

# Sanitary Practices, Nutritional and Health Status of Street Children in Matazu Local Government Area of Katsina State, Nigeria

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**Abstract.** This cross-sectional study assessed the sanitary practices, nutritional and health status of 105 street children in Matazu Local Government Area of Katsina State, using questionnaire, anthropometry and Food Frequency Questionnaire. Frequencies, percentages, means and standard deviations were computed using SPSS. 99(94.3%) of respondents were males, while 6(5.7%) were females, with mean ages of 13.6±2.3 years. Only 36(34.3%) used soap+water to wash their hands after using the toilet. 26(24.8%) and 14(13.3%) respondents respectively were moderately and severely stunted, while 24(22.9%) and 19(18.1%) were moderately and severely underweight respectively. No respondent (0%) consumed animal protein up to four times a week, while guinea corn (96.2%) and millet (94.3%) were consumed >4times per week. Headache (91.4%), fatigue (89.5%) and respiratory conditions, (82.9%) were the most frequently experienced illnesses. The sanitary habits, nutritional and health status of street children in Matazu are poor and need to be improved.

**Keywords:** sanitary habits, nutritional status, street children, Matazu

## 1. Introduction

Nigeria is the most populous country of the African continent and is estimated to have a population of 170 million [1]. In spite of her wealth of natural resources, poverty is endemic in Nigeria with 61.2% of the population living on less than \$1 a day [2]. This has led to an increase in the number of vulnerable street children, put at an estimate of fifteen million in Nigeria [3]. Children have the right to the highest attainable standard of health and to facilities for treatment of illness and rehabilitation (including the provision of adequate nutritious food and clean drinking water) [4]. However, ignorant about health, hygiene and nutrition and deprived of services to protect them, street children are a sub-population subsisting on an inadequate diet, which puts them at exceptional risk to a wide range of health outcomes and malnutrition [5]. The concept of the street child in a rural community has received little attention with many believing that it is a rarity [6], therefore there is sparse documentation which has necessitated this study on the sanitary nutritional and health status of street children living in Matazu Local Government Area of Katsina State.

## 2. Methodology

### 2.1. Study Area

The study was a descriptive, cross-sectional study conducted in Matazu Local Government Area of Katsina State, Nigeria, which has an estimated population of 545,000 [7]. The areas where street children gather (such as market places and garages) were identified and classified as clusters in all the ten wards in the Local Government Area, from where the respondents were selected.

### 2.2. Subjects

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105 children under 18 years who spend many hours on the street were recruited by simple random sampling for the study. The inclusion criteria were begging, doing odd jobs on the street, sleeping on the street and partaking in street life. Children in Institutionalized care and disabled children were not included in the study.

### 2.3. Data Collection and Analysis

Socio-demographic data, information on sanitary practices and frequency of episodes of illnesses were collected using a semi-structured questionnaire administered by an interviewer in the local language. Anthropometric measurements of weight and height were taken and anthropometric indices (height-for-age and BMI-for-age – stunting and underweight) were computed using WHO AnthroPlus software (2006). A pre-tested Food Frequency questionnaire was used to evaluate the usual foods eaten by the children, and frequency of consumption within a seven-day period. Descriptive statistical tools such as frequencies, means and standard deviations were computed using SPSS version 16.0 at the 0.05 level of significance.

### 2.4. Ethical Considerations

The study received approval from the Matazu Local Government Headquarters. The subjects were fully briefed about the study and only those who gave verbal assent to participate in the study were selected.

## 3. Results

Table I shows the socio-demographic characteristics of the respondents. Almost all (99(94.3%)) of the respondents were male, while only 6(5.7%) were females. Majority (86(81.9%)) of the respondents had no education. The mean age of the respondents was  $13.6 \pm 2.3$  years.

Table II shows the respondents' activities on the street. Majority (66(62.9%)) of the respondents were engaged in odd jobs such as shoe shining, water fetching etc. while 25(23.8%) and 14(13.3%) were either involved in petty trading or begging respectively. A large proportion (86(81.9%)) indicated they were on the streets for socio-economic reasons.

