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Health Problems of the Under-Five Children in an Urban Slum in Enugu

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ABSTRACT

Objective: To determine the health problems common among under-five children in a typical urban slum in Nigeria and assess the treatment patterns commonly offered to these children.

Methods: A community-based, cross-sectional survey was conducted in May-July 2010. A cluster sampling technique was used to select 245 children from 140 households and an interviewer-administered questionnaire were used on mothers of these children.

Result: Majority of the mothers (89.2%) had primary/secondary education and 69.4% were traders. Most commonly reported symptoms among the children were fever, diarrhoe, cough and fast breathing (acute respiratory symptoms). Diarrhoeal (40%) and acute respiratory symptoms (37.6%) occuring singly or as a co-morbidity were the most common illnesses while fever without any other appreciable symptoms was documented in 25.4% of the children. While 50.4% of the households visited only orthodox health facilities for treatment, 14.6% and 6.9% use only self-medication and traditional health practitioners respectively. As regards immunization, 22.7% of the children were not fully immunized. A total of 69 deaths mostly from febrile illness were reported from 58 households. There was a strong association between morbidity and some socio-demographic factors such as accommodation pattern and toilet facility. Childhood morbidity and mortality remains high in the slum in our environment.

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Introduction

The growing slum population in the developing world is an increasing challenge. With sparse income, the majority of the city residents opt to stay in the slums,which therefore have been expanding rapidly. Reports show that 60% of the population of the big cities live urban slums.[1,2] Urban slums pose special health problems due to poverty, overcrowding, lack of potable and waste disposal facilities as well as poor access to health care facilities. Evidence from demographic and health surveys indicates that the urban poor in sub-saharan African exhibit higher mortality rates than residents from other subgroups including rural residents.[3] The leading causes of under-five mobidity and mortality in our environment are diarrhea diseases, pneumonia,

malaria, malnutrition and measles.[4] These illnesses are related to ignorance, poverty and poor environmental conditions such as overcrowding, poor quality drinking water, poor sanitation with stagnant pools of water and no waste disposal system.[5] The situation is further worsened by lack of necessary health facility within the community.[6]

This study was carried out in Ugbo-Odogwu, one of the slums in Enugu Urban. The study was aimed to determine sociocultural and environmental factors contributing to childhood morbidity and mortality in urban slum. The pattern of childhood illnesses, the treatment patterns commonly offered to these children and possible cause of death were studied.

MATERIALS AND METHODS

The study area and population

This was a community-based, cross-sectional descriptive study conducted in a typical slum- Ugbodogwu- in Enugu metropolis. Enugu is the capital of Enugu State South-Eastern Nigeria. Enugu metropolis is an urban area consisting of three local government areas namely: Enugu East, Enugu South and Enugu North. The area is a reflection of the demographic picture of South-Eastern Zone of Nigeria. A pilot study had been carried out in the community in 2005. The slum which is located in Enugu North LGA, was randomly selected using the ballot method, from the 14 slums in Enugu metropolis. It had a population of about eight thousand people.

Sample size determination

The sample size for the under-five required was determined according to the standard formula by Oyejide[7] for an infinite population. Using the 15% prevalence for the number of the under-five in a typical Nigerian slum by Zoakah et al[8] in Jos, confidence limit of 95%, absolute precision (d) of 5% and a design effect of 2, the sample size was estimated as 245 giving for attrition rate.

Included in the study were children who were under five and whose mothers were available to give relevant information. Children whose mothers were not avilable at the time of study were excluded.

Survey design

The first household with eligible child was selected randomly and the rest of the children were selected from contiguous households until the required sample size was attained. Only children from households with the mothers available at the time of study were recruited. The survey was conducted from May to July, 2010 by the two authors and a trained female undergraduate who worked under the supervision of one of the authors. The visits were done mainly at weekends when the mothers were most likely to be available.

Data collection

The survey involved interviewing mothers of under-five children using interviewer-administered questionnaire. A pre-tested interviewer-administered questionnaire was used to obtain data on the socio-demographic profiles of the mothers and children. Immunization history of each child, illness during the past one year and any under-five deaths in the family were documented. For those who were ill, details were collected about the type of illness, its features, perceived severity of the illness and treatment commonly used.

