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Access, perceived quality and uptake of antenatal services in urban communities of Osun state, Southwest Nigeria

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Abstract

Quality antenatal care (ANC) is one of the key interventions to improve intrapartum care uptakes and to reduce the menace of maternal deaths globally. Yet, ANC coverage has remained low in many developing countries like Nigeria. It becomes imperative to contextually understand factors associated with ANC uptake in Nigeria. The study assessed level of utilization, perceived quality, level of satisfaction and determinants of ANC utilization among women of reproductive age-group in Oshogbo, South-west Nigeria. Cross-sectional study design was employed and cluster sampling method was used to recruit 420 consenting respondents. Data were collected using pretested interviewer-administered, semi-structured questionnaire. Both descriptive and inferential statistics were done at $p<0.05$. The mean (±SD) age of the respondents was 30.84±6.0 years. Almost three-quarters (73.9%) of the respondents had at least 4 ANC visits. Main reasons for non-ANC usage were high cost of care, long waiting time at the clinic, long distance to the clinic and unsatisfactory service quality. Only 59.9% of respondents were satisfied with services received while 63.1% of them rated the service quality as excellent. Main determinants of ANC uptake were respondents' age (AOR=2.35;95%CI=1.34-5.89), level of education (AOR=0.56;95% CI= 0.42-0.71), socio-economic status (AOR=5.22; 95%CI=2.02-6.65) and monthly family income (AOR=0.89; 95%CI=0.02-0.90). Although the rate of ANC use was high in the study setting, the proportion of women who were satisfied with service quality was sub-optimal. There is need for implementation of multi-pronged intervention to make ANC services more available, accessible, affordable and acceptable to the Nigerian women. *(Afr J Reprod Health 2022; 26[12]: 78-89).*

Keywords: Antenatal care, access, quality, satisfaction, skilled birth attendants, Nigeria

Résumé

Les soins prénatals (CPN) de qualité sont l'une des interventions clés pour améliorer le recours aux soins intra-partum et réduire la menace de décès maternels dans le monde. Pourtant, la couverture des soins prénatals est restée faible dans de nombreux pays en développement comme le Nigeria. Il devient impératif de comprendre contextuellement les facteurs associés à l'utilisation des soins prénatals au Nigéria. L'étude a évalué le niveau d'utilisation, la qualité perçue, le niveau de satisfaction et les déterminants de l'utilisation des soins prénatals chez les femmes en âge de procréer à Oshogbo, dans le sud-ouest du Nigeria. Une conception d'étude transversale a été utilisée et une méthode d'échantillonnage en grappes a été utilisée pour recruter 420 répondants consentants. Les données ont été recueillies à l'aide d'un questionnaire prétesté et semi-structuré administré par un intervieweur. Les statistiques descriptives et inférentielles ont été réalisées à $p<0,05$. L'âge moyen (± ET) des répondants était de 30,84 ± 6,0 ans. Près des trois quarts (73,9%) des répondants ont eu au moins 4 consultations prénatales. Les principales raisons de la non-utilisation des soins prénatals étaient le coût élevé des soins, les longs temps d'attente à la clinique, la distance jusqu'à la clinique et la qualité de service insatisfaisante. Seulement 59,9% des répondants étaient satisfaits des services reçus tandis que 63,1% d'entre eux ont qualifié la qualité du service d'excellente. Les principaux déterminants du recours aux soins prénatals étaient l'âge des répondants (OR=2,35 ; IC à 95 % = 1,34-5,89), le niveau d'éducation (OR=0,56 ; IC à 95 % = 0,42-0,71), le statut socio-économique (OR=5,22 ; 95 %IC=2.02-6.65) et le revenu familial mensuel (AOR=0.89 ; 95%IC=0.02-0.90). Bien que le taux d'utilisation des soins prénatals soit élevé dans le cadre de l'étude, la proportion de femmes satisfaites de la qualité des services était sous-optimale. Il est nécessaire de mettre en œuvre une intervention à plusieurs volets pour rendre les services de soins prénatals plus disponibles, accessibles, abordables et acceptables pour les femmes nigérianes. *(Afr J Reprod Health 2022; 26[12]: 78-89).*

Mots-clés: Soins prénatals, accès, qualité, satisfaction, accoucheuses qualifiées, Nigeria

Introduction

Maternal mortality remains a significant public health challenge despite many collaborative efforts on a global scale to tackle the menace. Empirical evidences show a global decline in maternal mortality ratio (MMR) by approximately 44% over the past 25 years[1,2]. It is also estimated that MMR has been decreasing at the average rate of 2.6% per year over the past few decades but the rate of reduction is still lower than the 6.4% required to attain the Sustainable Development Goal (SDG) 3.1 target of 70/100,000 livebirths by 2030 [3]. Sub-Saharan Africa (SSA) is one of the regions of the world having the highest burden of maternal deaths. The lifetime risk of maternal mortality is estimated at 1 in 36 in this region, contrasting 1 in 4900 in developed countries[2]. Like in other parts of the world, MMR has also declined in Nigeria from 800/100,000 livebirths in 2008 to 512/100,000 livebirths in 2018[4]. At this rate, Nigeria ranks fourth among nations with the highest MMR globally[5].