Table I: Socio-demographic characteristics of the respondents

	Frequency	Percent
<b>Gender</b>		
Male	99	94.3
Female	6	5.7
Total	105	100.0
<b>Highest Education attained</b>		
No education	86	81.9
Primary	15	14.3
Secondary	4	3.8
Total	105	100.0
<b>Age (mean <math>13.6 \pm 2.3</math> years)</b>		
5-10	21	20.0
11-15	43	41.0
16-18	41	39.0
Total	105	100.0

Table II: Respondents' activities on the street

	Frequency	Percent
<b>Activities</b>		
Petty trading	25	23.8
Begging	14	13.3
Odd-job	66	62.9
Total	105	100.0
<b>Reason for being on the street</b>		
Socio-economic reasons	86	81.9
No supervision by older relatives	19	18.1
Total	105	100.0

In Table III, the general availability of food and the respondents' access to it is presented. More than half (69(65.7%)) took their meals at home, while 30(28.6%) purchased food from food vendors. However, majority (67(63.8%)) of the respondents reported not always having enough food to eat. Similarly, 95(90.5%) reported that they did not always have the types of food they prefer.

Table IV shows the sanitary habits of the respondents. Pit toilet was the most common type of toilet, being used by 93(88.6%) of the respondents. Almost all the respondents (101(96.2%)) used only water to clean themselves up after using the toilet. Only a small proportion of the respondents (36(34.3%)) used soap and water to wash their hands after using the toilet. Only about half of the respondents (57(54.3%)) cleaned their teeth using tooth brush and tooth paste.

Table III: General food availability, access and preference of the respondents

	Frequency	Percent
<b>Where meals are taken</b>		
Home	69	65.7
Food vendors	30	28.6
Left over	6	5.7
Total	105	100.0
<b>Is the food available enough to satisfy?</b>		
Yes	38	36.2
No	67	63.8
Total	105	100.0
<b>Is the food available preferred?</b>		
Yes	10	9.5
No	95	90.5
Total	105	100.0

Table IV: Respondents' Sanitary Practices

	Frequency	Percent
<b>Type of toilet used</b>		
Pit	93	88.6
Surrounding bushes	12	11.4
Total	105	100.0
<b>Items used to clean up after using the toilet</b>		
Water only	101	96.2
Stick	4	3.8
Total	105	100.0
<b>Items used for hand-cleaning after using the toilet</b>		
Water only	57	54.3
Soap and water	36	34.3
Sand and water	12	11.4
Total	105	100.0
<b>Items used for cleaning of the teeth</b>		
Charcoal and water	22	21.0
Brush + toothpaste	57	54.3
Water only	24	22.9
Salt and water	2	1.9
Total	105	100.0

In Table V, the frequency of episodes of illness within the past 6 months is shown. Headache and fatigue were reported by almost all the respondents (96(91.5%) and 94(89.51%) respectively as the most frequently experienced illnesses. Respiratory tract conditions such as cough and catarrh ranked next in frequency being experienced by 87(82.9%) versus 81(77.11%) respondents respectively. Sixty-one 61(58.0%), 88(73.1%), and 82(78.11%) of the respondents respectively reported experiencing malaria, diarrhea, or vomiting sometimes.

Table VI: Frequency of consumption of different food items

Food items	0x/week F (%)	1-2x/week F (%)	3-4x/week F (%)	over 4x/week F (%)
<b>Cereals</b>				
Rice	0(0%)	0(0%)	13(12.4%)	91(86.7%)
Maize	10(9.5%)	0(0%)	35(33.3%)	69(65.7%)
Guinea corn	0(0%)	0(0%)	4(3.8%)	101(96.2%)
Millet	0(0%)	1(0.9%)	5(4.7%)	99(94.3%)
<b>Legumes</b>				
Soya beans	7(6.67%)	55(52.4%)	30(28.8%)	13(12.4%)
Beans	2(1.9%)	37(35.2%)	54(51.4%)	12(11.4%)
Peanut	0(0%)	1(0.9%)	5(4.8%)	99(94.8%)
<b>Root and tubers</b>				
Yam	97(92.4%)	8(6.7%)	0(0%)	1(0.9%)
Irish potatoes	99(94.3%)	5(4.8%)	0(0%)	1(0.9%)
<b>Animal protein</b>				
Milk	75(71.4%)	29(27.6%)	1(0.9%)	0(0%)
Fish	6(5.7%)	93(88.6%)	6(5.7%)	0(0%)
Meat	36(34.3%)	64(60.9%)	5(4.8%)	0(0%)
Eggs	91(86.7%)	11(10.8%)	1(0.9%)	2(1.9%)
<b>Fruits and vegetables</b>				
Apple	91(86.7%)	8(7.6%)	5(4.8%)	1(0.9%)
Mango	75(71.4%)	27(25.7%)	2(1.9%)	1(0.9%)
Orange	12(11.4%)	79(75.2%)	14(13.3%)	0(0%)
Pawpaw	30(28.4%)	62(59.8%)	11(10.8%)	2(1.9%)
Banana	26(24.8%)	70(66.7%)	9(8.6%)	0(0%)
Water melon	17(16.1%)	62(59.8%)	17(16.1%)	9(8.6%)
Guava	64(60.9%)	21(20.0%)	15(14.3%)	5(4.8%)
Spinach	28(26.7%)	28(26.7%)	37(35.2%)	12(11.4%)
Tomato	19(18.0%)	12(11.4%)	14(13.3%)	60(57.1%)
Garden egg	31(29.5%)	27(25.7%)	19(18.0%)	28(26.7%)
Sorel	14(13.3%)	32(30.0%)	48(45.7%)	11(10.8%)
Moringa	2(1.9%)	11(10.8%)	32(30.0%)	60(57.1%)

