ORIGINAL RESEARCH ARTICLE

Client satisfaction with the quality of maternal healthcare services among immunization clinic attendees in selected primary healthcare facilities in Cross River State, Nigeria: a rural - urban comparison

DOI: 10.29063/ajrh2025/v29i6.12

Anastasia I. Isika[1], Afiong O. Oku[1], Izuchukwu F. Obi[2] and Angela Oyo-ita[1]*

Department of Community Medicine, Faculty of Clinical Sciences, University of Calabar, Calabar, Cross River State, Nigeria[1]; Department of Community Medicine, University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu State, Nigeria[2]

***For Correspondence:** Email: *anastasiaisika@yahoo.com*; Phone: +2348055906483

Abstract

The increasing number of maternal deaths is a major global health concern. Most causes of these deaths are preventable through provision of quality maternal healthcare services (MHS). Client satisfaction has been recognized as an important indicator of healthcare quality. This study aimed to compare client satisfaction with MHS in selected rural and urban health facilities in Cross River State. A cross-sectional comparative study conducted among 466 mothers accessing immunization services recruited using a systematic sampling technique. Data was collected using an interviewer-administered questionnaire and analysed using SPSS version 25, employing bivariate analysis at ($p<0.05$). The overall mean age of respondents was 26.51±5.8 years. A significantly higher proportion of clients in the urban (92.2%) compared to the rural (81.5%) were satisfied with MHS ($p=0.001$). Clients' satisfaction level were significantly higher in the urban compared to the rural, (input: 56.4% rural, 76.1% urban, process: 85.8% rural, 93.7% urban; outcome: 96.2% rural, 100% urban). At bivariate analysis, only marital status was found to be associated with MHS satisfaction and among married women residing in urban setting. Therefore, interventions targeting improvement across all domains in the rural and input domain in the urban facilities is strongly recommended. *(Afr J Reprod Health 2025; 29 [6]:129-140).*

Keywords: Quality, Client satisfaction; maternal healthcare services; Avedis Donabedian; domains of care; primary healthcare facilities; Cross River State

Résumé

L'augmentation du nombre de décès maternels est une préoccupation majeure de santé mondiale.La plupart des causes de ces décès sont évitables grâce à la fourniture de services de soins de santé maternelle de qualité (CSM).La satisfaction des clients a été reconnue comme un indicateur important de la qualité des soins de santé.Cette étude visait à comparer la satisfaction des clients avec les MHS dans des établissements de santé ruraux et urbains sélectionnés dans l'État de Cross River.Une étude comparative transversale menée auprès de 466 mères accédant aux services de vaccination, recrutées à l'aide d'une technique d'échantillonnage systématique.Les données ont été collectées à l'aide d'un questionnaire administré par un intervieweur et analysées à l'aide de SPSS version 25, en utilisant une analyse bivariée à ($p<0,05$).L'âge moyen global des répondants était de 26,51±5,8 ans.Une proportion significativement plus élevée de clients en milieu urbain (92,2%) par rapport au milieu rural (81,5%) étaient satisfaits des MHS ($p=0,001$).Le niveau de satisfaction des clients était significativement plus élevé en milieu urbain par rapport au milieu rural (entrée : 56,4 % rural, 76,1 % urbain, processus : 85,8 % rural, 93,7 % urbain ; résultat : 96,2 % rural, 100 % urbain).Lors de l'analyse bivariée, seul le statut marital a été associé à la satisfaction MHS et parmi les femmes mariées résidant en milieu urbain.Par conséquent, des interventions visant à améliorer tous les domaines dans les zones rurales et le domaine d'entrée dans les établissements urbains sont fortement recommandées. *(Afr J Reprod Health 2025; 29 [6]: 129-140).*

Mots-clés: Qualité; Satisfaction des clients; Services de santé maternelle; Avedis Donabedian; domaines de soins; établissements de soins de santé primaires; État de Cross River

Introduction

Maternal mortality is unacceptably high especially in the low- and middle-income countries (LMICs). Globally, in 2020, about 287,000 women died during and following pregnancy and childbirth.[1,2] About 95% of these deaths occurred in LMICs.[1]

In that same year, Nigeria was estimated to have approximately 82,000 maternal deaths, accounting for over one quarter (28.5%) of all estimated global deaths in 2020, followed by India (24,000) and the Democratic Republic of the Congo (22,000).[2] Although data obtained from the Health Think, 2020, Cross River State recorded maternal mortality

ratio (MMR) of 45.7 per 100,000 live birth,[3,4] and one of the lowest in the South-south geopolitical zone. But these deaths are preventable with quality maternal healthcare services before pregnancy, during pregnancy and delivery and postpartum.[5]

However, "Quality of care'' mean different things to different people. Several frameworks (Avedis Donabedian, Hulton, Robert J Maxwell, and John Øvretveit among others), have been used to evaluate quality of care. According to Avedis Donabedian, quality of care is the extent to which actual care is in conformity with present criteria for good care.[6,7] The Donabedian framework measures the quality of care along three domains namely: Structure/input, Process and Outcome; where structure refers to the health facility setting, the physical environment, and equipment, infrastructure, human resources as well as organizational characteristics, staff training and remuneration. The process component refers to the technical and interpersonal aspects of delivering care and includes diagnosis, patient education, communication and preventive care and the outcomes refer to the effect of care and include health status, knowledge and client satisfaction.[8] "Quality of maternal healthcare services is therefore defined as the degree to which maternal health services for individuals and populations increase the likelihood of timely and appropriate treatment for the purpose of achieving desired outcomes that are both consistent with current professional knowledge and uphold basic reproductive rights".[9]