Most maternal deaths are usually preventable as health care solutions to the causes of complications during pregnancy, labor and delivery are well understood. These solutions include a responsive health system that provides maternal health services based on a continuum of care which integrates quality ANC[6]. ANC provide a veritable platform to prepare women for childbirths and to be complication ready. In addition, ANC is designed to promote health-facility deliveries and to improve utilization of skilled birth attendants (SBAs)[7,8]. A positive experience during both pregnancy and childbirth are crucial to person-centered care and the right of every childbearing woman, as recommended by World Health Organization (WHO)[9]. In Focused Antenatal Care paradigm, emphasis is on person-centered care and quality of care rather than quantity of ANC visits. Thus, four ANC visit is recommended for normal pregnancy. First visit should be made at gestational age of 8th - 12th week, 24th -30th week for the second visit, third visit is at 32nd week while the last visit should be at 37th week[7,8,10]. However, for positive pregnancy experience, the minimum number of ANC visits has been increased to eight, to adequately address the high burden of maternal deaths in the developing countries.

Women's satisfaction is a sensitive indicator and demand-related yardstick of measuring service quality. This indicator varies from facility to facility as well as from country to country[11,12]. Previous studies have established that satisfaction of pregnant women with maternal care can positively influence their health-seeking behaviors and adherence to care, including antenatal care and other required maternal health services especially in Africa[1,13]. Satisfied clients are more likely to return for care and recommend services to others, which may improve effective coverage of services. In contrast, poor satisfaction of patients with maternal health services including ANC, might predispose pregnant women to home delivery rather than the delivering in health-care facilities[13]. Prior researches also suggests that in SSA, factors that influence patients' satisfaction with health services include interpersonal (provider–patient) relationships, technical quality and organizational factors (such as cleanliness and comfort)[11,14]. Self-reported client satisfaction is therefore key to addressing service provider and facility-based factors that can significantly be improved upon.

Quality antenatal care (ANC) and facility-based delivery with SBAs are important interventions to improve pregnancy outcomes, reducing maternal and perinatal mortality, yet coverage of these services remains inadequate[14]. A previous survey conducted in Nigeria, reported a 46.5% prevalence of underutilization of ANC[15]. Antenatal care utilization is reportedly associated with a number of socio-demographic and economic factors, availability and access to health care services, prior experience of delivery complications and motivation by either health care provider or family amongst others[15,16].

Most of the past studies on this subject have been health facility-based, focusing on women with relatively good health seeking behaviour and fair/good perception of quality of care received. However, hospital-based studies are prone to Berksonian bias and the views of participants in such studies may not be truly representative of the entire population, hence the need for a more comprehensive community-based study such as the current one. Moreover, not too many of the past studies examined the level of satisfaction of women with the ANC services received. Yet, level of satisfaction is an important factor in assessing demand-related issues affecting utilization of public health interventions and needs to be properly

articulated in the Nigerian context. Thus, there is currently a gap in knowledge on the true perception of Nigerian women on ANC access, perceived service quality and their level of satisfaction with ANC services received. The current study sought to bridge this research gap. It provides baseline data which policy makers can use to develop a more accessible, acceptable, affordable and available ANC services in Nigeria. The objectives of this community-based study are thus to assess the level of ANC utilization, perceived service quality and level of satisfaction of ANC services received by women in Osun State, Southwest Nigeria.

Methods

Study area

The study was conducted in Osogbo Local Government Area (LGA), an urban LGA in Osun State, south west Nigeria. Osogbo is the administrative headquarters of Osun State with a 2021 projected population of 754,918(from the 2006 population census report for Nigeria, at a growth rate of 2.3)[17]. The main religion of the inhabitants of Oshogbo are Christianity, Islam and Traditional religions. Most dwellers in Osogbo are civil servants and petty traders. Osogbo is home to Osun State University Teaching Hospital and 12 other privately owned hospitals as well as 10 popular primary healthcare facilities where women can receive maternity care.

