction Sums of Squared Loadings (after extraction)			Rotation Sums of Squared Loadings (after rotation)		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	24.172	23.933	23.933	24.172	23.933	23.933	15.009	14.861	14.861
2	12.916	12.788	36.720	12.916	12.788	36.720	10.050	9.951	24.811
3	6.252	6.190	42.910	6.252	6.190	42.910	10.018	9.919	34.730
4	5.263	5.211	48.121	5.263	5.211	48.121	9.938	9.840	44.570

Extraction Method: Principal Component Analysis

Table 3: Variance Explained by Socio-ecological Effect of Street Children Activities in Kaduna Metropolis

Factors	Initial Eigenvalues (before extraction)			Extraction Sums of Squared Loadings (after extraction)			Rotation Sums of Squared Loadings (after rotation)		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	28.773	28.488	28.488	28.773	28.488	28.488	17.358	17.186	17.186
2	9.810	9.713	38.202	9.810	9.713	38.202	12.017	11.898	29.084
3	7.962	7.883	46.085	7.962	7.883	46.085	11.431	11.317	40.401

4 4.476 4.432 50.516 4.476 4.432 50.516 9.241 9.149 49.551

Table 4: Variance Explained by Socio-ecological Effect of Street Children Activities in Sokoto
Extraction Method: Principal Component Analysis

A. *Extraction of Socio-ecological Effect of Street Children Activities in the Selected Cities*

Having identified eigenvalues associated with each of the four composite factors, the variables that loaded on each factor were itemised and named accordingly. Varimax rotation was used to forestall the tendency that some variables loaded high on one factor and low on others. The rotated composite matrixes of respondents’ responses explain the structure of variables that are loaded on each factor.

Rotated factor matrix for Kano Metropolis variables is presented in Table 5. Factor 1 was labelled insecurity while Factor 2 was named distortion of urban system. Factor 3 and 4 were tagged drug offences and flirting and environmental abuse respectively. Variance explained by these factors in the socio-ecological effect of street children in Kano Metropolis was 57.86%. Variables that loaded on Factor 1 were thirteen (13). Among these were burglary (0.696),

burning of properties (0.689), vandalism (0.685), cultism and related harms (0.669), grievous harm/wounding (0.652), pick-pocketing (0.651) and Stealing and pilfering (0.650). Other variables that loaded in the Factor were threat to national security (0.644), manslaughter (0.613), breach of public peace (0.612), indecent assault (0.597), connivance in theft (0.593) and bullying (0.587). Five (5) variables loaded on Factor 2. They were: obstructing free flow of traffic (0.809), creation of ugly urban scene (0.803), creation of slum (0.800), creation of illegal settlement (0.792) and destruction of urban landscape (0.789). The dimension of Factor 3 was explained by five (5) variables. These variables were gambling (0.824), drug offences (0.797), sexual harassment (0.786), prostitution (0.741) and rape (0.718). Variables that loaded on Factor 4 included air pollution of urban environment (0.743), indiscriminate waste disposal (0.718), waste generation (0.717) and noise pollution of urban environment (0.710).

	<u>Component</u>			
	1	2	3	4
Burglary	.696			
Burning of property	.689			
Vandalism	.685			
Cultism and related harms	.669			
Grievous harm/wounding	.652			
Pick-pocketing	.651			
Stealing and pilfering	.650			
Threat to national security	.644			
Manslaughter	.613			
Breach of public peace	.612			
Indecent assault	.597			
Connivance in theft	.593			
Bullying	.587			
Obstructing free flow of traffic		.809		
Creation of ugly urban scene		.803		
Creation of slum		.800		
Creation of illegal settlement		.792		
Destruction of urban landscape		.787		
Gambling			.824	
Drug offences			.797	
Sexual harassment			.786	
Prostitution			.741	
Rape			.718	
Air pollution of urban environment				.743
Indiscriminate waste disposal				.718
Waste generation				.717
Noise pollution of urban environment				.710

Table 5: Rotated composite matrix of data of Kano Metropolis

NOTE: Extraction method used was Principal Component Analysis. Rotation method was Varimax with Kaiser Normalization.

Total variance explained by these four factors in Kano Metropolis was 50.44%. Separately, rotation of sum of squared loading (after rotation) for Factors 1, 2, 3 and 4

were respectively 15.91%, 14.28%, 10.67% and 9.57%. In other words, insecurity factor explained 15.91% variance, distortion of urban system factor accounted for 14.28%, drug offenses and flirting factor explained 10.67% while environmental abuse factor was due to 9.57% variance of socio-ecological effect of street children in Kano Metropolis.

