

ORIGINAL RESEARCH ARTICLE

Levels and dimensions of client satisfaction with the treatment of recent maternal, newborn and child health related illnesses by frontline health workers in rural Nigeria

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Abstract

Little is documented about levels of client satisfaction with maternal, newborn and child health services at primary health care (PHC) facilities in Nigeria, besides unsubstantiated anecdotes. This study examined different aspects of client satisfaction at primary healthcare level in Nigeria. Quantitative data were collected using personal digital assistants to capture responses from 1548 households in Bauchi and Cross River States. Descriptive statistics were used to summarize study results as frequency tables and percentages. Majority of the study respondents utilized government health facilities for treatment, however some clients used private sector health facilities. Women, newborns and under-fives were treated for a variety of illnesses and disease conditions. Treatment outcomes and levels of satisfaction did not appear to differ by cadre of healthcare provider. Respondents' level of satisfaction with healthcare services at primary healthcare level in Nigeria appear to reflect their modest quality of care expectations, especially in poor PHC rural settings. (*Afr J Reprod Health 2020; 24[4]: 41-50*).

Keywords: Client satisfaction, frontline health workers, maternal, newborn and child health, Nigeria

Résumé

Peu d'informations sont documentées sur les niveaux de satisfaction des clients à l'égard de services de santé maternelle, néonatal et infantile dans les établissements de soins de santé primaires au Nigéria, à part des anecdotes non fondées. Cette étude a examiné différents aspects de la satisfaction des clients au niveau des soins de santé primaires au Nigéria. Des données quantitatives ont été collectées à l'aide d'assistants numériques personnels pour saisir les réponses de 1548 ménages dans les États de Bauchi et de Cross River. Des statistiques descriptives ont été utilisées pour résumer les résultats de l'étude sous forme de tableaux de fréquences et de pourcentages. La majorité des répondants à l'étude ont utilisé les établissements de santé publics pour le traitement mais certains clients ont utilisé des établissements de santé du secteur privé. Les femmes, les nouveau-nés et les enfants de moins de cinq ans ont été traités pour une variété de maladies et d'affections. Les résultats du traitement et les niveaux de satisfaction ne semblaient pas différer selon le groupe de prestataires de soins de santé. Le niveau de satisfaction des répondants à l'égard des services de santé au niveau des soins de santé primaires au Nigéria semble refléter la qualité modeste de leurs attentes en matière de soins en particulier dans les milieux ruraux pauvres. (*Afr J Reprod Health 2020; 24[4]: 41-50*).

Mots-clés: La satisfaction du client, agents de santé de première ligne, maternel, santé du nouveau-né et de l'enfant, Nigéria

Introduction

Women, newborns and under-fives (Under-5s) experience various illnesses that can satisfactorily be treated with low-cost healthcare interventions¹, especially when such cases are presented early. According to the 2018 Nigeria Demographic and Health Survey (NDHS), about two-thirds of pregnant women utilize modern antenatal care and about 40% deliver with assistance from skilled birth attendants². Key government initiatives in Nigeria

to address these MNCH-related issues have included creating and training various cadres of frontline health workers (FLHWs) namely, Community Health Officers (CHOs), Community Health Extension Workers (CHEWs) and Junior Community Health Extension Workers (JCHEWs), to work alongside the already existing cadres such as nurses and midwives. These newer cadres of healthcare providers were created to detect and treat illnesses and, where appropriate, refer mothers, newborns and Under-5s to higher levels of

healthcare when the latter seek maternal, newborn and child health (MNCH) care at the primary health care (PHC) facilities³.

In line with the Alma-Ata declaration, the process of leveraging on PHC structures to deliver effective MNCH care has been articulated in Nigeria into a strategic model of 'Primary Healthcare Under One Roof (PHCUOR), which is guided by 'one management, one plan as well as one monitoring and evaluation⁴. Yet, the country's MNCH indicators have not improved correspondingly. Nigeria's maternal mortality ratio (MMR) deteriorated from 545 per 100,000 live births in 2003 to 576 per 100,000 live births in 2013.