Study design

The study employed cross-sectional design

Study population

These are women in reproductive age group living in Osun State.

Inclusion/exclusion criteria

All consenting women in reproductive age-group (15-49years) who had lived for a period of at least 6 months in their communities (for better representativeness of opinions given) were recruited into the study. Potential respondents who had never been pregnant or delivered babies were excluded from participating in the study.

Sample size determination

The minimum sample size for the study was calculated using the Leslie Kish formula for a population with more than 10,000 inhabitants. Standard normal deviate of 95% (1.96) was used and the tolerable margin of error was set at 5%. Based on reports from 2018 NDHS [4], 57% of our respondents were assumed to have had at least four ANC visits in their last pregnancies. A 10% non-response rate was envisaged and corrected for. Thus, the minimum sample size estimated for the study was 420

Sampling method

Eligible respondents were recruited using cluster sampling technique. Sampling frame consisted of the 13 districts under Osogbo LGA from which Ayetoro and Alekuwodo areas were selected using simple random technique (balloting). All the households in the selected clusters with eligible respondents were selected for the interviews. In households with more than oneeligible respondent, one was chosen using simple random method (balloting).

Pretesting

The questionnaire was pretested in Kola-Balogun, a community with similar demographic structure but not one of those used for the main study. Forty respondents were selected for this exercise using convenience sampling method. The exercise assisted us to assess if the questions on the questionnaire were good enough to elicit the desired responses from our respondents. Ambiguous questions were either rephrased or removed entirely in line with our study objectives. Moreover, Cronbach's alpha was estimated in assessing the internal validity of the study instrument and the value of 0.8 was obtained.

Data collection process

The tool for data collection was interviewer-administered, semi-structured questionnaire which was developed after reviewing extant literatures. The questionnaire had four sections which sought information on socio-demographic characteristics of respondents, utilization of ANC services by the

respondents and respondents' level of satisfaction/ perceived quality of ANC services. The questionnaire was translated to Yoruba language for our respondents who preferred communicating in their local language. Back translation into English language was carried out by a linguistic expert to preserve the original meanings of the questions asked.

Data collection was carried out in May, 2022 by four university graduates recruited as research assistants. They were trained on data collection for three days by the principal investigators. The training involved practical demonstrations.

Data management and analyses

Each completed questionnaire was edited daily on the field before entering into Statistical Package for the Social Sciences (SPSS) version 20 for analysis. Both descriptive and inferential statistics were carried out. Chi-Squared test was used to compare the relationships between categorical variables. Stepwise binary logistic regression was built at the multivariate level. Variables imputed into the model were selected based on whether they were significant at the bi-variate level or had been reported as significant predictors of ANC utilization in past studies. To identify significant determinants of ANC use in the study setting, 95% Confidence Intervals (CIs) were obtained and Adjusted Odds Ratio (AORs) estimated at $p<0.05$.

Operational definitions

Overall level of satisfaction with ANC services

This was assessed by asking the respondents to rate their satisfaction with the maternity cares received in their last pregnancies and the responses were "poor", "satisfactory" and "highly satisfactory".

Perception of Quality of care

Apart from other specific questions on service quality, respondents were asked to rate the quality of care received in their last pregnancies and the options were" poor", "average" and "excellent".

ANC level of utilization

This was the main outcome variable and was estimated by calculating the proportion of respondents who had at least 4 ANC visits.

Socio-economic status

This was estimated by using Oyedeji's classification of social class[18]. Respondents' educational level was rated and combined with their husbands' occupational types. Scores for educational level ranged from 1 (No formal education) to 5 (Tertiary education). For spouses' occupation, the scores ranged from 1 (Professionals) to 5 (Unemployed). Respondents' scores from the 2 parameters were summed up and rated over 10-points. Those who scored below 5 were categorized into the lower socio-economic class. Scores between 5-7 place the respondent in the middle socio-economic class while those with scores above 7 were grouped into the high socio-economic class.

Results

Our questionnaire was administered to 422 respondents and all were returned satisfactorily completed (100% response rate). Table 1 shows that the mean (±SD) age of the respondents was 30.84±6.0 years. Majority of the respondents (89.8%) were between 20 and 39 years of age and majority (89.3%) were of Yoruba ethnic group. More than half (51.7%) of the respondents had tertiary education and 51.9% were of the middle socio-economic class. Only 7.3% of them earned above 234.88 USD as family monthly income.