Although it is known that good quality maternal health services (MHS) before, during pregnancy, delivery and postpartum could reduce maternal deaths, nevertheless, the use of MHS by clients could be affected by their level of satisfaction. For instance, although MHS exist at all levels of the healthcare system in Nigeria, a study by Chika et al 2021 among childbearing women in South-East Nigeria reveal that only 23.4% of women received pre-conception care.[10] In addition, the Nigeria Demographic and Health survey (NDHS), 2023-24 reports that only 15% and 50% of married women and unmarried women respectively use a modern contraceptive method, 30.6% in urban compared with 12.8% in rural setting, while 63% reported using ANC from skilled birth attendance (SBA), 81.9% and 50.6% in urban and rural setting respectively.[11] Furthermore, only 39% of births occurred in healthcare facility in Nigeria (61% and 26% in urban and rural facilities respectively).[12] In Cross River State where this study was carried out, only 67.8% of women received ANC from skilled birth attendance, (81.9% in urban and 50.6% in rural setting).[11] In addition, only 56.2% were delivered by SBA, (70.2% and 30.6% in urban and rural setting respectively), while only 58.8% (66.3% in urban and 29.1% rural) delivered in a health facility, with about 74.6% (63.2% in urban and 30.3% in rural) attending postnatal checks within the first two days of delivery.[11] Reasons for low utilization include poor access to quality care, poverty. Cultural beliefs and practices, amongst others (WHO, 2019, NDHS, 2018).[13,12]

However, client satisfaction has been identified as an important indicator for measuring healthcare quality from user perspective.[14] Satisfaction is a person's feelings of happiness or displeasure as a result of comparing a product's outcome in relation to his or her expectations, hence a key determinant of quality of care and an important component in measuring performance.[15] More so, studies have revealed that clients with high level of satisfaction are more likely to keep to appointments, adhere to medical advice and treatment, and maintain more stable relationship with healthcare providers leading to better health outcomes.[16] However, delivery of good quality MHS necessitates the presence of adequate structural and process attributes of care.[17] A review of literature from developing countries revealed that the determinants of maternal satisfaction cuts across all the dimensions of care: structure, process and outcome.[18] In Nigeria, factors associated with satisfaction include hospital environment, electricity supply, waiting time, cost of services, and healthcare providers' communication skill amongst others.[19,20] There is limited evidence regarding client satisfaction with MHS in CRS. A recent study conducted in a secondary healthcare facility in CRS, reported a dissatisfaction score of 42.6% with respondents citing provider tone of voice, politeness, support and show of sympathy as areas of

dissatisfaction.[21] However, a more robust, context-specific evidence exploring clients' satisfaction with MHS especially at the PHCs, which is the level of care closest to the people, is necessary to have a better assessment of the quality of MHS in CRS to guide policy and practice. This study hopes to provide this needed evidence by using the Avedis Donabedian's framework to assess and compare client satisfaction and its predictors with maternal healthcare services in selected rural and urban primary healthcare facilities in CRS.

Methods

Study area and setting

This study was conducted in Cross River State located in the south-south geopolitical zone of Nigeria within the tropical rainforest belt. The state has 3 senatorial districts and 18 Local Government areas (LGAs); seven largely urban and 11 rural, with 196 political wards.[22,23] There are 903 health facilities scattered in the 196 geopolitical wards of the state, including 139 private health facilities and 764 public health facilities. Of the public health facilities, 744 are primary health facilities, 18 are secondary health facilities, and two are federal government-owned tertiary health facilities. The 18 secondary facilities are all state-owned (general hospitals) spread across 11 LGAs.[24] All the 744 PHCs facilities offer maternal healthcare services (MHS) 24 hours daily throughout the week, although booking and antenatal care (ANC) takes place Monday through Friday, while every day for women in labour.

The MHS offered to women include preconception care, ANC, delivery services and postpartum care. Maternal and child health (MCH) services are offered almost free-of-charge to mothers and children in all 744 PHC facilities in CRS since 2009 by the state Government under the PROJECT HOPE initiative.[25] In addition, Cross River State Ministry of Health (CRSMOH) in collaboration with several development partners are committed to improving the quality of MCH services in the healthcare facilities in CRS.[26]

Study design and population

Health facility-based comparative cross-sectional study involving nursing mothers of babies 0 – 6weeks old who accessed child immunization services in selected PHC facilities from October to December 2020.

Inclusion criteria

Consenting mothers of babies aged 0 – 6weeks old accessing child immunization services who at least booked, accessed ANC, or delivered in a PHC in the LGA during the study period.

Sample size determination

The required minimum sample size of 170 per study arm was calculated using the appropriate formula for comparing two independent proportions,[27] and overall client satisfaction prevalence of 89.7% at 0.05 precision. We however decided to recruit up to 210 clients per study arm to increase the robustness of analysis.

Sampling technique

A multistage sampling technique was used in the selection of the PHCs.

Stage 1: Selection of study LGAs: Stratified random sampling was used to select study LGA. The LGAs in each of the three senatorial zones were stratified into rural and urban LGAs after which one rural and one urban LGA were randomly selected from the list of rural and urban LGAs respectively, giving a total of six selected LGAs (three rural, and three urban).

