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## Urban-Rural Differences in Care-Seeking for Childhood Febrile Illnesses Among Mothers of Under-Fives in Anambra State, Nigeria

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### ABSTRACT:

**Background:** Despite inroads in treatment and prevention, childhood febrile illnesses remain global public health issues. Optimal care-seeking by mothers could influence health outcomes.

**Objective:** To assess the differences in care-seeking patterns and practices for childhood febrile illnesses among mothers of under-fives in urban and rural areas of Anambra state, Nigeria.

**Methods:** This was a comparative cross-sectional analytical mixed-method study. Multistage sampling technique was used to enrol 600 mothers of under-five children accessing child welfare clinics at the Primary Health Care facilities in Anambra state. Analysis of data was carried out using SPSS version 22; with alpha set at p-value  $\leq 0.05$ . Triangulation of findings of the survey and thematic content analysis of the Focus Group Discussion was done.

**Results:** Appropriate care was sought by 134 (44.7%) of the urban and 125 (43.2%) of the rural respondents ( $p = 0.458$ ). Prompt appropriate care was sought by 122 (40.7%) of the urban and 98 (36.7%) of the rural respondents ( $p = 0.042$ ). Distance to the health facility, determinant of place of care-seeking and possession of health insurance were significantly associated with appropriate and prompt care-seeking patterns among the mothers.

**Conclusions:** Appropriate and prompt care-seeking is generally poor among the respondents in both localities. A reorientation of mothers on appropriate and prompt care-seeking practices through continuous health education and other awareness creation processes is needed.

**KEYWORDS:** Childhood, febrile illnesses, patterns, Nigeria, mothers, care-seeking

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### 1. INTRODUCTION

Health-care seeking for childhood febrile illnesses comprises efforts made by a care-giver to obtain expert assistance or treatment from healthcare providers outside the home during episodes of such conditions (1). Sources of healthcare abound for the management of these conditions. These include 'Western or orthodox medicine' grouped into three levels of health care, based on tiers of management - primary, secondary and tertiary; 'alternative medicine' which include: traditional, indigenous and faith-oriented; 'patent medicine vendors' and home-based care (2).

Healthcare seeking behaviour may be classified based on different parameters - thus duration from time of onset of illness - prompt / not prompt, or who (healthcare personnel) and where it (healthcare facility) is sought from - appropriate / not appropriate (2,3). Healthcare seeking is prompt (i.e. timely), if sought within 24 hours of onset of illness while health care sought after 24 hours of onset of illness is not prompt (3). Appropriate (i.e. apt or suitable) health care-seeking is health care sought from a trained health care practitioner in a certified health care facility such as PHC centres, dispensaries and hospitals while inappropriate health care-seeking is health care sought from traditional healers, religious and indigenous facilities and patent medicine vendors (2).

Care-seeking is critical in the management of childhood febrile illnesses (4). When health care is optimally (promptly and appropriately) sought, there is a potential to reducing negative childhood health outcomes, irrespective of the localities - urbanity or rurality (5,6). And according to the World Health Organisation (WHO), it could reduce febrile illness specific childhood deaths by about 20% (3). Studies in Palestine (7) and Sudan (8) corroborate this finding (3). On the contrary, studies in Ethiopia (9), Tanzania (10) and Zambia (11) reported a lot of delays in seeking appropriate care which could lead to dire consequences in morbidity and mortality from severe diseases. In Nigeria, several studies show that the majority of cases of childhood febrile illnesses would first be treated at home, and that formal health care is only sought if the initial home treatment fails (2,12,13,14,15,16,17). A

## Urban-Rural Differences in Care-Seeking for Childhood Febrile Illnesses Among Mothers of Under-Fives in Anambra State, Nigeria

study on urban-rural differences in maternal responses to childhood fevers in South East Nigeria: posited that both the urban and rural respondents would use self-medication at home as the first line when a child has fever, with the urban respondents being more likely to do so (urban 72.5% versus rural 58.1% (12). The time before the action was taken (promptness) was significantly shorter in urban areas than in rural areas for both the first and second actions (12). However, the timeliness with which health care is sought and the aptness of the health care sought by mothers for their febrile children will mostly depend on their perceptions of the severity of the situation (2,12,13).

Disease recognition, prompt reaction and aptness in care-seeking (reaching and receiving) remain core components of the Integrated Management of Childhood Illnesses (IMCI) strategy. This intervention strategy is a recommended key activity in the global action plan for the control of pneumonia and diarrhoea by the WHO and United Nations Children's Fund (UNICEF) (18,19). Therefore, designing a program to enhance proper care-seeking behaviour requires a comprehensive assessment of current trends and the urban-rural factors that determine those trends (20). The findings from this study will contribute to the provision of adequate data that will form an evidence base for informed policy decisions towards area-specific efficient and effective interventions for the prompt and appropriate management of childhood febrile illnesses. It is on this premise that this study set out to assess and compare the care-seeking pattern and practices for childhood febrile illnesses among mothers of under-five children in urban and rural areas of Anambra state, Nigeria.

## 2. MATERIALS AND METHODS

**2.1. Study Design:** This was a health facility based comparative cross-sectional analytical study.

**2.2. Study setting:** This study was carried out in Anambra State, South-Eastern Nigeria. Though the population growth rate is 2.21% per annum, a total population of 4,177,828 persons, comprising 2,117,984 males and 2,059,844 females was recorded during the 2006 National Population census (21). Anambra State has a total land area of 4,816.21km<sup>2</sup> (22). Its population density is approximately 867.5 persons per squared km (23). Anambra State is made up of three senatorial zones (Anambra North, Anambra South and Anambra Central), 21 local government areas (LGAs) - (7 urban and 14 rural), 177 communities and 330 wards. (22). Thus, from Anambra North senatorial zone, Onitsha North and Anambra East LGAs were selected. From Anambra Central senatorial zone, Awka South and Dunukofia LGAs were selected; and from Anambra South senatorial zone, Nnewi North and Orumba North LGAs were selected for this study while pre-testing of the study instruments was conducted in Anaocha LGA. The people are mainly Ibos and speak Igbo, while Christianity is the predominant religion. The literacy level ranges from 48.6% to 84.1% (24). The State hosts two tertiary health-care institutions, the federal-owned Nnamdi Azikiwe University Teaching Hospital, Nnewi and the state-owned Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka. There are about 33 Secondary health facilities, 382 PHC centres, 14 mission Hospitals, 600 private Hospitals, 186 Maternity Homes, 126 registered Pharmaceutical Premises and 1500 licensed chemist shops in the state (25).