Over the same period i.e. 2003 - 2013, newborn (2003: 93/1000 live births – 2013: 69/1000 live births) and Under-5 (2003: 185/1000 live births – 2013: 128/1000 live births) mortality only declined marginally⁵. The results of the 2018 NDHS indicate slight improvements in maternal (512/100,000 live births) and infant mortality (67/1000 live births) while Under-5 mortality actually deteriorated (132/1000 live births)².

The 2018 Nigerian Demographic and Health Survey indicates that the total fertility rate is 7.2 and 3.7 for Bauchi and Cross River States respectively. Slightly over half (51.8%) and about 80% of women receive antenatal care from a skilled birth attendant while about 33% and 16% of women within reproductive age (15-49years) in Bauchi and Cross River states respectively do not access antenatal care during pregnancy. The median age at first birth for women is approximately 18 years and 21 years respectively in Bauchi and Cross River States. The under-5 mortality rates for Bauchi and Cross River states are currently estimated at 147/1000 and 80/1000 live births².

Satisfaction with healthcare services describes the positive outcomes reported by clients, particularly during and after consultation with health care providers. These satisfaction outcomes tend to focus on patients' level of satisfaction with the health system as well as clients' level of satisfaction with the quality and type of health services provided⁶. These satisfaction outcomes have implications for re-visits to health facilities and advocacy to other community members to do same⁷. A study on client satisfaction with treatment

of MNCH-related illnesses highlighted healthcare provider friendliness during care as a key determinant of client satisfaction⁸. The provision of adequate information on client's health and provision of effective medication have also been associated with client satisfaction⁹. Other factors associated with client satisfaction include short waiting times, privacy during consultations and respect for patients/clients¹⁰. These factors are crucial for considering issues around the overall quality of healthcare provided to clients/patients.

Client satisfaction studies are therefore considered useful for predicting the relationship between client satisfaction and health service uptake¹¹. They provide critical insights for monitoring the professional behaviour of health workers, treatment compliance, repeat visits by patients/clients for treatment, measurement of treatment success, for health care quality improvement and as such contribute to an overall assessment of health systems performance^{12,13}. Unfortunately, the benefits of client satisfaction studies have remained largely underutilized, particularly in rural settings where MNCH-related illnesses are mainly treated by frontline health workers at primary healthcare level. Generating evidence that could be used to improve clients' satisfaction during the treatment of MNCH-related illnesses, especially within rural settings of Nigeria and thereby to strengthen the health system, was the key aim of this cross-sectional study. The research questions which informed this client satisfaction study focused on the type of MNCH-related illnesses in the communities [study sites], the sources of healthcare for households within communities, treatment outcomes, as well as clients' assessment of the main components of their satisfaction.

Methods

Study setting

The study was conducted in Bauchi and Cross River States within Nigeria, with diametrically divergent socio-cultural characteristics. Bauchi State is in the North-eastern part of Nigeria with a predominantly Muslim population while Cross River State has a predominantly Christian population in the Southern part of the country.

Sampling and sample size calculation

The researchers worked closely with the State Ministries of Health and State Primary Healthcare Development Agencies in Bauchi and Cross River States during the study design and fieldwork. As part of this collaboration, the listing of households in the catchment areas of primary healthcare facilities in the selected rural Local Government Areas of both States was obtained and this formed the sampling frame for the study. From the sampling frame, random sampling was applied to select households within the primary healthcare facility catchment areas in the selected Local Government Areas for the study in both States. Within each host community, a random starting point and direction was selected. The head of household (male or female) was chosen as the study respondent. The number of households for the study was calculated using the following formula –

$$n = \frac{z^2 pq}{d^2}$$

Where n is the desired sample size

z = standard normal deviation set at 1.96 (corresponding to 95% confidence interval)

p = prevalence of maternal and child deaths due to pregnancy and childbirth in the population (estimated at 30% after consultation)

$$q = 1.0 - p$$

d = degree of desired accuracy (set at 0.05)

$$\text{Thus } n = \frac{(1.96)^2 (0.3) (0.7)}{(0.05)^2} = 323 \text{ households}$$

For the estimated minimum sample size, three hundred and twenty-three (323) households was computed for each of two rural local government areas (LGAs) per State, thus 646 households per State. In Bauchi State, the selected LGAs were Alkaleri and Giade and in Cross River State, Etung and Yala were selected. The total number of households (1292) for both States was increased to 1548 to account for possible losses during data collection related to attrition and incomplete responses. A household was defined as a group of people who ate from one cooking pot.