In Table 2, majority (96.2%) of the respondents received medical care for their most recent pregnancies, out of which 73.9% of them had more than four (4) ANC visits. More than half (51.9%) of these respondents had their ANC in government clinics/hospitals. Distance of the respondent's residence to the healthcare facilities was less than 30 minutes walking distance for 52.7% of the respondents and within 1 hour walking distance for 43.6% of them. The waiting time in the last ANC visit for most (45.1%) respondents was between 30 minutes – 1 hour, while 15.3% of the respondents spent more than 2 hours before they were attended to.

Types of health services received by respondents during ANC visits include physical examination (82.0%), obstetric ultrasound (66.7%), malaria treatment (65.3%) and blood tests (59.4%). Few (10.8%) of the respondents had complications during the last pregnancies which included

Table 1: Socio-demographic characteristics of the respondents

Variable	Frequency	Percent
Age		
≤ 19	5	1.2
20 – 29	182	43.1
30 – 39	197	46.7
≥ 40	38	9.0
Mean ± SD	**30.84 ± 6.0**	
Ethnicity		
Yoruba	377	89.3
Hausa	4	0.9
Igbo	38	9.0
Others	3	0.7
Educational level		
Nil	17	4.0
Primary	29	6.9
Secondary	158	37.4
Tertiary	218	51.7
Socio-economic status		
High	166	39.3
Middle	219	51.9
Low	37	8.8
Number of pregnancies		
1	100	23.7
2 – 4	300	71.1
> 4	22	5.2
Parity		
1	114	27.0
2 – 4	290	68.7
> 4	18	4.3
Age of youngest child		
0 – 6 months	44	10.4
7 – 11 months	21	5.0
1 – 5 years	357	84.6
Average household monthly income		
<30,000.00	182	43.1
30,000.00 – 100,000.00	209	49.5
>100,000.00	31	7.3

no/reduced fetal movement (36.4%), vaginal bleeding (34.1%) and others (15.9%) like convulsion, placenta previa etc. Only 38.6% of those with complications were referred for the treatment of the complications detected in them. Main reason for non-referrer was lack of means of transportation Sixteen (3.8%) of the respondents did not receive antenatal care in the clinic /hospital for their most recent pregnancies. Their reasons were mainly high cost of care (27.0%), long waiting time at the clinic (19.0%), long distance to the clinic (17.0%) and service quality not satisfactory (10.0%) (Figure 1).

Out of the respondents who received ANC from government healthcare facilities, 81.0% agreed that staff were caring and helpful, 60.7%

Table 2: Utilization of ANC services by the respondents

Variable	Frequency	Percentage
Received medical care for the most recent pregnancy		
Yes	406	96.2
No	16	3.8
Number of ANC visit for the most recent pregnancy		**n = 406**
1 – 3	94	22.3
≥ 4	312	73.9
Type of healthcare facility used for ANC		
Government clinic/hospital	219	51.9
Private clinic/hospital	146	34.6
Church/mosque maternity home	38	9.0
Traditional birth attendant	3	0.7
Distance to antenatal clinic		
< 30minutes walking distance	214	52.7
Within one hour walking distance	177	43.6
> 2 hour walking distance	15	3.7
Mode of transportation to ANC		
Walking	95	22.5
Motorbike	125	29.6
Public transport	119	28.2
Private	67	15.9
Waiting time in the last ANC visit		
< 30minutes	160	39.7
30minutes – 1hour	183	45.1
> 2hours	62	15.3
Types of health services received during ANC visits	**Multiple response**	**n = 406**
Physical examination	333	82.0
Obstetric ultrasound	271	66.7
Ultrasound	270	66.5
HIV counseling and testing	222	54.7
Blood tests	241	59.4
Nutritional supplements	173	42.6
Tetanus vaccine	226	55.7
Malaria treatment	265	65.3
Any complication detected during the last pregnancy		
Yes	44	10.8
No	362	89.2
Types of complications		**n = 44**
Vagina bleeding	15	34.1
No/reduced fetal movement	16	36.4
High blood pressure	5	11.4
Severe anaemia	1	2.3
Others (Convulsion, Placenta previa, malaria, no sufficient water, contraction ceased after water broke)	7	15.9
Any referral for treatment of the complication		
Yes	17	38.6
No	27	61.4