For the quantitative aspect of this study, a pre-tested semi-structured interviewer-administered questionnaire adapted from available literature was used for this study (1,2,26,27). The questionnaires were used to obtain information on the socio-demographic characteristics of the mothers as well as their febrile under-five children and care-seeking patterns for childhood febrile illnesses among these mothers. For the qualitative aspect of this study, an FGD guide adapted from literature was used to conduct the FGD sessions (28,29). The questions in the FGD guide centred on the care-seeking behaviours of these mothers in relation to febrile illnesses in their children

**2.3 Study participants:** The target population consists of mothers of under-five febrile children accessing child welfare clinics from selected PHC facilities in the state. **2.3.1. Inclusion criteria:** Mothers of under-five febrile children who have been resident in the study areas for at least 12 months and accessing child welfare clinics from the selected health care facilities in the state. **2.3.2. Exclusion criteria:** Mothers of under-five febrile children who met the above criteria but who declined full informed consent or whose children were severely ill. For the purpose of this study, severely ill under-five febrile children were considered as children having congenital disease conditions such as sickle cell disease and chronic heart diseases. These children were excluded from the study to avoid the risk of effect modification since it is likely that there will be increased utilization of health care facilities for them compared to other children with common illnesses.

**2.4 Variables:** The dependent / main outcome variable for this study is the pattern and practices of care-seeking, measured via appropriateness and promptness, while the independent variables include: Socio-demographic characteristics - age and gender, who takes decision to seek care, distance to the nearest health facility.

**2.5 Data sources/measurement:** Frequencies, percentages and rates of the variables e.g. promptness and appropriateness of appropriate care-seeking (2,3,30,31) were assessed using univariate analysis. Data were collected once, (alternate Mondays and Wednesdays) every week, to reduce the bias for day-specific clinic attendance.

## 2.6 Study size

## Urban-Rural Differences in Care-Seeking for Childhood Febrile Illnesses Among Mothers of Under-Fives in Anambra State, Nigeria

**2.6.1 Sample size determination:** The minimum sample size to determine a difference in care-seeking patterns by mothers of under-five children dwelling in urban and rural areas of the state, that is significant at 95% confidence level with a power to detect a difference of 90% was calculated using the formula for comparing two proportions (32) –

$$n = \frac{\{ Z_{1-\alpha} \sqrt{2P(1-P)} + Z_{1-\beta} \sqrt{[P_1(1-P_1) + P_2(1-P_2)]} \}^2}{(P_1 - P_2)^2}$$

Where,

$Z_{1-\alpha}$  = Percentage point of the normal distribution (standard normal deviate) corresponding to the two-sided significance level; significance level = 5%, therefore  $Z_{1-\alpha} = 1.96$

$Z_{1-\beta}$  = One-sided percentage point of the normal distribution (standard normal deviate) corresponding to 100% – the power (1 –  $\beta$ ); power = 90%, therefore  $Z_{1-\beta} = 1.28$

$P_1$  = Proportion of mothers seeking appropriate care for their febrile under-five children in urban areas = 51% = 0.51 (Obi-Nwosu *et al.*, 2016)

$P_2$  = Proportion of mothers seeking appropriate care for their febrile under-five children in rural areas = 34.2% = 0.342 (Adedire *et al.*, 2014)

$$P = \frac{(P_1 + P_2)}{2}$$

$$n = 180.21155$$

Anticipating non-response rate ( $f$ ) of 10%, the adjusted sample selected was  $(n_s) = n / 1-f = 200.235$

This gave approximately 201 respondents per sub-population. Since two sub-populations were studied, the minimum sample size calculated for the study was  $201 \times 2 = 402$ . However, the minimum sample size was increased to 600 (300 per sub-population) to increase the power of the study. Therefore, 600 respondents were enrolled in the quantitative aspect of the study.

**2.6.2 Sampling technique:** *Quantitative Aspect of the Study* This survey employed multi-stage sampling technique. *Stage 1 - Selection of local government areas:* The State was stratified into the three senatorial zones, from each of which two LGAs (one urban and one rural) were selected through simple random sampling by balloting. *Stage 2 - Selection of PHCs:* From each of the selected LGAs, one PHC was selected through simple random sampling by balloting. *Stage 3 - Selection of respondents:* The sample size estimated for this study was 600 and six PHCs were selected for the study. By equal allocation, the sample size allotted to each of these six PHCs was 100. Therefore, from each of these selected PHCs, mothers were recruited successively until the sample size (100 respondents per PHC) was achieved.

*Qualitative Aspect of the Study:* Six FGD sessions (one per PHC) were conducted among mothers of under-five children accessing child welfare clinics different from the selected PHC facilities in the state. This was done to gauge the findings of the quantitative study and obtain an in-depth view of the care seeking patterns among the mothers. The participants were recruited purposively, with each session comprising six participants.

**2.7. Data collection:** This study employed a mixed (quantitative and qualitative) method of data collection. For the quantitative method, questionnaires were administered using face-to-face interviews by six PHC workers (community health extension workers) who were recruited and trained as research assistants. To ensure quality control, the researchers were present for in-process monitoring of data collection. The six FGD sessions were facilitated by the moderator (principal researcher) aided by the note taker/the operator of the audio recorder.

**2.8. Pretesting:** The instruments of data collection for this study were pre-tested to check for the comprehensibility and appropriateness of the format, wording of the questionnaire, time needed to fill them as well as ability of the trained research assistants to administer the questionnaires appropriately. The findings of the pretesting were used to fine tune the research instruments.