Stage 2: Selection of political wards: Two wards were selected by simple random sampling from the list of wards in each study LGA giving a total of 12 wards (6 rural, 6 urban).

Selection of PHC facilities: The only PHC facility located in each selected ward was automatically included in the study (every ward in the State contains one PHC facility) giving a total of 6 rural and 6 urban study facilities. The sample size was equally allocated to each study facility, giving a total

of 35 participants per PHC (for rural: 210/6 = 35, and same for urban facilities).

Stage 3: Selection of study participants: Systematic random sampling technique was used to recruit participants from each of the 12 study facilities. With a sample size of 35 allotted to each study facility, the sampling interval (k) was obtained by dividing the average number of women attending immunization clinic weekly (~ 120) by the allocated sample size (120/35 = 3.4 ≈3). The random start was determined by simple random sampling through balloting by writing '1 - 3' on separate sheets, shuffling well and randomly picking one. If for example the number 2 was selected, then using the immunization register as the sampling frame, the second attendee was recruited as the first participant, followed by every third person until the desired sample size was attained.

Data collection tool

Data was collected using an interviewer-administered questionnaire, adapted from a study by Titilayo and colleagues.[28] The questionnaire had three sections: the socio-demographic characteristics/wealth assessment/obstetrics characteristics, and client satisfaction. The satisfaction questionnaire was based on the Donabedian's input/structure, process, and outcome (SPO construct) domains of care. The input domain contained ten (10) items with information on the physical facilities, equipment, human resources for health, organization characteristics for example staff training, payment, amongst other things. The score of '1' was assigned to "satisfied" and '0' to "not satisfy". Hence, the total score was '10'. A score <5 indicated not satisfied, while a score of ≥5 indicated satisfaction. In the same vein, the process domain contained eighteen (18) items on the diagnosis, treatment, care, drugs, patient education, waiting time, healthcare workers attitude, amongst others. The score of '1' was assigned to "satisfied" and '0' to "not satisfy". Hence, the total score was '18'. A score <9 indicated not satisfied, while a score of ≥9 indicated satisfaction. In addition, the outcome domain contained two (2) items with information on satisfaction with the outcome of mother and baby after delivery. Responses to statements on satisfaction included satisfied or not satisfied. The score of '1' was assigned to "satisfied" and '0' to "not satisfied". Hence, the total score was '2'. A score <2 indicated not satisfied, while a score of '2' indicated satisfaction. To get the overall satisfaction score, the items in the 3 domains were added together to get 30 items. A score of '1' was assigned to "satisfied" and '0' to "not satisfied". Hence, the total score was '30'. A score <15 indicated not satisfied, while a score of ≥15 indicated satisfaction. The Cronbach's alpha was used to assess the reliability of the multi-item variables adapted from Titilayo et al to measure the Structure, Process and Outcome (SPO) constructs.

It reliably measured the Structure construct with values ranging between 0.6 and 0.7 (acceptable), with a standardized mean of 0.7. For the Process construct, Cronbach's alpha values range from 0.5 and 0.6 with a standardized mean of 0.6. For the Outcome construct, the component two-item variables gave values between 0.2 and 0.4 with a standardized mean of 0.3, hence poor measure. We then conducted confirmatory factor analysis (CFA) to identify and remove variables that did not load significantly (factor loading < 0.3) onto the construct/domain, thereby retaining only reliable components. The study tool therefore reliably measured satisfaction with all dimensions of care for which the SPO constructs were intended.

Data collection methods

A pretested interviewer-administered questionnaire on android device with check codes and skip logics were used to collect relevant data from study participants. Six trained research assistants who are university graduates helped with data collection. They were trained on the objectives of the study, method of data collection and responsible conduct of research and voluntary informed consent process. Data was collected from October to December 2020.

Data handling and statistical analysis

Collected data uploaded to a secure server, were exported in XLS format, cleaned in Excel spreadsheet, and analysed with SPSS version 23. Frequencies, percentages, mean and standard

deviations were used as appropriate. Bivariate analysis was carried out using Chi square to test for associations between various categorical variables. P value was set at <0.05.

Ethical considerations

Ethical approval for this study with reference number - CRS/MH/HREC/019/vol.1/198, obtained from the Cross River State Health Research Ethics Committee (CRS–HREC). Verbal informed consents obtained from study participants after explaining study procedures. Confidentiality and data safety ensured all through the study. Privacy of the study respondents ensured during the interview process by moving the participants to a quit (neutral) room devoid of interruptions from the health care workers. The study instruments did not carry any identifiers like names and addresses of participants. Electronic data were stored in pass-worded computer systems and only authorized persons had access to the password

Results

The socio-demographic characteristics of clients in the study population who accessed immunization services in rural and urban PHC facilities in CRS, is as presented in Table 1. Four hundred and sixty-six (466) nursing mothers, 211 in the rural and 255 in the urban population were interviewed. The overall mean age of the respondents was 26.51±5.8, (26.13±5.6 and 26.83±5.8) years in rural and urban populations respectively. Majority of the respondents in the rural 159(75.4) and urban 182(71.4) were married (p=0.004). Furthermore, majority of the respondents in both rural 129(61.1) and urban 156(61.2) attended secondary education (p=0.05).