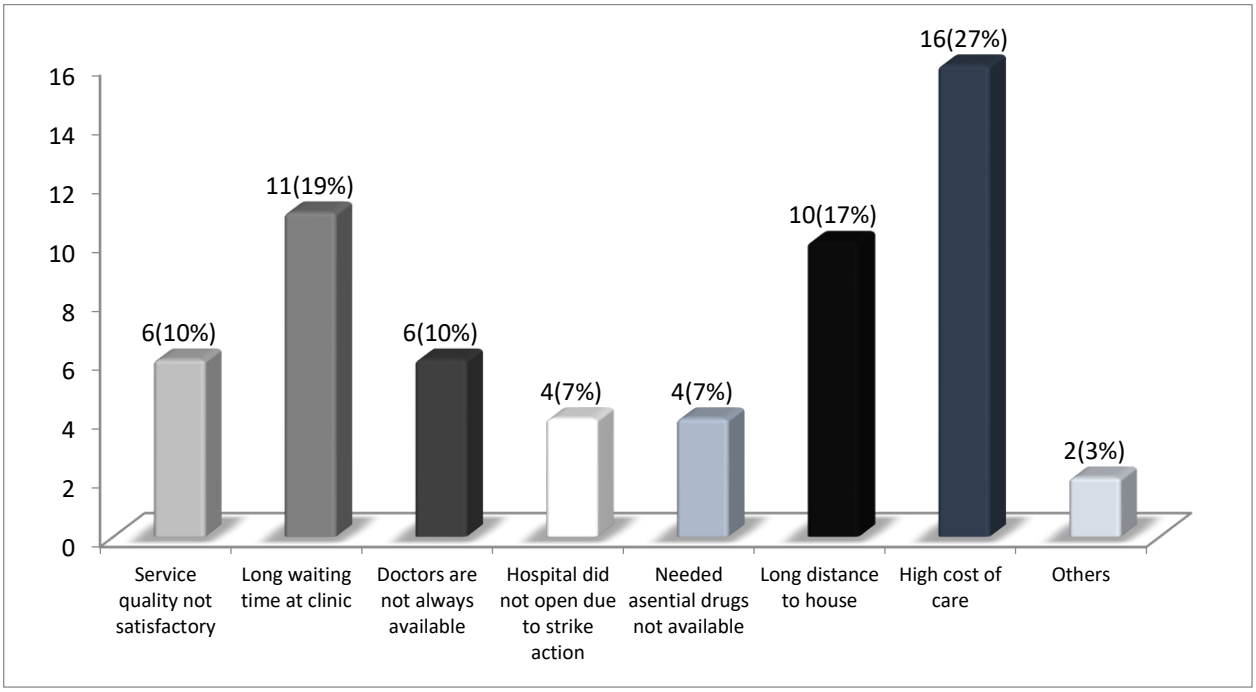

Figure 1: Reasons for not using hospital for antenatal care service (Multiple responses allowed)

Table 3a: Respondents' levels of satisfaction with maternity services received

Variable	Yes (%)	No (%)
Description of healthcare workers		
Did not use healthcare facility	10 (2.4)	412 (97.6)
Staff were caring and helpful	342 (81.0)	80 (19.0)
Gave immediate response	256 (60.7)	166 (39.3)
Friendly and respectful	247 (58.5)	175 (41.5)
Not friendly	7 (1.7)	415 (98.3)
Opinion on skills of healthcare workers		
Nurses were well trained	364 (86.3)	58 (13.7)
Doctors were competent	265 (62.8)	157 (37.2)
Staff were incompetent	9 (2.1)	413 (97.9)
Description of quality of care received		
Received sufficient information on every procedure	230 (54.5)	192 (45.5)
Staff were willing to answer question asked regarding health conditions and care given	334 (79.1)	88 (20.9)
Adequate information provided on health condition and care	282 (66.8)	140 (33.2)
Health condition monitored regularly	223 (52.8)	199 (47.2)
Opinion on infrastructures of the healthcare facility		
Sufficient bed spaces	253 (60.0)	169 (40.0)
Sufficient privacy	189 (44.8)	233 (55.2)
Regular water supply	242 (57.3)	180 (42.7)
Adequate toilet facility	221 (52.4)	201 (47.6)
Sufficient equipmentto aid delivery	248 (58.8)	174 (41.2)
Mosquito nets on the windows and beds	237 (56.2)	185 (43.8)
Clean and spacious delivery room	222 (52.6)	200 (47.4)
Adequate electricity	213 (50.5)	209 (49.5)

agreed that health workers responded immediately when called upon for services and 58.5% agreed that staff were friendly and respectful. With respect to respondents' opinions on the skills of healthcare workers, 86.3% agreed that the nurses were well trained and 62.8% agreed that doctors were competent. More than half (54.5%) of the respondents agreed they received sufficient