**2.9. Data Management and Analysis.** *2.10.1: Statistical Analysis of Quantitative Data:* The collected data were cross-checked for any data collection or coding errors. It was then entered into the International Business Machines-Statistical Package for Social Sciences (IBM-SPSS) version 22 (33). Frequency distribution of relevant variables was developed. Continuous variables were displayed as means  $\pm$  standard deviations (SD). Frequencies of the variables were determined by univariate analysis while bivariate analysis employed Chi-Square test and Fishers exact test as appropriate for proportions and Student's t-test for means. Level of statistical significance was set at  $p\text{-value} \leq 0.05$ . *Qualitative Data:* The audio recordings obtained from the FGD were transcribed verbatim and compared with the written notes of the note-taker. Coding and analysis of the transcripts were done using thematic content analysis (34). Quotes from the participants that best described the theme and sub-themes were stated. Triangulation of the findings of the survey and FGD sessions were done.

## Urban-Rural Differences in Care-Seeking for Childhood Febrile Illnesses Among Mothers of Under-Fives in Anambra State, Nigeria

### 3. RESULTS

**3.1. Results of the Quantitative aspect of the Study** A total of 600 questionnaires were administered and retrieved, giving a response rate of 100%.

**Table 1. Socio-demographic characteristics of the respondents by location**

Variable	Urban (n = 300) n (%)	Rural (n = 300) n (%)	Test statistic	p – value
<b>Age Category (Years)</b>			$\chi^2 = 2.112$	0.549
15 – 24	55 (18.3)	50 (16.7)		
25 – 34	185 (61.7)	177 (59.0)		
35 – 44	54 (18.0)	68 (22.7)		
≥ 45	6 (2.0)	5 (1.7)		
<b>Mean age ± SD</b>	29.7 ± 6.2	30.0 ± 6.0	t = -0.618	0.537
<b>Marital status</b>			$\chi^2 = 2.436$	0.487
Single	24 (8.0)	15 (5.0)		
Married	256 (85.3)	267 (89.0)		
Widowed	14 (4.7)	13 (4.3)		
Divorced	6 (2.0)	5 (1.7)		
<b>Religion</b>			$\chi^2 = 15.192$	0.001*
Christianity	278 (92.7)	297 (99.0)		
Islam	11 (3.7)	2 (0.7)		
Traditional religion	11 (3.7)	1 (0.3)		
<b>Ethnic group</b>			$\chi^2 = 22.576$	< 0.001*
Igbo	261 (87.0)	291 (97.0)		
Yoruba	20 (6.7)	2 (0.7)		
Hausa	12 (4.0)	3 (1.0)		
* <sup>1</sup> Others	7 (2.3)	4 (1.3)		
<b>Educational status</b>			$\chi^2 = 17.375$	0.001*
No formal education	16 (5.3)	6 (2.0)		
Primary	34 (11.3)	50 (16.7)		
Secondary	137 (45.7)	167 (55.7)		
Tertiary	113 (37.7)	77 (25.7)		
<b>Occupation</b>			$\chi^2 = 23.990$	< 0.001*
Civil servant	85 (28.3)	69 (23.0)		
Trader	110 (36.7)	122 (40.7)		
Artisan	10 (3.3)	28 (9.3)		
Farmer	34 (11.3)	46 (15.3)		
* <sup>2</sup> Others	50 (16.7)	34 (11.3)		
Unemployed/housewife	11 (3.7)	1 (0.3)		
<b>Monthly income (NGN)</b>			$\chi^2 = 4.688$	0.196
<10,000	67 (22.3)	71 (23.7)		
10,000 – 29,000	106 (35.3)	114 (38.0)		
30,000 – 49,000	100 (33.3)	78 (26.0)		
≥ 50,000	27 (9.0)	37 (12.3)		

\*Statistically significant (p < 0.05), \*<sup>1</sup>Others = Igala, idoma, esan, efik.

\*<sup>2</sup>Others = Nursing, patent medicine vendor, apprentice, student, caterer

Table 1 summarizes the socio-demographic characteristics of the respondents according to location. The mean age of the respondents was 29.9 ± 6.1. There were statistically significant differences in religion, ethnic group, educational status and occupation of respondents in urban and rural localities.

**Table 2. Characteristics of the under-five febrile children by location**

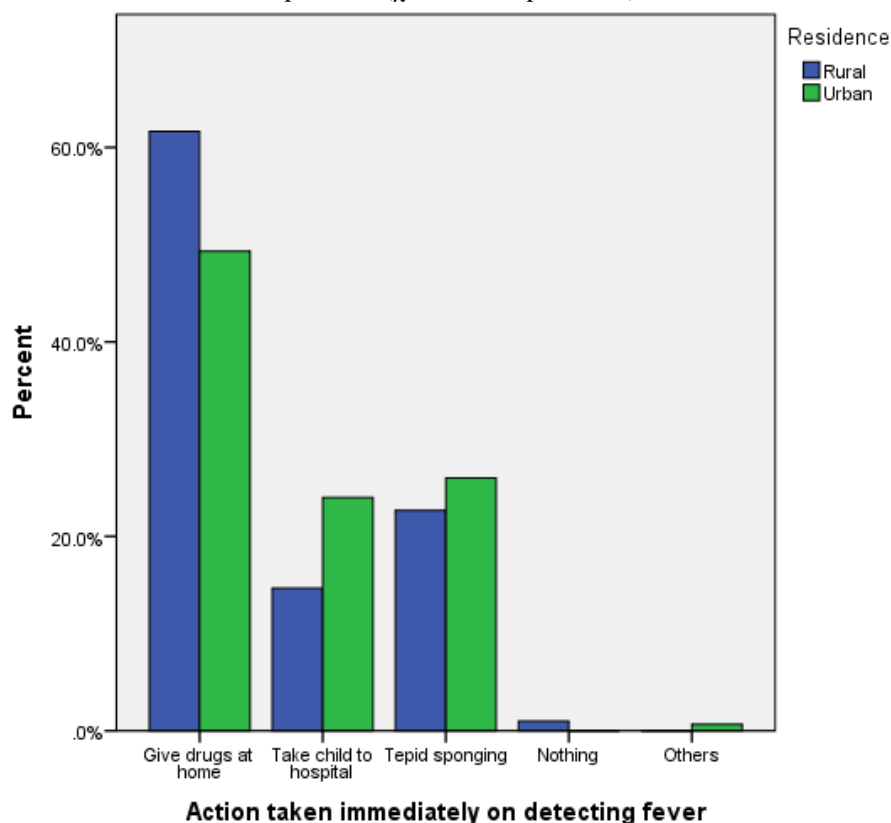
Variable	Urban (n = 300) n(%)	Rural (n = 300) n (%)	Test statistic	p – value
<b>Age of child (Months)</b>			$\chi^2 = 14.871$	0.005