Data collection and data management

A structured questionnaire was used to collect data on the illnesses and deaths reported for women,

newborns and Under-5s in the last twelve and six months preceding the survey respectively. The questionnaire also focused on the treatment received by women and their expressed satisfaction with its outcome. To validate the accuracy of the survey instrument, the questionnaire was translated from English Language to Pidgin English and back-translated before its use for data collection in both States. Soft copies of the data collection instrument were subsequently downloaded into personal digital assistants (PDAs) for data collection. The data collection process lasted between August 1st and 17th 2016. Community engagement using gatekeepers and key opinion leaders was done to facilitate access to the selected households for interviews during fieldwork.

During the data collection process, the minimum sample size of 646 per State was exceeded in both states - 687 and 861 respondents were interviewed in Bauchi and Cross River state respectively (please see Table 1). This was encouraged by the researchers and supervisors to account for the possibility of incomplete responses and non-responses. Ultimately much more respondents (above the estimated minimum sample size) were willing to participate in the survey in Cross River state when compared to Bauchi state. Trained supervisors spot-checked each completed questionnaire daily and transmitted the data to a central database after review. The data transmitted into the central database for the study were further reviewed for completion.

Descriptive statistics were used to summarize and present the survey results as frequency tables and percentages following data analysis.

Results

The socio-demographic characteristics of household survey respondents in both States are presented in Table I. More than half of the household survey respondents interviewed were from Cross River State. Household respondents from both States had more males and married respondents with relatively low educational status. The interviewers interviewed heads of

Table 1: Socio-demographic characteristics of household respondents

Variables	N	%
State		
Bauchi	687	44.4
Cross River	861	55.6
<i>Total</i>	1548	100.0
Sex		
Male	802	51.8
Female	746	48.2
<i>Total</i>	1548	100.0
Religion		
Christianity	859	55.5
Islam	682	44.0
Traditional Religion	7	0.5
<i>Total</i>	1548	100.0
Occupation		
Trading	306	19.8
Civil Servant	108	6.9
Farming	802	51.8
Professional	32	2.1
Artisan	114	7.4
Others	186	12.0
<i>Total</i>	1548	100.0
Marital Status		
Single	32	2.1
Married	1468	94.8
Divorced/Separated/ Widowed	48	3.1
<i>Total</i>	1548	100.0
Highest Level of Education		
No formal education	290	18.7
Primary education	480	31.0
Secondary education & above	537	28.3
Adult + Qur'anic education	341	22.0
<i>Total</i>	1548	100.0

households only and the study had more male heads of households than female heads of households (see Table 1).

MNCH-related disease burdens of women and children in communities served by FLHWs Reported illnesses among women in households

Table 2 presents findings which show that majority of the households experienced various obstetric illnesses (including bleeding, convulsion during pregnancy and prolonged labour) during the twelve months preceding the research study.

Malaria and feverish conditions were also reported to have afflicted women in both States during that period (Table 2). Various government-owned health institutions treated more of the women's reproductive health-related illnesses in Bauchi State though there was some private sector participation. Most women reportedly recovered from the illnesses for which they were treated and satisfaction with treatment was generally high across the two States (Table 2).

Tables 3 and 4 indicate 'yellow eyes', 'watery stool', malaria, cough and skin rashes as common newborns and Under-5s illnesses. Majority of the newborns and Under-5s were treated at government-owned health institutions, but there was also some private sector participation. Consistently across both States, respondents reported high newborns and Under-5s recovery rates from illnesses after treatment. Retrospective reports for the six months preceding the study indicated 64 maternal deaths, 79 neonatal deaths and 111 under-5 deaths within the selected study locations in both States. But many study respondents attributed these deaths to generic causes such as 'spiritual attack' and 'wish of God', which is not entirely surprising given the rural context and relatively low level of formal educational attainment of the majority of the respondents.