Table 3b: Other levels of satisfaction with maternity care

Adequacy of healthcare Personnel	**Frequency**	**Percent**
Insufficient number of health personnel	57	13.5
Just enough	302	71.6
Above expectation	63	14.9
Opinion on costs of maternity services		**n = 406**
Very expensive	44	10.8
Expensive	120	29.6
Cheap	175	43.1
Free service	67	16.5
Person who paid for service		
Service was free	58	14.3
Relative/friends	6	1.5
Husband	302	74.4
Self	7	1.7
Health insurance	33	8.1
Overall level of satisfaction with services received		
Very satisfied	155	38.2
Satisfied	243	59.9
Dissatisfied	8	2.0
Rating of service quality		
Excellent	256	63.1
Average	147	36.2
Poor	3	0.7
Willingness to recommend healthcare facility used to others		
Very willing	190	46.8
Willing	206	50.7
Unwilling	10	2.5
Willingness to use the healthcare facility again		
Very willing	186	45.8
Willing	209	51.5
Unwilling	11	2.7

information on tests/procedures before they were carried out and 79.1% agreed that healthcare workers were willing to answer questions asked regarding their health conditions. Regarding respondents' opinions on the infrastructures of the healthcare facilities, only 60.0% of them agreed that there were sufficient beds, 58.8% agreed there were sufficient equipment to aid delivery and 57.3% agreed there was regular water supply. Almost three-quarter (71.6%) of the respondents agreed there were enough healthcare staff who attended to them during antenatal /delivery. Only 43.1% of the respondents agreed that the cost of maternity services was cheap and 74.4% of the respondents stated that money for the services was paid by their husbands. Regarding respondents' overall level of satisfaction with the services received, only 59.9% of them were satisfied while just 38.2% were highly satisfied. Only 63.1% of the respondents rated the service quality as excellent, 50.7% of them were willing to recommend the health facility used to other women and just 51.5% of them were willing to use the healthcare in their next pregnancies (Table 3).

Table 4 shows that the proportion (94.2%) of respondents with at least 4 ANC visits was significantly higher among those who were 30-39 years old when compared with those in other age categories (p=0.001). Respondents in higher socio-economic class had significantly higher proportion (71.0%) of those who had at least 4ANC visits (p=0.001). Similarly, respondents with tertiary education had significantly higher proportion (85.7%) of the women with at least 4 ANC visits (p=0.001). Women whose family monthly income were more than 100,000.00 naira ($229.39) had significantly higher proportion (93.5%) of those who visited ANC at least 4 times compared to those who earned less (p=0.001). The proportion (72.4%) of women who had at least 4 ANC visits was significantly higher among respondents whose houses were within 30 minutes walking distances to the health facilities compared to those staying further (p=0.010).

Respondents older than 19years of age were 2 times more likely to have had at least 4 ANC visits compared to younger women (AOR=2.35;95%CI=1.34-5.89). Those with no formal education were 46% less likely to have at least 4 ANC visits compared to those who had at least a primary education (AOR=0.56;95% CI= 0.42-0.71). Respondents in higher socio-economic class were 5 times more likely to have had at least 4 ANC visits compared to those in lower socio-economic class (AOR=5.22; 95%CI=2.02-6.65). Respondents whose family monthly income were below 30,000.00 naira were 11% less likely to have had at least 4 ANC visits compared to those who earned more (AOR=0.89; 95%CI=0.02-0.90) (Table 5).