## Urban-Rural Differences in Care-Seeking for Childhood Febrile Illnesses Among Mothers of Under-Fives in Anambra State, Nigeria

0 – 11	166 (55.3)	145 (48.3)		
12 – 23	61 (20.3)	41 (13.7)		
24 – 35	41 (31.7)	70 (23.3)		
36 – 47	14 (4.7)	18 (6.0)		
48 – 59	18 (6.0)	26 (8.7)		
<b>Gender of the child</b>			$\chi^2 = 0.960$	0.327
Male	157 (52.3)	145 (48.3)		
Female	143 (47.7)	155 (51.7)		
<b>Child's birth position</b>			$\chi^2 = 20.605$	< 0.001*
1 <sup>st</sup>	82 (27.3)	104 (34.7)		
2 <sup>nd</sup>	110 (36.7)	70 (23.3)		
3 <sup>rd</sup>	73 (24.3)	64 (21.3)		
4 <sup>th</sup>	23 (7.7)	34 (11.3)		
≥ 5 <sup>th</sup>	12 (4.0)	28 (9.3)		

\*Statistically significant ( $p \leq 0.05$ )

Table 2 shows the characteristics of the under-five children for whom care for febrile illnesses was sought. One hundred and ten (36.7%) of the urban respondents sought care for their children in the 2<sup>nd</sup> birth position while 104 (34.7%) of the rural respondents sought care for their children in the 1<sup>st</sup> birth position. ( $\chi^2 = 20.605$ ;  $p < 0.001$ ).



\*Others = Took child to a healing home.

**Figure i. Action taken by mother immediately on detecting febrile illness in the child**

Figure 1 represents action taken by mothers immediately on detecting febrile illness in the child. All the mothers took a health action immediately they recognised febrile illnesses in their children. However, the health actions taken varied in both sub-populations. Giving drugs at home was the highest action taken in both sub-populations

**Table 3. Respondents care-seeking patterns for childhood febrile illnesses by location**

Variable	Urban (n = 300)	Rural (n = 300)	Test statistic	p – value
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**Urban-Rural Differences in Care-Seeking for Childhood Febrile Illnesses Among Mothers of Under-Fives in Anambra State, Nigeria**

	n (%)	n (%)		
<b>Place where care was first sought for febrile child</b>			$\chi^2 = 28.306$	< 0.001*
Patent medicine store	106 (35.3)	149 (49.6)		
Health facility	134 (44.7)	125 (41.7)		
Healing home	7 (2.3)	10 (3.3)		
Traditional remedies	13 (4.3)	2 (0.7)		
Pharmacy	40 (13.3)	14 (4.7)		
<b>Duration of febrile illness before taking any health care action</b>			$\chi^2 = 21.886$	< 0.001*
≤ 24 hours	278 (92.7)	257 (85.7)		
2 days	11 (3.7)	40 (13.3)		
3 days	11 (3.7)	3 (1.0)		
<b>Duration of febrile illness before going to a health facility</b>			F = 13.547	0.019*
≤ 24 hours	122 (40.7)	98 (32.7)		
2 days	116 (38.7)	128 (42.7)		
3 days	55 (18.3)	67 (22.3)		
≥ 4 days	7 (2.3)	7 (2.3)		
<b>Care sought for febrile child</b>			$\chi^2 = 0.550$	0.458
Appropriate	134 (44.7)	125 (41.7)		
Not appropriate	166 (55.3)	175 (58.3)		
<b>Appropriate care sought for febrile child</b>			$\chi^2 = 4.134$	0.042*
Prompt	122 (40.7)	98 (32.7)		
Not prompt	178 (59.3)	202 (67.3)		

\*Statistically significant (p ≤ 0.05), F = Fishers exact test

Table 3 shows respondents' care-seeking patterns for childhood febrile illnesses by location. Majority of the respondents in both sub-populations sought inappropriate care for their febrile children though this was more in the rural sub-population (55.3% urban versus 58.3% rural). A greater proportion of the respondents in the rural subpopulation will first seek care from patent medicine vendors, while those in the urban sub-population will first seek care from health facilities. A similar picture plays out in the promptness of appropriate care-seeking in both sub-populations. However, more respondents in the urban sub-population sought appropriate care more promptly for their febrile under-five children than the rural respondents (40.7% urban versus 32.7% rural) ( $\chi^2 = 4.134$ ; p = 0.042).

**Table 4. Factors influencing care-seeking patterns for childhood febrile illnesses among the respondents by location**

Variable	Urban (n = 300) n (%)	Rural (n = 300) n (%)	Test statistic	p – value
<b>Takes decision to seek care</b>			F = 1.153	0.764
Mother alone	69 (23.0)	72 (24.0)		
Father alone	12 (4.0)	17 (5.7)		
Both parents	214 (71.3)	207 (69.0)		
Other relatives	5 (1.7)	4 (1.3)		
<b>Distance to the nearest health facility</b>			F = 51.754	< 0.001*
≤ 30 minutes walk	163 (54.3)	196 (65.3)		
30 – 50 minutes walk	108 (36.0)	56 (18.7)		
1 hour walk	25 (8.3)	32 (10.7)		
Greater than 1 hour walk	4 (1.3)	16 (5.3)		
<b>Determinant of place of care seeking</b>			F = 65.662	< 0.001*
Availability of funds	126 (42.0)	79 (26.3)		
Perceived severity of illness	97 (32.3)	191 (63.7)		
Attitude of health workers	44 (14.7)	15 (5.0)		
Distance to health facility	26 (8.7)	15 (5.0)		
Cultural practice	7 (2.3)	0 (0.0)		
<b>Possess health insurance</b>			$\chi^2 = 27.923$	< 0.001*
Yes	62 (20.7)	18 (6.0)		