Data on Kaduna Metropolis subjected to variable reduction revealed that eighteen variables contributed to Factor 1 while Factor 2 and 3 were explained by five variables each. The dimension of Factors 4 was explained by four variables. As presented in Table 6, variables such as burglary (0.930), burning of property (0.916), vandalism (0.914), Cultism and related harms (0.911), pick-pocketing (0.896) and stealing and pilfering (0.861) loaded highly on insecurity factor. Variables that loaded highly on Factor 2 included obstructing free flow of traffic, creation of ugly urban scene and creation of slum. Loadings of these variables were 0.856, 0.811 and 0.808 respectively.

The third factor comprised variables related to drug offences and flirting. These were gambling (0.804), drug offences (0.803), and sexual harassment (0.753) among others. Some variables that accounted for place attachment and neighbourhood characteristics factor were prostitution (0.719) and rape (0.706). Factor 4 comprised variables such as air pollution of urban environment, indiscriminate waste disposal, waste generation and noise pollution of urban environment. The respective loadings of these variables were 0.706, 0.695, 0.672, and 0.672.

Variable	<u>Component</u>			
	1	2	3	4
Burglary	.930			
Burning of property	.916			
Vandalism	.914			
Cultism and related harms	.911			
Pick-pocketing	.896			
Stealing and pilfering	.861			
Threat to national security	.860			
Manslaughter	.859			
Connivance in theft	.857			
Obstructing free flow of traffic		.856		
Creation of ugly urban scene		.811		
Creation of slum		.808		
Creation of illegal settlement		.783		
Destruction of urban landscape		.773		
Gambling			.804	
Drug offences			.803	
Sexual harassment			.753	
Prostitution			.719	
Rape			.706	
Air pollution of urban environment				.706
Indiscriminate waste disposal				.695
Waste generation				.672
Noise pollution of urban environment				.672

Table 6: Rotated composite matrix of data of Kaduna Metropolis

NOTE: Extraction method used was Principal Component Analysis. Rotation method was Varimax with Kaiser Normalization.

For Sokoto, 7 variables loaded on Factor 1, 4 variables loaded on Factor 2 and 3 while 3 variables loaded on Factor

4. As presented in Table 7, variables that loaded on Factor 1 included burglary (0.712), vandalism (0.694), stealing and pilfering (0.676), threat to national security (0.655), connivance in theft (0.652). These variables are related to insecurity.

Variable	<u>Component</u>			
	1	2	3	4
Burglary	.712			
Vandalism	.694			
Stealing and pilfering	.676			
Threat to national security	.671			
Connivance in theft	.655			
Condition of other buildings	.652			
Manslaughter	.652			
Obstructing free flow of traffic		.811		
Creation of ugly urban scene		.781		
Creation of illegal settlement		.777		
Destruction of urban landscape		.757		

Sexual harassment	.868
Prostitution	.852
Rape	.840
Drug offences	.832
Air pollution of urban environment	.793
Indiscriminate waste disposal	.783
Waste generation	.762

Table 7: Rotated composite matrix of data of Sokoto

NOTE: Extraction method used was Principal Component Analysis. Rotation method was Varimax with Kaiser Normalization

Variable that loaded on the composite of Factor 2 were issues that connect to the distortion of urban system. Table 7 also showed that the 4 variables in composite 2 and 4 variables in composite 3 were respectively about distortion of urban system and drug offenses and flirting while three variables that loaded on composite 4 centred on environmental abuse.

III. RESULT AND DISCUSSION

Having identified the four factors contributing to socio-ecological effect of street children activities in the three selected cities, these factors regressed against socio-ecological effect of street children activities. The general form of the regression model is $Y = a + \beta_1\chi_1 + \beta_2\chi_2 + \beta_3\chi_3 + \beta_4\chi_4$ (iv)

Where Y = Socio-ecological problems (Dependent variable)

a = Intercept

β_1, β_4 = Coefficient of independent variables ($\chi_1 - \chi_4$)
 χ_1 = insecurity

χ_2 = distortion of urban system
 χ_3 = drug offenses and flirting
 χ_4 = environmental abuse

For Kano Metropolis, coefficient of determination (R) was 0.741. Similarly, the coefficient of multiple determination (R^2) was 0.549 (Table 8). This shows that 54.9% variance in socio-ecological problems in the Metropolis was explained by the significant factors. As presented in Table 10, factors that causing socio-ecological problems in Kano Metropolis as a result of street children activities were insecurity, distortion of urban system and environmental abuse. Standardized Coefficient(β) of these factors were 0.505, 0.321 and 0.415 respectively. These factors separately contributed 27.2%, 10.8% and 16.9% to the total variance explained by the model.