Table 4: Factors influencing ANC use among the respondents

VARIABLE	At least 4 ANC visits		Total	X^2	p-value
	Yes	No			
Age				16.815 df=6	**0.001***
≤ 19	0 (0.0)	5 (100.0)	5		
20 – 29	132 (76.3)	41 (23.7)	173		
30 – 39	180 (94.2)	11 (5.8)	191		
40 – 50	30 (81.1)	7 (18.9)	37		
Ethnicity				1.064 df=4	0.901
Yoruba	278 (76.6)	85 (23.4)	363		
Hausa	4 (100.0)	0 (0.0)	4		
Igbo	28 (75.7)	9 (24.3)	37		
Others	2 (100.0)	0 (0.0)	2		
Educational level				23.209 df=10	**0.001***
Nil	11 (84.6)	2 (15.4)	13		
Primary	16 (66.7)	8 (33.3)	24		
Secondary	99 (65.1)	53 (34.9)	152		
Tertiary	186 (85.7)	31 (14.3)	217		
Socio-economic status				15.086 df=5	**0.001***
High	22 (71.0)	9 (29.0)	31		
Middle	147 (70.0)	63 (30.0)	210		
Low	100 (60.0)	65 (40.0)	165		
Number of pregnancies ever had				0.711 df=4	0.960
1	72 (75.0)	24 (25.0)	96		
2 – 4	224 (77.0)	67 (23.0)	291		
> 4	16 (84.2)	3 (15.8)	19		
Parity				0.051 df=2	0.950
1	84 (76.4)	26 (23.6)	110		
2 – 4	216 (76.9)	65 (23.1)	281		
> 4	12 (80.0)	3 (20.0)	15		
Age of youngest child				5.629 df=14	0.975
0 – 6 months	38 (90.5)	4 (9.5)	42		
7 – 11 months	16 (80.0)	4 (20.0)	20		
1 – 5 years	258 (75.0)	86 (25.0)	344		
Average household monthly income				5.024 df=1	**0.025***
< 30,000.00	126 (72.4)	48 (27.6)	174		
30,000.00 – 100,000.00	157 (78.1)	44 (21.9)	201		
> 100,000.00	29 (93.5)	2 (6.5)	31		
Distance to antenatal clinic				9.210 df=2	**0.010***
< 30minutes walking distance	155 (72.4)	59 (27.6)	214		
Within one hour walking distance	100 (56.50)	77 (43.5)	177		
> I hour walking distance	9 (60.0)	6 (40.0)	15		
Mode of transportation to ANC				3.940 df=10	0.950
Walking	66 (69.5)	29 (30.5)	95		
Motorbike	100 (80.0)	25 (20.2)	125		
Public transport	94 (79.0))	25 (21.2)	119		
Private car	52 (77.6)	15 (22.4)	67		

*Significant at p<0.05 ANC=Antenatal clinic

Table 5: Determinants of ANC utilization among the respondents

Variable	*B* coefficient	P-Value	AOR	95%CI
Age				
≤ 19	0.611	**0.001***	2.35	1.34-5.89
>=20 (RC)				
Distance to ANC facility				
<30minutes walking distance	1.244	1.038	4.78	0.26-6.03
>=30minutes walking distance (RC)				
Educational level				
No formal education	-9.986	**0.048***	0.56	0.420 – 0.710
Others (RC)				
Socio-economic status				
Middle/High	17.092	**0.031***	5.22	2.02 – 6.65
Low (RC)				
Average monthly income				
<30,000.00				
>=30,000.00 (RC)	-2.914	**0.002***	0.89	0.02-0.90

RC=Reference Category * Significant at p<0.05 AOR=Adjusted Odds Ratio, CI=Confidence interval

Discussion

The current study examined access, perceived quality, level of satisfaction and utilization of ANC services in an urban Nigerian community. The study revealed that majority of the respondents received medical care for their most recent pregnancies, out of which almost three-quarter of them had more than four (4) ANC visits. This could reflect the effectiveness of existing interventions aimed at creating awareness about importance of receiving ANC from qualified healthcare personnel. Our finding is in agreement with reports from a study conducted by Okonofua *et al.*, which revealed that 62.1% of currently pregnant Nigerian women attended antenatal clinics[19]. The findings however contrast with reports from a study in South-South Nigeria by Sui et al., in which only 34.1% of respondents had 4 ANC visits[20]. The proportion of women with at least 4 ANC visits is also higher than the 57.0% reported in the 2018 Nigerian DHS[4]. In the study by Sui *et al.*, only 15.7% of the respondents had post-secondary education whereas 51.7% of the study participants in the current study attained tertiary education. Similarly, more than half of the women surveyed in the Nigerian DHS report did not have access to radio, TV or Newspaper as rural-based respondents were part of the study. Improved level of education could have enhanced the ability of our respondents to access and utilize good quality maternal health-related information to understand the benefits of ANC services thereby improving uptakes. Thus, author recommend improved investments by the Nigerian governments on women education to impact positively on their health-related knowledge. Furthermore, there is need to implement multi-pronged interventions to further improve ANC uptake in Nigeria. The interventions should include social mobilization through mass/social media campaigns as well as the use of information-education-communication (IEC) materials and methods. Financial incentives can be used to encourage women to attend ANC in standard healthcare facilities due to the prevailing economic downturn in the country and perceived prohibitive costs of orthodox medical care.