As shown in Table 2 all respondents in the urban sites were satisfied with all the items in the structural domain, while respondents in the rural sites were satisfied with only 5 of the items. The difference in the satisfaction level between rural and urban was statistically significant for all the items except examination rooms' privacy and health education material. Areas of dissatisfaction among the rural dwellers include electricity and water supply, beds and bed sheets in the wards, provision of ITN and window nets in the wards, toilets and bathroom facilities provided for patients and staff adequacy in the facility. For the process domain, the respondents in the urban were satisfied with all the items, while respondents in the rural sites were dissatisfied with the following four items: availability of drugs in this health facility, laboratory investigations performed, cost of drugs and the cost for services in the facilities. The only statistically significant difference was in daily operation of the facility, 24 hours operation of the facility, waiting time, availability of drugs in this health facility, laboratory investigations performed, cost of drugs in the facility and cost of services. Majority of respondents in both rural and urban were satisfied with the outcome of care of both the mother and the baby.

Table 3 shows that the clients in the urban sites were more satisfied with the quality of care across the three domains compared to those in the rural sites, (input: 56.4% in rural, 76.1% in urban p=<0.05, process: 85.8% in rural, 93.7% in urban p=0.004, outcome: 96.2% in rural, 100% in urban p=0.002 and overall rural 81.5%, urban 92.2%, p=0.001). Table 4 shows that age, occupational status, level of education, booking GA and income were not significantly associated with the client satisfaction with the quality of care received. However, a significantly higher proportion of respondents in urban 174(95.6) who were married were more likely to be satisfied with the quality of MHS compared to the 61(83.6) who were single (p=0.001).

Table 1: Sociodemographic characteristics of respondents in rural and urban PHC facilities in CRS, 2020

Variables	Rural (n=211) n (%)	Urban(n=255) n (%)	Chi Square Test ($\chi 2$)	p-value
Age (years)				
≤19	16 (7.6)	21 (8.2)		
20 – 24	75 (35.5)	70 (27.5)		
25 – 29	62 (29.4)	82 (32.2)		
30 -34	34 (16.1)	50 (19.6)	3.695	0.449
≥35	24 (11.4)	32 (12.5)		
Mean ± SD 26.51±5.8	26.13±5.6	26.83±5.8		
Marital status				
Single	30 (14.2)	61 (23.9)		
Married	159 (75.4)	182 (71.4)	10.996	**0.004**
Co-habiting	22 (10.4)	12 (4.7)		
Religion				
Catholic	66 (31.3)	69 (27.1)		
Orthodox	24 (11.4)	36 (14.1)		
Pentecostal	115 (54.5)	132 (51.7)	5.532	0.137
Others*	6 (2.8)	18 (7.1)		
Occupation				
Government-employed	11 (2.4)	19 (4.1)		
Self-employed	124 (58.8)	144 (56.5)	1.004	0.605
Not employed	76 (36.0)	92 (36.1)		
Level of education				
No formal	4 (1.9)	16 (6.3)		
Primary	42 (19.9)	35 (13.7)		
Secondary	129 (61.1)	156 (61.2)	8.026	**0.045**
Tertiary	36 (17.1)	48 (18.8)		
Tribe				
Bette	75 (35.5)	30 (11.8)		
Efik	60 (28.4)	58 (22.7)		
Ekpathe	15 (7.1)	71 (27.8)	64.680	**<0.05**
Mbembe	45 (21.3)	54 (21.2)		
Others**	16 (7.7)	42 (16.5)		
Household income				
<₦ 20,000	88 (41.7)	106 (41.6)		
₦ 20,000 – 50,000	94 (44.6)	83 (32.5)	13.119	**0.004**
₦ 51,000 – 100,000	23 (10.9)	48 (18.8)		
>=₦100,000	6 (2.8)	18 (7.1)		
Booking GA/weeks				
≤13	74 (35.1)	107 (42.0)		
14 – 26	103 (48.8)	118 (46.2)		
>26	34 (16.1)	30 (11.8)	3.158	0.206
Mean booking GA ±SD 16.48±8.5	16.96±8.4	16.08±8.6		
Place of delivery				
Health facility	157 (74.4)	191 (74.9)		
Church	5 (2.4)	11 (4.3)	2.104	0.551
Home	29 (13.7)	35 (13.7)		
TBA	20 (9.5)	18 (7.1)		

* Muslim, Jehovah's Witness **Cameroon, Hausa, Yoruba, Tiv, Fulani, Bekwara, Boki, Igbo

Table 2: Clients satisfied with the quality of the structure, process and outcome of care among mothers in the rural and urban PHC facilities in CRS, 2020