Most of the questions on the survey instrument were close-ended. Information about the child's vaccination was also obtained from the vaccination

card (where available). The questionnaires were pre-tested before use and some ambiguous questions re-structured. During the period, free medical counsel was given to every mother on health issues and any child reported sick was examined during the study.

The occupational and educational levels of parents were classified using the parameters by Oyedeji[9] *and subjects were classified into five Grades (I-V) based on t*he occupational and educational levels of parents. *Grade I which represents the highest social class comprises of the senior public servants, professionals, large scale businessmen and contractors with university education or its equivalent, Grade II are intermediate civil servants with secondary education with further training such as Ordinary National Diploma (OND) or senior school teachers with National certificate of education (NCE). Grade III are Junior school Teachers, drivers and artisans with secondary education. Grade IV are petty traders, labourers and messengers or other related workers with primary* *education while grade V (lowest social class) consists of the unemployed, students, fulltime housewives and the subsistence farmers with no formal education.*

Approval and Ethical clearance

Religious and key women leaders in the community were informed of the visit and announcement was made in the differnt places of worship in the slum. Approval was obtained from the ethical committee of the University of Nigeria Teaching Hospital Enugu. Verbal consent was also obtained from the respondents prior to the administration of the questionnaire. Mothers who did not give consent were not interviewed in this study. No mother who gave her consent opted out of the study.

Statistical analysis

Statistical analysis was done using the SPSS version

Table I: Age and sex distribution of the children

Age in months	Male N (%)	Female N (%)	Total (%)
0 - 11	39 (55.7)	31 (44.3)	70 (28.6)
12 - 23	34 (53.2)	30 (46.8)	64 (26.2)
24 - 35	35 (56.5)	27 (45.5)	62 (25.2)
36 - 47	14 (42.5)	19 (57.5)	33 (13.5)
48 - 59	9 (56.3)	7 (43.7)	16 (6.5)
Total	131(53.5)	1 14(46.5)	245 (100)

x^2 = 3.06, df = 4, p =0.55(ns)

15.0 software package. Simple frequency tables of various variables such as age range and sex of children, mothers's age, educational level and occupation were made. Chi-square statistics were computed for statistical association between variables such as maternal characteristics, environmental

Table II: Bio-demographic characteristics of the Mothers

Age range in years	Frequency	Percentage
16 - 20	12	8.5
21 - 25	44	31.4
26 - 30	49	34.9
31 - 35	17	12.0
36 - 40	10	7.2
41 - 45	3	2.4
46 - 50	5	3.6
Mother's education		
No formal education	10	6.8
Primary	65	46.6
Secondary	60	43.2
Tertiary	5	3.4
Occupation		
Housewife	17	12.5
Trader	97	69.4
Farmer	10	6.8
Clerk / Primary school Teachers	10	6.8
Artisan	6	4 .5
Total	**140**	**100**

conditions and childhood illnesses. Yate corrected Chi^2 test or Fisher's test was used as appropriate. P < 0.05 was taken as significant.

There was no statistically significant difference between the ages and sex of the children (2 = 3.06, df = 4, p =0.55). Majority (66.3%) of the mothers were in the age group 21-30 years and while 8.5% were under 21 years, 3.6% were above 45 years (Table II).

A total of 89.8% had primary/secondary education and 69.4% were traders with only 6.8% working in the civil service. As regards living condition as shown in Table III, 68.2% of the households lived in one while 28.4%, 2.3% and 1.1% live in two, three and four rooms respectively. Source of water supply was mainly from tanker drivers who hawked water within the slum in 75% of the households. Pit latrine was the main toilet facility used by 40% of the households.

Table IV shows the common childhood illnesses in the slum in the previous one year. Diarrhoeal (40%) and acute respiratory tract diseases (37.6%) occuring singly or as a co-morbidity were the most

common illnesses among the slum children while malaria and measles were documented in 25.4% and 3.8% of the children respectively.