## Urban-Rural Differences in Care-Seeking for Childhood Febrile Illnesses Among Mothers of Under-Fives in Anambra State, Nigeria

No	238 (79.3)	282 (94.0)		
<b>Form of health insurance possessed (n = 80)</b>			F = 1.167	0.558
Social insurance (NHIS)	33 (53.2)	9 (50.0)		
Private health insurance	24 (38.7)	6 (33.3)		
Community based health insurance	5 (8.1)	3 (16.7)		

\*Statistically significant ( $p \leq 0.05$ ), F = Fishers exact test

Table 4 shows factors influencing care-seeking patterns for childhood febrile illnesses among the respondents by location. There were statistically significant differences between respondents in the localities (urban and rural) and the distance to the nearest health facility ( $F = 51.754$ ;  $p < 0.001$ ), the determinant of place of care seeking ( $F = 65.662$ ;  $p < 0.001$ ) and the possession of health insurance ( $\chi^2 = 27.923$ ;  $p < 0.001$ ). For majority of the respondents in both localities, the distance to the nearest health facility was  $\leq 30$  minutes' walk though this was more so for the rural sub-population (65.3%) than for the urban sub-population (54.3%). While financial constraint was the major determinant of the place of care-seeking for the urban respondents, it was perceived severity of illness for the rural respondents. Majority of the respondents in both localities did not possess health insurance. However, this was more so in the rural sub-population (94.0%) than in the urban sub-population (79.3%). Of those that possessed health insurance, social insurance was the commonest form of insurance possessed in both sub-populations. In both localities, both parents mostly took decision jointly to seek care for their febrile under-five children.

### 3.2. Results of the Qualitative Aspect of the Study

These were care-seeking patterns for childhood febrile illnesses, with quotations from participants that best described the theme

#### 3.2.1. Care-Seeking Patterns for Childhood Febrile Illnesses among the Participants.

Almost all the urban participants will give drugs at home immediately they observe fever in their children. About half of them will present to the hospital the same day while the other half will wait for 2 – 3 days before presenting to the hospital. "If they have fever due to malaria, they will be vomiting. I'll give paracetamol, then take them to hospital that day." (28 years old trader) "If the illness started at night, I'll first tepid sponge, then give paracetamol. By the next day (in the morning), I'll take the child to hospital (since my children don't ever recover unless they get to the hospital). Therefore, I don't waste time. I take them to hospital immediately when they become sick." (25 years old student) "When I observe that my child is febrile, I tepid sponge him, then give him paracetamol and observe him. If it doesn't subside, I'll give him anti-malarial and observe him. If it continues after a day, I'll then take him to a hospital." (35 years old secretarial assistant) "The first thing I do is to tepid sponge the child, then give him paracetamol if it doesn't stop. However, if it continues for 2-3 days, I'll then take him to a hospital." (28 years old JCHEW) Among the rural participants, all said that they will give drugs at home immediately they observe febrile illnesses in their children. If the febrile illness persists, majority of them will obtain drugs from patent medicine dealers or pharmacy shops and will only present to a hospital if the illness persists for 2 – 3 days. "After the initial paracetamol administration and tepid sponging and the fever continues, I'll first take the child to a pharmacy. If it continues for 2 – 3 days, I'll then take the child to a hospital." (22 years old housewife / applicant) "Immediately I observe that my child is febrile, I'll give him paracetamol. I will then observe him. If it doesn't subside after a day, I will take him to the health centre." (24 years old seamstress) "I'll first pour water on the child. After some minutes, I'll now give paracetamol. If it doesn't subside that day, the following day, I'll take him to hospital." (33 years old trader) "I'll first remove the clothes, then tepid sponge and give paracetamol and observe the child. If it continues after 2 - 3 days, I'll then take the child to a hospital." (35 years old trader) Only a few of the rural participants mentioned that they will seek care from health facilities the same day and that is if they considered the ailment as being serious. "If the illness is severe, I'll go to a hospital immediately without treating by myself at all." (29 years old applicant) Some of the rural participants also said that they will seek care from traditional healers if the ailment persists following orthodox treatment "When a child is febrile and you treat it without remission, you should visit a soothsayer to find out the cause of the ailment. It could be that the child is a 'Rastafarian' (dreadlock carrier) and you did not know and this has been the cause of the febrile illness. If that is the case, you will be advised to stop combing and cutting the hair. Once you do this, the febrile illness will stop." (34 years old trader)

## 4. DISCUSSION

This study is of the comparative mixed-method type. It assesses the urban-rural differences in care-seeking patterns and practices for childhood febrile illnesses among mothers of under-five children in Anambra state, Nigeria. Findings of the present study, negates the expectation that mothers will seek care more for younger children than for older children, since they may perceive them to be more fragile to handle and to be more prone to the sequelae of illnesses, as shown in the results from several studies elsewhere (1,36,37,38,39,40,41). The findings of the current study as it concerns the gender of these children, negates the expectation that care will be sought more for male children than for female children. This is explained in the light of the cultural bias of male children preference in many parts of the world especially in Sub-Saharan African countries (18,29,42,43). However, this finding of the index

## Urban-Rural Differences in Care-Seeking for Childhood Febrile Illnesses Among Mothers of Under-Fives in Anambra State, Nigeria

study in both sub-populations, is consistent with the findings in several other studies (1,9,44) and could possibly be an explanation for a paradigm change in belief system where children, regardless of gender, are considered as equals.

The findings of the current research however find statistically significant differences in the birth position of the children for whom care was sought for. While the rural mothers sought care more for their children in the first birth position, the urban mothers did the same for their children in the second birth position. This finding could possibly be a reflection of the effect of the extended family system practised more in the rural settings where the inexperienced mother is guided on most matters including child rearing practices by the older members of the family as opposed to the nuclear family system practised more in the urban settings where the mothers will have to rely on the past personal experiences they have gained with their older febrile children to act (1). This scenario is supported by the findings of the results of the FGDs in this study in which some urban participants mentioned that they delay in seeking prompt appropriate care for their febrile children in order to garner experience with handling children. This inference is further corroborated by the finding of statistically significant associations between the birth position of the child for whom care was sought for and the promptness of appropriate care-seeking among the rural participants in this study. Here, the promptness of appropriate care-seeking decreases as the child's birth position increases, meaning that with time, as these mothers become less guided by the older family members, they become increasingly more dependent on their own experiences to act and this may not be very efficient. It thus presupposes that for appropriate and prompt care-seeking for childhood febrile illnesses to be maintained at all times by mothers of under-five children, there may be the need to establish support groups for them and to use mentor mothers to encourage them.