Dimensions of clients' satisfaction with treatment outcomes

Majority of the study respondents stated that they were satisfied with the healthcare they received from frontline health workers in both States. The study demonstrated relatively high levels of respondents' satisfaction with the treatment received. This was further examined for its components as summarized in Table 5. Across both States, the respondents were broadly satisfied with the friendliness of service providers, provision of information, privacy during consultation, advice on medication, prompt attention they received, and being treated with respect. Clients appeared to rate the overall quality of services provided by the CHOs/CHEWs at par with those provided by nurses and midwives.

Table 2: Maternal health illnesses reported by households in the last 12 months

Illness Status	Bauchi State N (%)	Cross-River State N (%)
Ill	399 (65.09)	405 (66.7)
Not Ill	214 (34.91)	202 (33.3)
<i>Total</i>	613 (100)	607 (100)
Nature of illness		
None	214 (34.91)	202 (33.3)
Miscarriage	12 (1.96)	4 (0.66)
Bleeding	8 (1.31)	6 (0.99)
Shortage of Blood	30 (4.89)	10 (1.65)
Convulsion in pregnancy	32 (5.22)	1 (0.16)
Other problems in labour e.g. prolonged labour	20 (3.26)	5 (0.8)
Malaria and feverish conditions	297 (48.45)	379 (62.44)
Where Treated		
Self-medication	24 (6.0)	33 (8.1)
Chemist	44 (11.0)	135 (33.3)
Patent medicine vendors	1 (0.25)	3 (0.7)
Traditional healer	17 (4.26)	15 (3.7)
Spiritual homes	0 (0.0)	2 (0.5)
Govt. hospital	44 (11.0)	25 (6.2)
Comprehensive health centre	90 (22.6)	14 (3.5)
PHC Centre	165 (41.4)	115 (28.4)
Govt. health post	11 (2.76)	31 (7.7)
Private clinic/hospital	2 (0.5)	26 (6.4)
Others (Mobile clinic, /community worker etc.)	1 (0.25)	6 (1.5)
<i>Total</i>	399 (100)	405 (100)
Outcome of Treatment		
Fully recovered	233 (58.4)	236 (58.3)
Partially recovered	148 (37.1)	100 (24.7)
Not yet recovered	18 (4.5)	69 (17.0)
<i>Total</i>	399 (100)	405 (100)
Level of Satisfaction		
Highly satisfied	140 (35.1)	122 (30.1)
Satisfied	225 (56.4)	159 (39.3)
Not satisfied	34 (8.5)	124 (30.6)
<i>Total</i>	399 (100)	405 (100)

Table 3: Reported Illnesses of Under-fives in the last 12 months (N= 657)

	Bauchi State N (%)	Cross River State N (%)
Status of illness		
Not Ill	155 (39.5)	131 (49.4)
Ill	237 (60.5)	134 (50.6)
<i>Total</i>	392 (100)	265 (100)
Illnesses experienced: Newborn		
None	155 (39.5)	131 (49.4)
Baby with yellow eyes	21 (5.4)	4 (1.5)
Breathing problem	25 (6.4)	3 (1.1)
Watery stool	143 (36.5)	29 (10.9)
Convulsion	4 (1.0)	1 (0.4)
Malaria	44 (11.2)	95 (35.9)
<i>Total</i>	392 (100)	265 (100)
Where treated		
Self-medication	14 (3.6)	18 (6.8)
Patent medicine vendors	25 (6.4)	32 (12.1)
Traditional healer	7 (1.8)	8 (3.0)
Govt. hospital	55 (14.0)	5 (1.9)
Comprehensive health Centre	38 (9.7)	11 (4.2)
PHC Centre	88 (22.4)	49 (18.5)