City	Model	R	R ²	Adjusted R ²	Std. Error of the Estimate
Kano	1	.741	.549	.499	.85793
Kaduna	1	.874	.763	.755	.99332
Sokoto	1	.789	.638	.632	.96355

Table 8: Regression model summary for the Selected Cities

City	Model	Sum of Square	Df	Mean Square	F	Sig.
Kano	Regression	32.283	3	8.071	10.965	.000
	Residual	26.498	296	.736		
	Total	58.780	299			
Kaduna	Regression	362.677	4	90.669	91.892	.000
	Residual	112.483	159	.987		
	Total	475.160	163			
Sokoto	Regression	498.139	3	99.628	107.307	.000
	Residual	238.173	99	.928		
	Total	781.312	102			

Table 9: ANOVA for Regression Analysis for the Selected Cities

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	sr ²
	B	Std. Error	Beta			
(Constant)	5.123	.254		20.198	.000	
Insecurity	.602	.134	.505	4.489	.000	.272
Distortion of urban system	.395	.139	.321	2.828	.008	.108
Environmental abuse	.662	.180	.415	3.673	.001	.169

Table 10: Coefficients of Factors of Socio-ecological Problems in Kano Metropolis

In Kaduna Metropolis, socio-ecological effect of street children activities was predicted by all the factors regressed in the model. Table 8 shows that the factors contributed

76.3% of the effect in the model and Table 9 signifies that the model was significant at 0.000; 91.89 F value. The standardized coefficients (β) of these factors are presented in

Table 11. These were 0.736, 0.310, 0.268 and 0.232 for insecurity, distortion of urban system, environmental abuse and drug offenses and flirting respectively. The contribution

of each of these four factors to the total variance of socio-ecological effect of street children in Kaduna Metropolis was 54.2%, 9.6%, 7.1% and 5.4% respectively.

	Unstandardized Coefficients		Standardized Coefficients		Sig	sr ²
	B	Std. Error	Beta	T		
(Constant)	3.798	.091		41.713	.000	
Insecurity	1.477	.091	.736	16.154	.000	0.542
Distortion of urban system	.622	.091	.310	6.798	.000	0.096
Environmental abuse	.537	.091	.268	5.870	.000	0.071
Drug offenses and flirting	.466	.091	.232	5.093	.000	0.054

Table 11: Coefficients of factors of Socio-ecological Effect of Street Children in Kaduna Metropolis

Result of regression analysis for Sokoto was found significant at $p = 0.00$ and F value of 107.307 (Table 9). The result showed that three (3) independent variables were significant in the model. These were insecurity, ($\beta = +0.561$), distortion of urban system ($\beta = +0.468$) and environmental abuse ($\beta = 0.239$). These variables explained

63.8% of total variance of socio-ecological effect of street children in Sokoto ($R^2 = .638$) (Table 8). The unique contributions of each of these factors, determined by semi partial correlation were respectively, .385, .161 and .092 (Table 12).

	Unstandardized Coefficients		Standardized Coefficients		Sig.	sr ²
	B	Std. Error	Beta	t		
(Constant)	4.730	.055		86.568	.000	
Insecurity	.891	.055	.561	16.282	.000	.385
Distortion of urban system	.742	.055	.468	13.565	.000	.161
Environmental abuse	.379	.055	.239	6.928	.000	.092

Table 12: Coefficients of Factors of Socio-ecological Effect of Street Children Activities in Sokoto

IV. DISCUSSION OF FINDINGS

The comparative analysis of the socio-ecological effect of street children activities in Kano, Kaduna Metropolis and Sokoto revealed that only Kaduna Metropolis was worst affected by the activities of street children socially and ecologically; ($R^2=76.6$). This result was in agreement with Azaager and Terwase (2013) and Bukoye (2015) who had earlier empirically discovered the vulnerability of Kaduna city to the street children activities. The contribution of all the four factors regressed against socio-ecological problems in the city, unlike in Kano Metropolis and Sokoto, signified that the city was worst affected in the region by the activities of street children.

In the three selected cities, the effect street children activities on insecurity was much pronounced. Studies (Ahmed, 2018; Nte et al., n.d.; Ogan, 2021; Salaam, 2011) have established the supremacy of this impact of street children activities on social crime across the globe. The impact was 54.2%, 38.5% and 27.2% in Kaduna Metropolis, Sokoto and Kano Metropolis respectively. The distortion of urban system due to the activities of street children was more alarming in Sokoto than Kano and Kaduna Metropolises. This effect was also discovered by Fatai (2020). In general, environmental abuse by the street children was the third ranked effect in the study. The impact of this factor was much felt in Kano. Drug offenses and flirting was discovered to have contributed to socio-ecological problems in Kaduna Metropolis out of the three selected cities. This could be due to strict religious laws operating in both Kano and Sokoto States.

V. RECOMMENDATIONS

The study has compared the impact of the activities of street children in three cities in the north-western Nigeria region on socio-ecological problems of the area. The striking outcome of the comparative analysis was that their activities were consequential to insecurity. The proliferating rate of street children activities in the region is synonymous to time bomb that is supposed to be arrested before it explodes. Arising from this, this study suggests that law should be enacted in the concerned States on the prohibition of street children activities. In addition, social and educational policies that centre on the holistic development of children in the region should be formulated. Lastly, due to the assertion of a governor in the region that most of these children were from the neighbouring countries, the government should effectively monitor immigration of the underage children into the country.

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