In Nigeria, several studies show that the majority of the children with febrile illnesses would first be treated at home, and that formal health care is only sought if the initial home treatment fails (2,12,13,14,15,26). This was also the case in the index study and many other studies (26,27,45,46). This finding may imply the use of remnant medication by the mothers from previous prescriptions for the index patient or for another child (47,48) and this may be irrespective of the fact that such drugs kept at home in the prevailing temperatures may have become ineffective as a result of loss of potency, or even toxic due to the ingestion of the metabolites resulting from the degradation of improperly stored drugs. It may also be possible that such drugs, in addition to not treating the underlying cause of fever, might be the explanation for the unremitting fever observed in some of these children when they eventually present to the health facilities (13). This practice should therefore be discouraged. However, the promptness with which the participants took a health action as observed in this study is encouraging. Such good traits in these mothers could be harnessed and channelled appropriately to prompt and appropriate care-seeking for childhood febrile illnesses through reorientations and health educations to improve the chances of child survival.

This study shows that appropriateness and promptness of appropriate care-seeking was generally sub-optimal among the participants in both sub-populations (43.2% and 36.7% respectively). This finding in this study is comparable to the findings by Abdulkadir and Abdulkadir on parental care-seeking behavior for febrile illnesses among under-five children in Nigeria which showed that appropriate care-seeking for fever in under-five children was poor throughout the country with only 31% of parents seeking care from the health facilities. Appropriateness of care-seeking for under-five febrile children was however higher among the urban participants than among the rural participants in this study though the difference did not achieve statistical significance. Promptness of appropriate care-seeking was also higher among the urban than among the rural participants in this study and the difference achieved statistical significance. These findings of higher proportions of appropriateness and promptness of care-seeking among the urban than among the rural participants obtained in this study could imply that the awareness of appropriate care-seeking is higher in the urban mothers than in the rural mothers. This difference could possibly be explained by the higher educational status attained more by the urban participants than the rural participants in this study since it is expected that more educated mothers should be more knowledgeable and better informed about child-rearing and care-giving practices than less educated mothers (20,49,50). This inference is further supported by the findings of the results of the FGDs in this study in which the more learned participants in the urban settings demonstrated better care-seeking practices than the less learned rural participants and is similar to the findings from a study (12) in South East Nigeria where appropriateness and promptness of care-seeking was more in mothers in the urban areas than those in the rural areas. This finding is however contrary to the findings from other studies where the reverse was the case (1,2). Prompt and appropriate health care-seeking is critical in the management of childhood febrile illnesses and could reduce childhood deaths due to febrile illnesses by about 20% (3). The finding in the index study of an overall poor care-seeking pattern of the participants in both sub-populations could imply that the mothers of under-five febrile children in Anambra State do not really appreciate appropriate professional evaluation of ill children prior to drug administration. This seems dangerous as it could lead to increased morbidity and mortality in children and such practices should be discouraged through appropriate health education and awareness creation.

This study reports statistically significant differences in the place where care was first sought for febrile children among the urban and rural participants, while the majority of the urban participants first sought care in health facilities, majority of the rural participants first sought care from patent medicine vendors. This finding is consistent with the results of the FGDs in this study and the findings of several studies (1,2,13,26) However, it is dissimilar to the findings from studies in Tanzania and Zambia (10,11).



## Urban-Rural Differences in Care-Seeking for Childhood Febrile Illnesses Among Mothers of Under-Fives in Anambra State, Nigeria

This urban-rural disparity as observed in this study could possibly be explained by an assumption of a relative unavailability of orthodox health care services and perceived financial incapability (direct and indirect costs of treatment) to access, afford and avail treatment from the formal health sector among the rural respondents. The government should therefore ensure equitable distribution of functional and affordable health facilities across the state.

### LIMITATIONS AND STRENGTH OF THE STUDY

This study was conducted among mothers of under-five children accessing child welfare clinics from the selected PHC facilities in the state. The findings from this study must be interpreted with caution with regards to its generalization, as the care-seeking patterns of mothers of under-five febrile children in the communities who might have sought alternative care were not accommodated. The possibility of information bias has been noted earlier. This was however overcome by assuring the participants of the confidentiality of the study and that the aim of the study was to improve the appropriateness and promptness of appropriate care-seeking for their febrile under-five children and not necessarily for fault finding. The strength of this study lies in the 100% response rate achieved, the fact that it equates to a community-based study since it was carried out among mothers accessing child welfare clinics in PHCs in Anambra State, Nigeria (51). It employed a mixed method survey to provide detailed information on the care-seeking pattern and practices of the participants in this study. This was not the case in an earlier comparable study in the study area (1).

### 5. CONCLUSIONS

This study has shown that there were apparently poor appropriate and prompt appropriate care-seeking. Nonetheless, prompt appropriate care-seeking was significantly poorer among the rural mothers in the study setting. Care-seeking among the urban participants was influenced by the occupation of the mother and her level of knowledge of childhood febrile illnesses while among the rural participants, they were occupation of the mother, distance from her homestead to the health facility, the child's birth position and perceived severity of the childhood febrile illness. Based on the findings, there is need for reorientation of these mothers on appropriate and prompt care-seeking practices through awareness creation processes and continuous health education This will keep the community adequately informed and properly oriented to optimal care-seeking.