	Clients satisfied n=466		**$\chi 2$**	**p-value**
Variable	Rural(n=211) n (%)	Urban(n=255) n (%)		
Input / structure domain				
Neatness and conducive nature of the health facility	117 (55.5)	171 (67.1)	6.591	**0.01**
Available facilities/equipment needed for care	108 (51.2)	169 (66.3)	10.905	**0.001**
Electricity and water supply provided in facility	65 (30.8)	145 (56.9)	31.666	**<0.05**
Beds and bed sheets in the wards	98 (46.4)	153 (60.0)	8.536	**0.003**
Provision of ITN and Window nets in the wards	100 (47.4)	158 (62.0)	9.915	**0.002**
Toilets and bathroom facilities provided for patients	85 (40.3)	151(59.2)	16.555	**<0.05**
The examination rooms and privacy	131 (62.1)	173 (67.8)	1.688	0.194
Health education materials easily understood.	152 (72.0)	166 (65.1)	2.566	0.109
Adequacy of staffs in this facility	93 (44.1)	150 (58.8)	10.063	**0.002**
Competency of health workers in the health facility	149 (70.6)	200 (78.4)	3.750	**0.053**
Process attribute domain				
Health workers are respectful and kind	159 (75.4)	181 (71.0)	1.120	0.290
Staff do their work with confidence	138 (65.4)	167 (65.5)	0.000	0.984
Explanation of procedures before performing them	155 (73.5)	200 (78.4)	1.573	0.696
Support from health workers during ANC	164 (77.7)	202 (79.2)	0.152	0.696
Support from health workers during delivery	169 (80.1)	201 (78.8)	0.114	0.736
Encouragement and support provided by health workers during immunization	166 (78.7)	188 (73.7)	1.548	0.213
Examination of pregnant and postpartum women by health workers /	176 (83.4)	206 (80.8)	0.540	0.463
Health talks/education sessions	162 (76.8)	195 (76.5)	0.006	0.938
Daily operation of the facility	140 (66.4)	196 (76.9)	6.343	**0.012**
24 hours operation of the facility	137 (64.9)	204 (80.0)	13.361	**<0.05**
Promptness	152 (72.0)	196 (76.9)	1.421	0.233
Waiting time	150 (71.1)	146 (57.3)	9.538	**0.002**
Consultation time	163 (77.3)	178 (69.8)	3.262	0.071
Availability of drugs in this health facility	82 (38.9)	132 (51.8)	7.740	**0.005**
Provision of privacy during vaginal examination and delivery	149 (70.6)	196 (76.9)	2.344	0.126
Laboratory investigations performed	104 (49.3)	149 (58.4)	3.889	**0.049**
Cost of drugs in this facility	79 (37.4)	129 (50.6)	8.076	**0.004**
Cost for services in this facility	102 (48.3)	147 (57.6)	4.018	**0.045**
Outcome attribute domain				
Mothers health status after delivery	191 (90.5)	245 (96.1)	5.920	**0.015**
Babies' health status after delivery	194 (91.9)	246 (96.5)	4.493	**0.034**

Table 3: Overall client satisfaction scores with the quality of maternal healthcare services in rural and urban PHC facilities in Cross River State, 2020

	Overall satisfaction scores (n=466)			
Variable	Rural (n=211)n (%)	Urban (n=255)n (%)	**χ2**	**p-value**
Overall scores	172 (81.5)	235 (92.2)	11.821	**0.001**
Input/structure	119 (56.4)	194 (76.1)	20.279	**<0.05**
Process	181 (85.8)	239 (93.7)	8.189	**0.004**
Outcome	203 (96.2)	255 (100)	9.837	**0.002**

Table 4: Association between socio-demographic variables and client's satisfaction with the quality of maternal healthcare services in rural and urban PHC facilities in CRS, 2020

	Overall satisfaction Rural n = 211				**urban n = 255**			
Variable	**Satisfied n (%)**	**Not satisfied n (%)**	**χ2**	**p-value**	**Satisfied n (%)**	**Not satisfied n (%)**	**χ2**	**p-value**
Age								
<30	123(80.4)	30(19.6)	0.467	0.494	160(92.5)	13(7.5)	0.080	0.777
≥30	49(84.5)	9(15.5)			75(91.5)	7(8.5)		
Marital status								
Single								
Married	43(82.7)	9(17.3)	0.063	0.801	61(83.6)	12(16.4)	10.454	**0.001**
	129(81.1)	30(18.9)			174(95.6)	8(4.4)		
Occupation								
Unemployed	164(82.0)	36(18.0)	FET	--------	218(92.4)	18(7.7)	FET	------
Employed	8(72.8)	3(27.3)			17(89.5)	2(10.5)		
Education								
No formal education								
Formal education	2(50.0)	2(50.0)	FET	--------	16(100)	0(0.0)	FET	--------
	170(82.1)	37(17.9)			219(91.6)	20(8.4)		
Booking GA								
<16 weeks	88(83.8)	17(16.2)	0.729	0.392	131(94.2)	8(5.8)	1.843	0.175
≥16 weeks	84(79.2)	22(20.8)			104(89.7)	12(10.3)		
Income								
<50 000	145(79.7)	20(20.3)	2.996	0.083	173(91.5)	16(8.5)	0.391	0.532
≥50 000	27(93.1)	2(6.9)			62(93.9)	4(6.1)		

Discussion

Our study assessed and compared client satisfaction with the quality of maternal healthcare services received by mothers of babies 0 – 6 weeks old accessing child immunization services in rural and urban PHC facilities in CRS, Nigeria. This study reports that clients in both rural and urban areas were satisfied with most aspects of maternal healthcare. Overall, four out of five clients expressed satisfaction with services in both settings with slightly higher proportion of clients in the urban areas expressing satisfaction with services compared to those in the rural areas. This finding is higher than that reported from a study conducted in an urban and rural primary healthcare facilities in Northwest Nigeria which reported that only about two-third of the respondents in urban and rural communities were satisfied with the quality of healthcare they received.[29] On the other hand, a study that analysed Demographic and health data in Ghana reported lower level of client satisfaction with primary healthcare services among clients in urban and rural areas.[30] In our study and the study conducted in Northwest Nigeria, the satisfaction scores are higher in urban PHCs compared with the rural PHCs. This could be attributed to the fact that facilities in urban areas are more likely to be better equipped in terms of resources for maternal healthcare services compared to rural health facilities, hence compromising the quality of services delivered in rural health facilities. Therefore, it is pertinent for policy makers to strengthen the PHC facilities by addressing the issue of poor staffing and equipment in rural health facilities, not only in CRS but also across the country if the health-related sustainable development goals (SDGs) are to be achieved.