Govt. health post	8 (2.0)	5 (1.9)
Private clinic/hospital	1 (0.3)	3 (1.1)
Others (Caregiver/community worker).	1 (0.3)	3 (1.1)
None	155 (39.5)	131 (49.4)
<i>Total</i>	392 (100)	265 (100)
Outcome of treatment		
Fully recovered	117 (29.8)	88 (33.2)
Partially recovered	111 (28.3)	36 (13.6)
Not yet recovered	9 (2.3)	10 (3.8)
No treatment (not ill)	155 (39.5)	131 (49.4)
<i>Total</i>	392 (100)	265 (100)
Level of satisfaction		
Highly satisfied	55 (14.0)	54 (20.4)
Satisfied	163 (41.6)	50 (18.9)
Not satisfied	19 (4.8)	30 (11.3)
No treatment (not ill)	155 (39.5)	131 (49.4)
<i>Total</i>	392 (100)	265 (100)

Table 4: Reported illnesses of newborns in the last 12 months (N= 657)

	Bauchi State N (%)	Cross River State N (%)
*Illnesses experienced		
Fever	865 (55.6)	444 (49.8)
Watery stool	277 (17.8)	96 (10.8)
Cough with chest pain	64 (4.1)	16 (1.8)
Skin rashes with fever	185 (11.9)	43 (4.8)
Cough with catarrh	385 (24.8)	330 (37.0)
Pneumonia	54 (3.5)	50 (5.6)
Malnutrition	59 (3.8)	9 (1.0)
Others (specify)	140 (9.0)	159 (17.8)
Where treated		
Self-medication	77 (5.0)	44 (4.9)
Chemist	1 (0.1)	5 (0.6)
Patent medicine vendors	157 (10.1)	252 (28.3)
Traditional healer	18 (1.2)	11 (1.2)
Government Hospital	145 (9.3)	28 (3.1)
Comprehensive health Centre	213 (13.7)	29 (3.3)
Primary healthcare Centre	458 (29.5)	208 (23.3)
Government health post	74 (4.8)	73 (8.2)
Caregiver/community worker	3 (0.2)	9 (1.0)
Pharmacy	0 (0.0)	8 (0.3)
Private clinic/hospital	3 (0.2)	19 (2.1)
No illness	406 (26.1)	205 (23.0)
<i>Total</i>	1555 (100)	891 (100)
Outcome of treatment		
Fully recovered	631 (40.6)	501 (56.2)
Partially recovered	448 (28.8)	121 (13.6)
Not yet recovered	70 (4.5)	64 (7.2)
No treatment	406 (26.1)	205 (23.0)
<i>Total</i>	1555 (100)	91 (100)
Level of satisfaction		
Highly satisfied	324 (20.8)	314 (35.2)
Satisfied	706 (45.4)	242 (27.2)
Not satisfied	119 (7.7)	130 (14.6)
No treatment	406 (26.1)	205 (23.0)
<i>Total</i>	1555 (100)	891 (100)

*Multiple responses

Table 5: Clients' rating of their level of satisfaction with frontline health workers' services

Clients Satisfaction with Services	Bauchi		Cross River		Overall (%)
	CHOs/CHEWs (%)	Nurses/Midwives (%)	CHOs/CHEWs (%)	Nurses/Midwives (%)	
Friendly Services					
Good	98.3	88.2	85.2	100.0	94.7
Poor	1.7	11.8	14.8	0.0	5.3
Information on Clients' Health Condition					
Good	100.0	94.1	93.1	77.8	94.7
Poor	0.0	5.9	6.9	22.2	5.3
Advice on Medication					
Good	100.0	94.1	95.5	100.0	96.9
Poor	0.0	5.9	4.5	0.0	3.1
Giving Prompt Attention to Clients					
Good	97.8	86.7	91.1	88.9	93.2
Poor	2.2	13.3	8.9	11.1	6.8
Treating Clients with Respect					
Good	100.0	100.0	91.9	88.9	96.2
Poor	0.0	0.0	8.8	11.1	3.8
Ensure Privacy when Attending to Clients					
Good	96.7	94.1	91.1	88.9	94.7
Poor	3.3	5.9	8.9	11.1	5.3
Overall Rating of Quality of Services Provided					
Good	100.0	100.0	84.8	88.9	93.2
Poor	0.0	0.0	15.2	11.1	6.8

It is noteworthy, however, that on a few specific aspects of client satisfaction with treatment outcomes (friendliness and promptness of attention, in particular), respondents rated CHEWs higher than nurses and midwives especially in Bauchi State.