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### ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The study has been examined and approved by the Nnamdi Azikiwe University Teaching Hospital Ethics Committee. Permission to conduct the study was obtained from the State Ministry of Health and the selected Local Government PHC Departments. Verbal informed consent was obtained from each participant for the recording of the FGD, conduct and publication of this research study and assurance of confidentiality given. Study participants were free to refuse or withdraw from the study at any time without any penalty. All authors hereby declare that the study has therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

### CONFLICT OF INTERESTS

The Authors declare that there is no conflict of interest

### REFERENCES

- 1) Obi-Nwosu AL, Nwosu OB, Nnaji G. Family and social determinants of health-seeking behaviour of caregivers of febrile children in an urban city of South-Eastern Nigeria. *Arch Med.* 2016;8:3
- 2) Adedire EB, Asekun-Olarinmoye EO, Fawole O. Maternal perception and care-seeking patterns for childhood febrile illnesses in rural communities of Osun State, South-western Nigeria. *SJPH.* 2014;2(6): 636-643.
- 3) The World Health Report 2002. Reducing risks, promoting health life. Geneva. Available from: [www.who.int/whr/2002/](http://www.who.int/whr/2002/) [Accessed May 15, 2022]
- 4) d'Acremont V, Malila A, Swai N, Tillya R, Kahama-Marro J, Lengeler C, et al. Withholding anti-malarials in febrile children who have a negative result for a rapid diagnostic test. *Clin Infect Dis.* 2010;51:506-511
- 5) El-Radhi AS. Why is the evidence not affecting the practice of fever management? *Arch Dis Child.* 2008;93(11):918-920.
- 6) Gelaw YA, Biks GA, Alene KA. Effect of residence on mothers' health care seeking behavior for common childhood illness in Northwest Ethiopia: a community based comparative cross-sectional study. *BMC Res Notes.* 2014;7:705
- 7) Sa'ed HZ, Samah WA, Waleed MS, Masa MN, Mais FT, Rahmat A, et al. Beliefs and practices regarding childhood fever among parents: a cross-sectional study from Palestine. *BMC paediatr.* 2013;13:66

## Urban-Rural Differences in Care-Seeking for Childhood Febrile Illnesses Among Mothers of Under-Fives in Anambra State, Nigeria

- 8) Salah MT, Adam I, Malik EM. Care-seeking behavior for fever in children under five years in an urban area in Eastern Sudan. *J Family Community Med.* 2007;14(1):25-28.
- 9) Deressa W, Ali A, Berhane Y. Maternal responses to childhood febrile illnesses in an area of seasonal malaria transmission in rural Ethiopia. *Acta Tropica.* 2007;102:1-9
- 10) Adinan J, Damian DJ, Moshia NR, Mboya IB, Mamseri R, Msuya SE. Individual and contextual factors associated with appropriate healthcare seeking behavior among febrile children in Tanzania. *PLoS One.* 2017; 12(4):e0175446
- 11) Hamooya BM, Chongwe G, Dambe R, Halwiindi H. Treatment-seeking behaviour for childhood fever among caretakers of Chivuna and Magoye rural communities of Mazabuka District, Zambia: a longitudinal study. *BMC Public Health* 2016;16:762
- 12) Uzochukwu BSC, Onwujekwe EO, Onoka CA, Ughasoro MD. Rural-urban differences in maternal responses to childhood fever in South east Nigeria. *PLoS ONE.* 2008;3(3):e1788.
- 13) Oshikoya KA, Senbanjo IO. Fever in children: mothers' perceptions and their home management. *Iran J Pediatr.* 2008;18(3):229-236
- 14) Ajayi IO, Falade CO. Pre-hospital treatment of febrile illness in children attending the general outpatients clinic, University College Hospital, Ibadan, Nigeria. *Afr J Med Med Sci.* 2006;35(1):85-91
- 15) Chukwuocha MN, Amadi NA, Esomonu CO, Dozie INS, Ikegwuoha EA, Nwabueze OP, et al. Treatment seeking behaviour of mothers of febrile children in some rural parts of Imo State Nigeria: Implications for home management of malaria in endemic areas. *Int. J. Trop. Med.* 2009;4(3):132-135
- 16) Abdulkadir MB, Abdulkadir AZ. A cross-sectional survey of parental care-seeking behavior for febrile illness among under-five children in Nigeria. *Alexandria Med J.* 2017;53(1):85-91
- 17) Kwabe TS, Abdulfatai O, Agbam EF, Usman A, Bashiru AM. Mothers management of malaria fever among under-five nomadic fulani children of Northeastern Nigeria. *AJIDM.* 2013;1(2):26-33.
- 18) World Health Organisation. Integrated Management of Childhood Illness. Available from: [http://www.who.int/child\\_adolescent\\_health/topics/prevention\\_care/child/imci/en/index.html](http://www.who.int/child_adolescent_health/topics/prevention_care/child/imci/en/index.html). [Accessed April 30, 2022]
- 19) United Nations Children' Education Fund. Communities and families - Improving knowledge of care-givers website. Available from: [http://www.unicef.org/communities/index\\_improvingknowledge.html](http://www.unicef.org/communities/index_improvingknowledge.html). [Accessed April 30, 2022]
- 20) Geldsetzer P, Williams TC, Kirolos A, Mitchell S, Ratcliffe LA, Kohli-Lynch MK, et al. The recognition of and care seeking behaviour for childhood illness in developing countries: a systematic review. *PLoS ONE.* 2014;9(4):e93427. Available from: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0093427>. [Accessed May 5, 2022]
- 21) Nigeria data portal. Nigeria population census. 2006. Available from: <https://www.nigeria.opendataforafrica.org/xspplpb/nigeria-census>. [Accessed June 8, 2022]
- 22) Anambra State Ministry of Health. Anambra State Government Strategic Health Development Plan (2010-2015). 2010. Available from: [www.mamaye.org/sites/default/files/.../ANAMBRA%20SSHDP%2015012010.pdf](http://www.mamaye.org/sites/default/files/.../ANAMBRA%20SSHDP%2015012010.pdf). [Accessed August 15, 2022].
- 23) National bureau of statistics. Nigeria's population now 193.3 million. 2016. Available from: <https://www.nigeria.opendataforafrica.org/xspplpb/nigeria-census>. [Accessed June 8, 2022]
- 24) UNESCO. "Reaching the 2015 Literacy Target: Delivering on the promise". Action Plan Nigeria, 2012. Available from: [www.unesco.org/fileadmin/MULTIMEDIA/HQ/ED/pdf/Nigeria.pdf](http://www.unesco.org/fileadmin/MULTIMEDIA/HQ/ED/pdf/Nigeria.pdf) [Accessed August 20, 2019].
- 25) Anambra State Government. Available from <https://anambrastate.gov.ng/history/> [Assessed March 12, 2019].
- 26) Alex-Hart BA, Frank-Briggs AI. Mothers' perception of fever management in children. *TNHJ.* 2011;11(2):69-72
- 27) Adedire EB, Asekun – Olarinmoye E, Ajumobi O, Fawole O, Patrick Nguku P, Ajayi I. Determinants of home-care practices for childhood febrile illnesses in rural communities in Osun State, Nigeria. *JDMS.* 2016;15(2):60-66
- 28) Longo DL, Fauci A, Kasper D, Hauser S, Jameson J, Loscalzo J. Harrison's principles of internal medicine. 18th ed. New York: McGraw-Hill; 2011:4012.
- 29) Wilson SE, Ouédraogo CT, Prince L, Ouédraogo A, Hess SY, Rouamba N, et al. Caregiver recognition of childhood diarrhea, care seeking behaviors and home treatment practices in rural Burkina Faso: a cross-sectional survey. *PLoS One.* 2012;7: e33273.
- 30) Kasper MR, Blair PJ, Touch S, Sokhal B, Yasuda CY, Williams M. 2012. Infectious etiologies of acute febrile illness among patients seeking health care in South-Central Cambodia. *Am. J. Trop. Med. Hyg.* 2012;86(2):246-253
- 31) Koech PJ, Onyango FE, Jowi C. Caregivers' knowledge and home management of fever in children. *East Afr Med J.* 2014;91(5):170-177
- 32) Kirkwood BR, Sterne JA. Essential medical statistics. 2nd ed. Massachusetts: Blackwell Science; 2003:420
- 33) International Business Machines Corporation. IBM-Statistical Package for the Social Sciences (SPSS) Statistics 22. Somers New York: IBM Corporation; 2013.