Majority of the women in our study (81.5% and 92.2%), in rural and urban facilities respectively were satisfied with the quality of maternity care they received. This finding is similar to a recent study conducted by Bernard et al in Gombe State, North-eastern Nigeria.[31] Other studies have reported similar levels of satisfaction in some African countries: Rwanda 88.75% and Southern Mozambique 85.9%.[32,33] Nevertheless, these studies were not an urban versus rural comparison. However, higher levels of satisfaction are reported in Lagos, Ekiti and Sokoto metropolis than observed in our study at 94%, 94.8% and 96.7% respectively.[20,34,35] The different services rendered may explain the reported higher satisfaction rates in these studies. The differences in the rate of satisfaction could also be due to the different settings or the characteristics of the study population in which the studies were done and the measures of satisfaction studied. Furthermore, the level of client satisfaction reported in some African countries and Nigeria are lower than that observed in our study. A study in Ethiopia by Muluken and Yemane reported overall satisfaction level of 64%, input 70% and process 69.56%,[36] while Mustefa and Bekelu in Bele Gasgar reported a satisfaction level of 55%.[17] In Nigeria, a study by Oyebola et al reported a satisfaction level of 63.6%, while Babalola and Okafor reported a satisfaction level of 62.5%.[19,37]

Despite the overall proportion of respondents reporting satisfaction with MHS being greater than four-fifth in this study, the input/structural attribute of care revealed a satisfaction score of greater than two-third (76.1%), but only slightly above half (56.4%) in the rural PHC facilities. More so, the satisfaction scores for most of the items in the input/structural domain was just slightly above average (50%) with only a few items scoring two-third and above. The areas of dissatisfaction in both urban and rural PHCs included electricity and water supply. In addition, about half of the clients in the rural PHCs were not satisfied with the quality of bed and bedsheets in the ward, quality of insecticide treated net (ITN) and window nets in the ward, toilets and bathroom facilities and adequacy of staff. This finding is in agreement with findings from a study conducted in South-south Nigeria where only about half of the respondents were satisfied with the availability of the structure.[38] The implication of this finding is that the input/structural domain of care need to be looked into especially in rural health facilities if healthcare quality is to be maintained.

Furthermore, the process of care which is the sum of all actions that make up healthcare, in this study, satisfaction with process of care was greater than four-fifth, (93.7%) in urban compared to

(85.8%) rural PHCs. Most of the respondents reported satisfaction with most of the items in the process domain, although few of the respondents in the rural PHCs reported dissatisfaction. Some of the areas of dissatisfaction in both urban and rural facilities were availability of drugs in the health facility and the cost of drugs in the facility. In addition to this, clients in the rural facilities were not satisfied with availability of drugs in the health facility, laboratory investigations performed, cost of drugs and cost of services. This finding is not consistent with findings by Anthony *et al* that reported that participants were satisfied with the process of care (which includes health workers' attitude and privacy) and the structural dimension of care (such as, the cleanliness of health care facilities and availability of and access to medicine).[39] One possible reason for this level of satisfaction could be the good relationship of the healthcare provider with the clients. Interestingly, despite the dissatisfaction recorded with some items in the structure and the process of care, the outcome of care recorded almost 100% satisfaction score, with overall satisfaction score of 94%.

This finding is in keeping with findings from Anthony et al that reported (97.1%) satisfaction with birth outcomes.[39] The high satisfaction score recorded in this domain could be because the study was carried out among mothers who brought their babies for immunization. The mothers are satisfied because they were healthy and gave birth to life babies. To have a more holistic view of the outcome of care, it may be necessary to include clients who had problems in the course of maternal healthcare services, lost a pregnancy, had a still birth, lost child just after birth while still in the facility after delivery. At bivariate analysis, only marital status was found to be associated with satisfaction with MHS and among women residing in urban setting. These finding agree with findings from Sannia and Waris, and Nasser *et al* where they found that sociodemographic variables like marital status impacted on satisfaction.[40,41] This may be attributed to the fact that married women in urban setting have access to social and mass media, like Facebook, newspaper, television, radio and other social media platforms than women in rural settings. This media promotes the acquisition of healthcare knowledge and raises public awareness on health issues. The rural women lack this information, may not be satisfied with services and hence poor uptake of MHS. This implies that there may be need for women in the rural setting (especially singles) to have regular information on the need for MHS. This study, therefore, highlights the importance of the input/structural and process domains in attending good outcome of care and a yardstick for client satisfaction with care.