Table VI shows the frequency of consumption of different food items. Guinea corn 101(96.2%) and millet 91(86.7%) were the most frequently consumed cereals. None of the respondents (0%) consumed animal protein such as milk, fish and meat up to four times a week. Fruit consumption was low among the respondents with 79 (75.2%), 62 (59.8%) and 70 (66.6%) respectively consuming orange, pawpaw and

bananas only 1-2 times weekly. Moringa leaves 60 (57.1%) and tomato 60 (57.1%) were the vegetables being consumed most frequently.

Table V: Frequency of episodes of illness within the past 6 months

Illness	Very frequent	Sometimes	Not often	Not ever
	Frequency (%)	frequency (%)	frequency (%)	frequency (%)
Headache	96(91.4%)	10(9.6%)	0(0%)	0(0%)
Malaria	5(4.8%)	88(83.8%)	12(11.4%)	0(0%)
Diarrhea	4(3.8%)	82(78.1%)	19(18.1%)	0(0%)
Vomiting	5(4.8%)	61(58.1%)	39(37.1%)	0(0%)
Fatigue	94(89.5%)	10(9.5%)	1(0.9%)	0(0%)
Fever	73(69.5%)	25(23.8%)	7(6.7%)	0(0%)
UTI	2(1.9%)	3(2.9%)	93(88.6%)	7(6.6%)
Chest pain	11(10.5%)	15(14.3%)	79(75.2%)	0(0%)
Catarrh	81(77.1%)	16(15.2%)	8(7.6%)	0(0%)
Cough	87(82.9%)	14(13.3%)	4(3.8%)	0(0%)
Itching eyes	10(9.5%)	48(45.7%)	47(44.8%)	0(0%)
Stomach pain	11(10.5%)	38(36.2%)	56(53.4%)	0(0%)
Skin infection	4(3.8%)	32(30.5%)	69(65.7%)	0(0%)
Constipation	0(0%)	34(32.4%)	70(66.7%)	0(0%)

Table VII: Respondents' anthropometry

	Frequency	Percent
<b>Height-for-age (HAZ)(stunting)(mean -1.70±1.10)</b>		
Normal (-0.99 and above)	65	61.9
Mild (-1.99 to -1.0)	0	0.0
Moderate (-2.99 to -2.0)	26	24.8
Severe (≤-3.0)	14	13.3
Total	105	100.0
<b>BMI-for-age (BAZ)(underweight)(-1.84±1.60)</b>		
Normal(-0.99 and above)	24	22.9
Mild(-1.99 to -1.0)	38	36.2
Moderate(-2.99 to -2.0)	24	22.9
Severe(≤-3.0)	19	18.1
Total	105	100.0

Table VII presents the respondents' anthropometric data. Majority 65(61.9%) of the respondents had a normal height-for-age, while 26(24.8%) were moderately stunted. However, 14(13.3%) of the respondents were severely stunted. Only 24(22.9%) of the respondents were of normal weight, while 38(36.2%), 24(22.9 %) and 19(18.1%) were mildly underweight, moderately underweight and severely underweight respectively.

#### 4. Discussion

Majority of the respondents (94.3%) in the current study were boys, consistent with the findings of high male proportion of street boys in previous studies [8]-[10]. In addition to the fact that fewer girls may be abandoned by their families [11], girls are often socialized to remain at home in Muslim communities. In the current study, over half of the respondents were found to be "working children", in contrast with other studies which showed high proportions of street children to be beggars [12], [13].