## Urban-Rural Differences in Care-Seeking for Childhood Febrile Illnesses Among Mothers of Under-Fives in Anambra State, Nigeria

- 34) Blignault I, Ritchie J. Revealing the wood and the trees: Reporting qualitative research. *Health Promot J Austr.* 2009;20(2):140-145
- 35) Ogunlesi TA, Olanrewaju DM. Sociodemographic factors and appropriate health care-seeking behaviour for childhood illnesses. *J Trop Pediatr.* 2010;56: 379-385.
- 36) Ndugwa R, Zulu E. Child morbidity and care-seeking in Nairobi slum settlements: the role of environmental and socio-economic factors. *J Child Health Care.* 2008;12:314
- 37) Lam Y, Harvey SA, Monroe A, Muhangi D, Loll D, Kabali AT, et al. Decision-making on intra-household allocation of bed nets in Uganda: do households prioritize the most vulnerable members? *Malar J.* 2014;13:183.
- 38) Fallah-Tafti B, Salmani N, Afshari-azad S. The maternal experiences of child care with fever. *Int J Pediatr.* 2017;5(2):4429-4437.
- 39) Kassile T, Lokina R, Mujinja P, Mmbando BP. Determinants of delay in care seeking among children under five with fever in Dodoma region, central Tanzania: a cross-sectional study. *Malar J.* 2014;13:348.
- 40) Das A, Ravindran TS. Factors affecting treatment-seeking for febrile illness in a malaria endemic block in Boudh district, Orissa, India: policy implications for malaria control. *Malar J.* 2010;9:377.
- 41) Mitiku I, Assefa A. Caregivers' perception of malaria and treatment-seeking behaviour for under five children in Mandura District, West Ethiopia: a cross-sectional study. *Malar J.* 2017;16:144
- 42) Najnin N, Bennett CM, Luby SP. Inequalities in Care-seeking for Febrile Illness of Under-five Children in Urban Dhaka, Bangladesh. *JHPN.* 2011;29(5):523-531.
- 43) Willis JR, Kumar V, Mohanty S, Singh P, Singh V, Baqui AH, et al. Gender Differences in Perception and Care-seeking for Illness of Newborns in Rural Uttar Pradesh, India. *JHPN.* 2009;27(1):62-71.
- 44) Breiman RF, Olack B, Shultz A, Roder S, Kimani K, Feikin DR, et al. Healthcare-use for major infectious disease syndromes in an informal settlement in Nairobi, Kenya. *J Health Popul Nutr.* 2011;29: 123–133.
- 45) Gunduz S, Usak E, Koksal T, Canbal M. Why Fever Phobia Is Still Common? *Iran Red Crescent Med J.* 2016;18(8): e23827
- 46) Athamneh L, El-Mughrabi M, Athamneh M, Essien EJ, Abughosh S. Parents' Knowledge, Attitudes and Beliefs of Childhood Fever Management in Jordan: a Cross-Sectional Study. *JARC.* 2014;5(1):8.
- 47) Oshikoya KA, Njokanma OF, Bello JA, Ayorinde EO. Family self-medication for children in an urban area of Nigeria. *Pediatr Perinat Drug Ther.* 2007;8(3):124-130.
- 48) Oshikoya KA, Ojo OI. Medication errors in paediatric outpatient prescriptions in Nigeria. *Niger Q J Hosp Med.* 2007;17(2):74-78.
- 49) Muringi Wambui W, kimani S, Odhiambo E. Determinants of health seeking behaviour among caregivers of infants admitted with acute childhood illnesses at Kenyatta National Hospital, Nairobi, Kenya. *Int. J. Pediatr.* 2018;2:1-11
- 50) Adekanmi A, Faparusi F. Assessment of caregivers/mothers knowledge, attitude and practices in prevention and treatment of childhood malaria in Yewa South Local Government Area of Nigeria. *J Parasitol.* 2015;10(1):15-24
- 51) Gething PW, Kirui VC, Alegana VA, Okiro EA, Noor AM, Snow RW. Estimating the number of paediatric fevers associated with malaria infection presenting to Africa's public health sector in 2007. *PLoS Med.* 2010;7(7):e1000301.