Discussion

This study examined the levels and broad components of client satisfaction with the treatment of recent MNCH-related illnesses by frontline health workers in some rural settings of Nigeria. Its key findings confirmed the existence of obstetric illnesses and disease conditions (such as prolonged labour, bleeding and convulsion during pregnancy) that are frequently implicated for the high rates of maternal, newborn and Under-5 mortalities in Nigeria¹⁴. In addition, it established that the occurrence of obstetric illnesses was higher in Bauchi State, located in the North-eastern geopolitical zone, which has the highest incidence of maternal mortality (1,549/100,000) in Nigeria¹⁵. Consistently across the three demographic categories (women, newborns and under-fives), the study revealed that the reported outcomes of treatment were positive. Interventions that can save the lives of women of reproductive age, newborns

and under-5s in rural areas are understandably highly valued by clients/patients and other members of the community.

Majority of the respondents reportedly accessed government health facilities for treatment. This finding corroborates the results from other studies indicating that governments at the Federal and State levels as well as most donor-funded programmes, have traditionally leveraged on public healthcare facilities (which mostly offer healthcare services at no cost or at highly subsidized rates) to deliver MNCH services^{16,17}. The siting of primary healthcare facilities that offer free or subsidized services in communities have been associated with increased access for the treatment of MNCH-related illnesses¹⁸. Nonetheless, our study found that some households still rely on private health facilities for the treatment of MNCH-related illnesses, especially in Cross River State. An implication of this is that governments in Nigeria should actively collaborate more with the private sector to further expand access to MNCH services¹⁹, including in rural areas to reduce the incidences of MNCH related illnesses and deaths. The attribution of some deaths to "spiritual attacks" and "God's wish" among this largely non-literate rural population may reflect the low level of healthcare knowledge/awareness

alongside high levels of religiosity. Interestingly, the attribution of illnesses and deaths to “spiritual attacks” and “wish of God” is common in Nigeria and has been reported by previous publications²⁰.

Some specific dimensions of satisfaction were elicited from clients that sought facility-based care from frontline health workers in both States. One of these consisted of how friendly clients rated the services they received from frontline health workers. This also tends to inform clients’ decisions to either return to a provider and/or health facility for care or recommend the provider/health facility to others for treatment as highlighted by previous studies²¹. Correct advice on medications was another underlining dimension of satisfaction mentioned by clients in this study. Unfortunately, studies have shown that due to the constraints of time during consultations, a handful of healthcare providers may give hasty advice to clients without mentioning the adverse effects of recommended medications. In a qualitative assessment of women’s satisfaction with maternal care in referral hospitals in Nigeria, it was ascertained that women in labour were dissatisfied with the care provided due to the “poor attention” they received²², and prompt attention to clients was reported as an important aspect of satisfaction in that study. The findings from this study align with several other studies which report that clients were more likely to be satisfied when they receive prompt attention/treatment at health facilities^{10,23,24}. Furthermore, treating clients with respect was mentioned as a key element of satisfaction for women in this study. Respect is an important component of a provider’s attitude and regardless of how well equipped a health facility might be or how well-trained its care-givers are, studies demonstrate that clients will prefer alternative places for treatment to avoid disrespect from ‘unruly’ healthcare providers^{8,10,24}. Women are generally more likely to return to healthcare providers/facilities where they feel respected and properly treated. Maintaining privacy is another key dimension of client satisfaction^{12,21} and there is understandably a professional obligation for healthcare providers to maintain patient-client confidentiality, which is also linked to clients’ satisfaction. Clients tend to avoid health facilities where privacy and confidentiality are perceived to

be compromised to avoid placing confidential information about themselves in the public domain through ‘careless’ health workers²¹. The provision of adequate information about an individual’s health condition/illness is an important feature of good quality of care¹² which has been associated with clients’ satisfaction in this study. Adequate health information empowers the client to keep scheduled appointments with health service providers and increase their capacity to comply with treatment schedules²⁵. This is more so, when there is free flow of information between provider and clients/patients and when the decision-making process (during consultation and treatment) is participatory.