Just above half of respondents in the current study received ANC from government healthcare facilities while above a quarter of them received antenatal care in private hospitals/clinics and some received care in mission homes/TBAs. Reports from a study by Shambe *et al*., in North central Nigeria is in consonance with our findings[21]. The low patronage of government healthcare facilities for ANC in Nigeria could reflect the general lack of trust in the government-owned healthcare facilities. Government health institutions in Nigeria are plagued with recurrent industrial actions (strike) in which workers are always at loggerhead with governments for one reason or another thereby causing interruptions in service delivery[22,23]. Privately-owned healthcare facilities on the other hand give assurance of uninterrupted non-discriminatory services with sense of respectful maternity care although with associated higher costs of care. Clinics were in close proximities (within 30 minutes walking distance)

for only 52.7% of our respondents. This indicates poor access to maternal healthcare services. For effective coverage of maternal care to be achieved, it is recommended that healthcare centers should be within 5kilometer radius (30minutes walking distance) to where most people in the community live[24]. Hence, the duty-bearers (i.e the Nigerian governments at all levels) and non-governmental health agencies in the field of maternal health, needs to work harmoniously at improving physical access to maternity care in Nigeria. Through community mobilization and effective participation, maternity vans can be procured by state and local governments to help in transporting pregnant women staying in hard-to reach areas to maternity centers.

Some of the respondents in the current study had complications during the last pregnancies but only 38.6% of such women were referred for the treatment of the complications mainly due to lack of effective transport services for women in labour. As recommended by Oguntunde *et al.,* there is need to institute Emergency Transport Scheme for obstetric complications in order to reduce MMR in Nigeria[25]. Such arrangement is better done with a strong linkage with TBAs and clergies to help identify all pregnant women in various communities. Reasons for non-ANC usage in the current study were mainly high cost of care, long waiting time at the clinic, long distance to the clinic and unsatisfactory service quality. Reports from similar studies had identified some of these factors as barriers to effective ANC utilization[25,27].

Regarding respondents' overall level of satisfaction with the services received, just above half of respondents in the current study were satisfied and less than three-quarter of them rated the service quality as excellent. Our findings are in disagreement with report from a study conducted by George *et al.,* among women in Calabar, South-East Nigeria in which 92% of respondents were satisfied with ANC services received[28]. While the Calabar study was conducted among women receiving care in a tertiary healthcare facility, the current study was community-based. Hospital-based studies are prone to Berksonian's bias and the opinions of study participants may not be a true reflection of the views of women in the community. Hence, to make maternity care more satisfactory to the Nigerian women, there is need to upscale the infrastructures in healthcare facilities rendering maternity care. This is because less than a quarter of respondents in the current study agreed that there were sufficient amenities such as beds, mosquito nets and regular water supply in the healthcare facilities where their last childbirths occurred.

Predictors of ANC utilization were respondents' age, educational status, socio-economic status as well as monthly family income. These findings are in agreement with reports from past studies[29-31]. As higher income earners in the current study were more likely to utilize ANC services, authors recommend an improvement in the general socio-economic conditions of the Nigerian women. Women Empowerment Programmes and social safety nets for women should be upscaled by governmental and non-governmental agencies. Economically empowered women will most likely be able to take rational health-related decisions and will be more able to afford and utilize quality maternity services. Additionally, interventions to improve ANC service utilization should prioritize adolescent and young mothers as they were significantly less likely to utilize ANC services as revealed by the current study. Adolescent and young Nigerian mothers do not have equitable access to maternal health services due to their lower economic powers to demand for quality care. Also, pregnant adolescents seeking antenatal cares are often stigmatized and discriminated against especially if they are not legally married. Healthcare workers need to be trained to give person-centered respectful maternity care to all pregnant women needing ANC irrespective of their economic or social status.

Limitation

This study may not be totally free from self-reporting bias in which some of our study participants may have given us answers which were not totally representing their actual practices. We phrased many of our questions in neutral form and clearly explained study objectives to our respondents in order to minimize this bias.

Ethical consideration

Approval to conduct the study was obtained from the Ethical Review Board of Bowen University Teaching Hospital (BUTH/Rec-644). Written informed consents were obtained from each study participants after the study objectives had been

clearly explained to them. Participation was entirely voluntary and respondents were allowed to opt out at any stage they were no longer comfortable with the interview. Confidentiality of the information from each respondent was assured by making the questionnaire anonymous; using codes rather than personal identifiers. Data were also saved in computers which were only assessable to the principal investigators.

Conclusion

Although the rate of ANC use was high in the study setting, the proportion of women who were satisfied with service quality was sub-optimal. There is need for implementation of multi-pronged intervention to make ANC services more available, accessible, affordable and acceptable to the Nigerian women.

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Conflict of interest

Authors declare conflict of interest as the financial resources to conduct this research was made available by the Directorate of Research and Strategic Partnership of Bowen University, Iwo Nigeria

Authors' contribution

AI conceived research idea and supervised data collection, ROA drafted the manuscript, OAI reviewed the manuscript for important intellectual contents, all authors approved the final draft for publication.

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