The respondents' access to sanitary facilities was generally less than desirable with almost all of them using open pit toilets, more than half cleaning their hands with only water after using the toilet and only about half using toothbrushes with toothpaste for teeth-cleaning. Headache, fatigue, fever, catarrh and cough were frequently experienced by the respondents, reflecting their high susceptibility to infections.

The present study showed a high daily consumption of starchy staples, with low daily consumption of animal and plant proteins and fruits and less than optimal consumption of vegetables. This lack of variety in the diets of these children may render them prone to micronutrient deficiencies and other nutritional disorders, and may be responsible for the high levels of stunting observed in this population.

According to the Global Database on Child Growth and Malnutrition, a stunting rate of 30-39% is regarded as high [14]. In this study, a large proportion (38.1%) of the respondents were found to be either mildly or moderately stunted. Also, levels of underweight indicated in this study were very high. These levels of stunting and underweight were similar to the levels shown by Patriasih et al 2010 [15]. This can be explained by the children's inadequate food intake as about two-thirds of the respondents in the present study reported not always having enough food to eat. These high levels of malnutrition compromise human capital, thereby robbing many developing countries of at least 2-3% of economic growth, with the long-term effect of perpetuation of inter-generational poverty [16].

#### 5. Conclusion

The nutritional status and sanitary habits of street children in Matazu Local Government Area of Katsina State are poor. Urgent intervention efforts are needed to improve their access to nutritious food, and ultimately their nutritional and health status.

## 6. References

- [1] World Population Statistics. Population of Africa. 2014, Retrieved from <http://www.worldpopulationstatistics.com/population-of-africa-2014/slash> on 17th February, 2014.
- [2] Nigerian poverty Profile Report (2010). National Bureau of Statistics. Retrieved from [www.nigerianstat.gov.ng/uploads/](http://www.nigerianstat.gov.ng/uploads/).
- [3] J. A. Adegun, A. S. Adegoroye, E.O. Osakinle and A.F. Bersnard. The Growing Population of the Street Children and the Accompanying Social Distress in Nigeria. *African Journal of Basic & Applied Sciences* 2010, 2 (1-2); 42-48.
- [4] United Nations Convention on the Rights of the child (1989).
- [5] WFP/UNICEF/ UNODCC (2001). Rapid Situation Assessment Report on the Situation of Street children in Cairo and Alexandria, including children's drug abuse and health/nutritional status.
- [6] E. T. Owoaje, A.O. Adebisi and M.C. Asuzu. Socio-demographic Characteristics of Street Children in Rural Communities Undergoing Urbanization. *Annals of Ibadan Postgraduate Medicine*. 2009, 7 (1); 10-15.
- [7] National Population Commission of Nigeria (2006).
- [8] A.A Kalimpira and L. Chipwatali. Dietary Patterns And Prevalence Of Wasting Among Street Children In Lilongwe, Malawi. *African Journal of Food, Agriculture, Nutrition and Development* 2007, 7 (1): 1-14.
- [9] K. Thapa, S. Ghatane and S.P. Rimal. Health Problems Among The Street Children Of Dharan Municipality. *Kathmandu University Medical Journal* 2009, 7 (3: 27); 272-279.
- [10] M. Ali, S. Shahab, H. Ushijima and A de Muynck. Street Children in Pakistan: a Situational Analysis of Social Conditions and Nutritional status. *Social Science & Medicine* 2004, 59; 1707–1717.
- [11] WHO Working With Street Children - A profile on street children. A Training Package on Substance Use, Sexual and Reproductive Health including HIV/AIDS and STDs. 2000.
- [12] UNICEF (2001). A Study on Street Children in Zimbabwe. Evaluation report.
- [13] S. O. Ayaya and F. O. Esamai. Health problems of street children in Eldoret, Kenya. *East African Medical Journal*. 2001, 78(12):624-9.
- [14] M. de Onís and B. Monika. WHO Global Database on Child Growth and Malnutrition. Geneva: World Health Organization, 1997.
- [15] R. Patriasih, I. Widiaty, M. Dewi and D. Sukandar. Nutrients Intake and Nutritional Status of Street Children in Bandung. *Journal of Nutrition and Food*, 2010, 5 (3): 177-183.
- [16] World Bank. 2006. Repositioning Nutrition as Central to Development: A Strategy for Large-Scale Action. Washington, DC: World Bank.