Table III: Accommodation and utilities of the households

Variables No of rooms	Frequency	Percentage
1	95	68.2
2	40	28.4
3	3	2.3
4	2	1.1
Source of drinking water		
Tanker	105	75.0
Stream	35	25.0
Toilet Facility		
Pit latrine	56	40.0
Water cistern	44	31.4
Bush/farm	40	28.6
Total	**140**	**100.0**

Table IV: Common childhood illnesses in the slum in the past one year

Illness	Frequency	Percentage
Malaria	72	29.4
Diarrhea	65	26.7
Respiratory tract infection	62	25.3
Diarrhoea+ ARTI	28	11.3
Measles	10	4.1
Febrile Convulsions	6	2.4
No illness	2	0.8
Total	**245**	**100.0**

Table V: Immunization status of the children

Immunization status	N	Percentage
Fully immunized	180	73.5
Partially immunized	47	19.0
Not immunized	18	7.5
Total	**245**	**100.0**

As regards immunization (Table V), 73.5% were fully immunized while 7.5% did not receive any form of immunization. Missed opportunity was documented in 19.0% of those not fully immunized.

On further inquiry, mothers reported that 6% of the children didnot receive BCG vaccine while 22.9% did not receive measles vaccine.

Table VI shows the health-seeking behaviour of the household as regards childhood illnesses. While 50.4% of the households visited only orthodox health facilities for treatment of childhood illnesses, 42.7% combined the use orthodox health facility and self medication or use of unorthodox method for management of childhood ailments. Use of unorthodox method such as visit to herbalist and spiritual homes was the pattern in 6.9 households.

A total of 63 under-five deaths were reported in 53

Table VI: Treatment-seeking behaviour of respondents

Health-seeking practices	N	Percentage
Use health facilities	44	31.4
Use health facility and self-medication	39	27.9
Use health facility and unorthodox method	35	25.0
Use self-medication	19	13.3
Use unorthodox	3	2.4
Total	**140**	**100.0**

Table VII: Possible cause of death in different groups of children

Possible cause of death	Neonatal	Infancy	Early Childhood	Total
Malaria	6 (8.7)	6 (8.7)	10(14.5)	22 (31.9)
Diarrhoea	1(1.4)	9(13.1)	4 (5.8)	14 (20.3)
Respiratory Tract infection	5 (7.3)	2 (2.9)	4 (5.8)	11(16.0)
Febrile convulsion	4(5.8)	1 (1.4)	2 (2.9)	7(10.1)
Measles	0 (0.0)	(1.4)	2 (2.9)	3 (4.3)
Prematurity	3 (4.3)	0 (0.0)	0 (0.0)	3 (4.3)
Jaundice	2 (2.9)	0 (0.0)	0 (0.0)	2 (2.9)
Unknown	6 (8.7)	0 (0.0)	1(1.4)	7 (10.2)
Total	**27(39.1)**	**19 (27.5)**	**23(33.4)**	**69 (100.0)**

Percentage of the total number of deaths in parenthesis

households and 39.1% of all deaths was during the neonatal period. Malaria was the leading cause of death in 31.9% of the children (Table VII).

Table VIII shows the association between some factors and the self-reported childhood illness. There was statistically significant difference between source

Table VIII: Associations between common childhood illnesses within the past one year and socio-demographic factors

Factors	Malaria	Diarrhoea	ARI	Measles	Others	None	P
Common childhood illnesses							
Drinking water							**0.005**
Stream	11	13	5	2	3	1	
Tanker	61	52	57	8	41	1	
Total	**72**	**65**	**62**	**10**	**44**	**2**	
Occupation							**0.03**
Primary School Teacher/clerk	7	8	5	1	2	1	
Trader/farmer	52	41	40	7	39	0	
Housewife	5	2	7	1	2	0	
Artisan	8	14	10	1	1	1	
Total	**72**	**65**	**62**	**10**	**44**	**2**	
Family size							**0.002**
4	10	9	9	1	5	1	
5 - 7	29	20	23	4	17	1	
8	33	36	30	5	22	0	
Total	**72**	**65**	**62**	**10**	**44**	**2**	

of water supply, occupation of mothers, family size and reported illness in the children in the past one year with $x^2 = 16.7$, p= 0.005; $x^2 = 17.8$, p=0.03; $x^2 = 23.7$, p=0.002.