The study also assessed clients’ satisfaction with overall quality of care which was found to be high, particularly in Bauchi State. Building on the evidence discussed thus far, we conclude that clients’ satisfaction with the overall quality of care occurred because the frontline health workers in both States were perceived to deliver friendly, ‘respectful’ healthcare services and provided adequate information to patients. But with the prevailing high MNCH-related disease burden especially in rural settings²⁶, broad satisfaction with healthcare services and treatment outcomes reported in this study may be connected to modest quality of care expectations among this largely poor rural sample of respondents. Anecdotal evidence and some previous publications²⁸ indicate that patients’ satisfaction with healthcare services at primary healthcare level in Nigeria are not as satisfactory as the results from this research study. Thus, more client satisfaction studies (involving other stakeholders beyond the government) which assess various types of patients’ experience with the MNCH services provided at primary healthcare level in Nigeria, are recommended. To improve the uptake of MNCH services in Nigeria, it is important that policy-makers and healthcare providers seriously consider various components of clients’ satisfaction within the overall quality of care framework²⁷. Such serious considerations of clients’ satisfaction with healthcare will potentially increase the levels of satisfactory healthcare service delivery, especially within rural settings in Nigeria.

A key limitation of this study is that the findings of this research are based on the ability of household

respondents to recollect past vital events of interest for the study. Thus, there is the possibility of recall bias in this study. However, measures to mitigate this study limitation included: the intensive training conducted by the researchers for the data collectors, supportive supervision during the data collection process as well as the guarantee of the anonymity to study respondents. Another limitation of the study is the binary response format of the levels of clients' satisfaction - during the questionnaire design phase, the researchers initially included a Likert scale to collect data for the levels of clients' satisfaction. However, a common observation during the pretest was that there was considerable lack of understanding among the rural household respondents about what constitutes 'strongly agree', 'agree', 'disagree' or 'strongly disagree' with respect to levels of clients' satisfaction. As a result, the researchers had to utilize the simple options of 'good' or 'poor' to avoid confusion and any misleading results from the respondents. Finally, there is a serious possibility of response bias among the study respondents about their satisfaction with overall quality of care - most of the respondents/households were aware that the study was executed in collaboration with the governments in both Bauchi and Cross River States.

Ethical Approval

Ethical approval for the study was obtained from Bauchi State Research Ethical Committee, Cross River State Research Ethical Committee and Population Council's Institutional Review Board (IRB) in the USA.

Conclusion

In conclusion, this study found that within some selected households in rural Nigeria, there is broad satisfaction with the treatment that women, newborns and under-5s receive from frontline health workers. It was particularly noteworthy that levels of satisfaction did not seem to differ notably by cadre of health provider. However, there is need to increase the number of government-owned health service outlets to expand MNCH service delivery within rural communities in both States. This is in addition to the clear need to employ more frontline health workers, improve supportive supervision and

increase community engagement for better healthcare service delivery. The government in Nigeria should also review its policies and guidelines for coordinating, regulating and monitoring the private health sector to complement its service delivery to both urban and rural residents across Nigeria. Finally, more client satisfaction surveys should be carried out in Nigeria, possibly comparing treatment outcomes and different levels of client satisfaction across states (including within both rural and urban areas) as part of stakeholders' engagement to continually improve healthcare service delivery.

Contribution of Authors

GOU and EO designed the study, as well as collected and analyzed the data for the study. GOU prepared the initial draft of the manuscript while EO and BAA added significant intellectual content for the finalization of the manuscript. All authors read and approved the manuscript.

Conflict of Interests

The authors declare that they have no competing interests.

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