Limitation

The study relied mainly on recall experience of mothers who utilized maternal healthcare services in the study facilities. This is prone to recall bias. To enhance recall, only nursing mothers of babies 0 – 6weeks were included in the study. In addition, interviews were conducted in health facilities where respondents received maternal healthcare services. Social desirability bias/Hawthorne effect can affect the responses given by participants in this study. To minimize this, we refrained from using health workers as interviewers. Secondly, we interviewed participants in secluded rooms away from the eyes of facility health workers. Additionally, we reassured them that the interview was purely for research purposes so they should be free to give honest responses. These notwithstanding, Hawthorne is still a possibility. Only users of health facilities participated in this study, so views of non-users that may provide vital information may be missed.

The strength of the study

The strength of the study was that it assessed satisfaction with different domains and revealed satisfaction with input, process and outcome of care in the different settings. This led to a strong recommendation that interventions targeting improvement across all domains in the rural and input domain in the urban facilities

Conclusion

This study found that the clients in the urban sites showed more satisfaction with the quality of care

across the three domains compared to those in the rural sites. The difference in the satisfaction level between rural and urban was statistically significant. In addition, on bivariate analysis, marital status was found to be associated with satisfaction among women in the urban setting compared to women in the rural settings. Predominant structural gaps were identified by clients as needing improvement and they include: electricity and water supply, beds and bedsheets, provision of ITN and window nets in the wards, toilets and bathroom facilities, adequacy of staff, availability of drugs, laboratory investigations performed, cost of drugs, and cost of services in the facilities. There is need for targeted interventions by the government and other stakeholders at the primary healthcare level to address identified gaps as well as reduce rural-urban inequity in the quality of healthcare services.

Conflicts of interests

Authors declared they have no conflicts of interest.

Acknowledgements

The authors acknowledge the support and assistance by the Director General, Cross River State Primary Healthcare Development Agency (CRSPHCDA) and staff of the primary Healthcare facilities used for this study. In addition, we appreciate Dr Edet's foundation for the financial support for data collection. We also acknowledge the contribution of the research assistants to the success of this work and the research team at the Demographic Health Surveillance System; University of Calabar especially Prof. Arikpo Iwara and Mr. Anthony Okoro who helped to develop the electronic tool used that made the job quite easy.

Funding

The authors received no funding for the research, authorship and / or publication of this article.

Authors contributions

AII conceived, designed and implemented the study. AO and OAO guided and supervised design and implementation. AII supervised data collection and analysis. AII and IFO wrote the first draft of the manuscript under supervision of AO and OAO. All authors reviewed and edited the manuscript and approved the final version of the manuscript.

References

1.WHO. Maternal mortality [Internet]. [cited 2024 Apr 2]. Available from: https://www.who.int/news-room/fact-sheets/detail/maternal-mortality
2. UNFPA; UNICEF; WHO; World Bank Group and the United Nations Population. Trends in maternal mortality 2000 to 2020: estimates by WHO, UNICEF, UNFPA, World Bank Group and UNDESA/Population Division . Sexual and Reproductive Health. 2023 . 12 p.
3. Health Think Analytics. The Fate Of Maternal Health In Nigeria Amidst The Global Pandemic, 2022.
4. Dauda R. Maternal Mortality in Nigeria: What is Known and What Needs to be Done November 2023 Professor Risikat Dauda, NESG Non-Resident Senior Fellow & Faculty. 2023;(November).
5. World Health Organization. WHO | Maternal health . WHO. World Health Organization; 2018
6. Donabedian A. The Quality of Care: How Can It Be Assessed? JAMA J Am Med Assoc . 1988 ;260(12):1743–8.
7. Donabedian A. Quality assessment and assurance: unity of purpose, diversity of means. Inquiry. 1988 Jan 1;25(1):173–92.
8. Wikipedia. Donabedian model - Wikipedia . 2021
9. Hulton LA, Matthews Z and Stones RW. Applying a framework for assessing the quality of maternal health services in urban India. Soc Sci Med [Internet]. 2007 [cited 2020 Jul 7];64(10):2083–95.
10.Odira CC, Chiejina EN, Okafor CN, Maryann Ibekwe A, Cho C and History M. Preconception Care Utilization among Childbearing Women in South-East Nigeria.
11.Nigeria Demographic and Health Survey 2023-24 - Key Indicators Report [PR157] |
12.National Population Commission, DHS Program. The Federal Republic of Nigeria Nigeria Demographic and Health Survey 2018
13.WHO. Maternal health in Nigeria: generating information for action. Sex Reprod Health. 2019 ;11–3.
14.Aga TB, Ferede YM and Mekonen EG. Satisfaction and associated factors towards inpatient health care services among adult patients at Pawie General Hospital, West Ethiopia. PLoS One. 2021 Apr 1;16(4 April).
15.Kaba Babure Z, Fekadu Assefa J and Weldemarium TD. Maternal Satisfaction and Associated Factors towards Delivery Service among Wollega Zone, Oromia Regional State, Western Ethiopia, 2019
16.Manzoor F, Wei L, Hussain A, Asif M and Shah SIA. Patient satisfaction with health care services; an application of physician's behavior as a moderator. Int J Environ