Discussion

This study describes the health conditions of 245 under-five children from 140 households living in a typical slum in Enugu. Infants were more in number compared to any other age group. Some authors have

reported that infants are more in the slum compare to other age groups.[1,2,4] This is attributed to the high number of mothers in their reproductive years found in the slum with early age of consummation of marriage. Majority of the mothers in this study were aged 16-35years. There was a high level of literacy compared to reports from some other studies.[6,9,10] Slum mothers are generally reported as uneducated and work in informal service sectors.[10,11] Only 7% of the mothers in our study worked as civil servants. It was noted that 68.2% of the households lived in one-room accomodation. Over-crowding is a major problem in most slums in the developing countries and this results in poor indoor air quality due to poor ventilation and use of fuel that emits particulate matters.[12] Water supply was mainly from water vendors (tanker drivers) and available toilet facility was mainly pit latrine and due to lack of pipeborne water in the environment, the water cistern was always unclean. Lack of water supply and sanitation facilities characterise urban squatter areas. People buy water from vendors, or use any available water source for cooking and drinking. Most frequently, people defaecate in pits, in the open or in ditches, canals, or rivers. The public health consequences are severe, especially for young children.[12]

Fever, diarrhoea and acute respiratory infection were the most common illnesses among the under-five in the studied slum. This is a common report in majority of the slum in the developing countries.[13-15] In many Asian cities for instance, prevalences of diarrhea and ARI are as high as or higher in slum children under-five than in their rural counterparts.[11] Malaria is an important cause of childhood mortality and morbidity in most African countries and particularly affects children under 5 years.[16,17] It often presents with fever without any other appreciable symptoms in children.[16,17,18]

Immunization under-coverage was noted in 26.5% of the children and 7.5% of these were not immunized at al. There was missed opportunity in 18.5% of the children. Several reports have shown that immunization rates in the urban slums and inner cities are lower than the urban cities with appreciable missed opportunities.[11,19,20] However full immunization coverage of 73.5% noted in this study is higher than 44% reported by Nath et al[19] in their study on immunization coverage of the under-five children in the urban slums of Lucknow district of India. Islam, Rahman and Rahman[21] reported in Bangladesh that an average of 90.9% of the under-five in a particular slum were fully immunized giving a higher coverage compared to our study. An earlier study in one of the slums in Enugu South LGA (Udi siding) reported a full immunization coverage of 91% using mothers' response.[22] The later slum is more central and close to the two major government hospitals in Enugu metropolis which offer free immunization to children in the community,

As regards health-seeking behaviour, 52.9% of the mothers combined the use of health facility with different forms of unorthodox practice and self medication. Prompt and appropriate health seeking behaviour is critical in the management of childhood illnesses.[23] Ogunjuyigbe [24] from South-West Nigeria found that close to 71 percent of the respondents in his study have faith in traditional methods of treatment for sick children. Health care practices are highly influenced by cultural beliefs in developing countries. This has resulted in medical pluralism with the mixing of traditional and modern medicine without much understanding of the biomedical causation of disease and treatment.Unavailability of Government health facilities in most slums often contribute to use of alternative method for treatment of sick

children.[10,11,25]

Neonatal death was more common and accounted for 39.1% of all the deaths in our study. As high as 50% has been reported by some authors in the developing countries, [2,10,26] Perinatal factors such as poor antenatal care and unsupervised and unhygienic deliveries with resultant sepsis, contribute significantly to neonatal deaths. Improving newborn survival is a national priority in child health globally.

There was significant association, using Chi test, between source of water supply, over-crowding, mothers' occupation and childhood illnesses in the community. This is a common report in the literature.[5,11,15,21]

In conclusion, child morbidity in the under-five in this slum was high with neonatal deaths accounting for 39.1% of all deaths.

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