Res Public Health [Internet]. 2019 Sep 2 [cited 2021 May 16];16(18).
17.Hussen MA and Worku BT. Quality of Antenatal Care Service and Factors Associated with Client Satisfaction at Public Health Facilities of Bele Gasgar District. J Patient Exp. 2022 Mar 1 ;9.
18.Srivastava A, Avan BI, Rajbangshi P and Bhattacharyya S. Determinants of women's satisfaction with maternal health care: A review of literature from developing countries. BMC Pregnancy Childbirth. 2015 Dec 12 ;15(1):97.
19.Babatola OH, Popoola RO, Olatubi MI and Adewoyin FR. Patients' Satisfaction with Health Care Services in Selected Secondary Health Care Facilities in Ondo State, Nigeria. J Fam Med Dis Prev. 2022;8(1):145.
20.Akinyinka MR, Oluwole EO and Odusanya OO. Predictors of Client Satisfaction Among Recent Users of Health Services in Lagos, Nigeria. Health Service Insights. 2020 ;13.
21.Lukpata FE, Nwakwue N, Lukpata HO, Tangban E, Anagor CR and Mgbekem MA. Maternity Clients Satisfaction with Client-Health Provider Interaction in State-owned Secondary Health Facilities in Cross River State. Glob J Health Sci];12(12):53.
22.Cross River State, Nigeria - Maryland Sister States
23.Nigeria Galleria. Brief History of Cross-River State:: Nigeria Information & Guide. Nigeriagalleria.Com. 2017
24.Health CRSM of. Human Resources for Health Situation Analysis of Cross River State, Nigeria, 2014. 1–30 p.
25.Edu BC, Agan TU, Monjok E and Makowiecka K. Effect of free maternal health care program on health-seeking behavior of women during pregnancy, intra-partum and postpartum periods in Cross River State of Nigeria: A mixed method study. Maced J Med Sci. 2017 Jun 15;5(3):370–82.
26.Behind the 66%: Pathfinder International Initiative helps reduce maternal deaths in Cross River | by Nigeria Health Watch | Medium.
27.Theresa A Scott. Sample Size Planning, Calculation, and Justification. Vanderbilt Univ Dep Biostat. 2006;(92/07/2011):1–12.
28.Odetola TD, Fakorede EO. Assessment of perinatal care satisfaction amongst mothers attending postnatal care in Ibadan, Nigeria. Ann Glob Heal. 2018 Apr 30;84(1):36–46.
29.Sayyadi BM, Gajida AU, Garba R and Ibrahim UM. Assessment of maternal health services: A comparative study of urban and rural primary health facilities in Kano State, Northwest Nigeria. Pan Afr Med J. 2021;38.
30.Yaya S, Bishwajit G, Ekholuenetale M, Shah V, Kadio B andUdenigwe O. Urban-rural difference in satisfaction with primary healthcare services in Ghana. BMC Health Serv Res. 2017 Nov 25;17(1):776.
31.Utoo BT, Laima CH, Rabiu AB, Muhammad S, Oyeniyi CF, Egwu O. Mother's Satisfaction with Delivery Services and Intended Future Utilization at Federal Teaching Hospital, Gombe, North-Eastern, Nigeria. Eur J Clin Med. 2023 May 10;4(3):5–11.
32.Habimana E, Nyirigira G, Sendegeya A, Minega JN, Mukamana F, Ngarambe C. Clients' satisfaction of maternity care at a public referral teaching hospital, in Rwanda: case of University Teaching Hospital of Butare (CHUB). Pan Afr Med J [Internet]. 2022 Jan 1 ;41(150).
33.Dulá J, Chicumbe S and Martins M do RO. Determinants of pregnant women's satisfaction with interactions with health providers at antenatal consultation in primary health care in Southern Mozambique in 2021: a cross-sectional study. BMC Pregnancy Childbirth. 2024 Dec 1 ;24(1):165.
34.Esan DT, Sokan-Adeaga AA and Rasaq NO. Assessment of satisfaction with delivery care among mothers in selected health care facilities in Ekiti state. J Public health Res. 2022 ;11(4).
35.Ango JT, Oche MO, Kaoje AU, Constance SE, Raji IA. Clients' satisfaction with maternal and child health services in primary health care centers in Sokoto metropolis, Nigeria. Edorium J Matern Child Health. 2017 ;2(2):9–18.
36.Amare Wudu M and Bekalu YE. Quality of Antenatal Care in Public Health Facilities of Dessie Town, Northeastern Ethiopia, 2022. J Patient Exp . 2023 Jan 1;10:
37.Tesleem K. B and Ifeoma P O. Client satisfaction with maternal and child health care services at a public specialist hospital in a Nigerian Province. Türkiye Halk Sağlığı Derg. 2016 Dec 31 ;14(3):117–117.
38.Olamuyiwa TE and Adeniji FO. Patient's Satisfaction With Quality of Care at a National Health Insurance Clinic at a Tertiary Center, South-South Nigeria. J Patient Exp 2021;8:
39.Ajayi AI. "I am alive; my baby is alive": Understanding reasons for satisfaction and dissatisfaction with maternal health care services in the context of user fee removal policy in Nigeria. Sawyer A, editor. PLoS One 2019 Dec 23 ;14(12):
40.Sannia Perwaiz Iqbal1* and Waris Qidwai. The Influence of Socio-Demographic Characteristics on Patient Satisfaction in Family Medicine Clinics of Karachi. Liaquat Natl J Prim Care . 2021
41.Aljarallah NA, Almuqbil M, Alshehri S, Khormi AMS, AlReshaidan RM, Alomran FH. Satisfaction of patients with health care services in tertiary care facilities of Riyadh, Saudi Arabia: A cross-sectional approach. Front Public Health. 2023 ;10