CLIENT SATISFACTION AND QUALITY OF ANTENATAL CARE AT THE PRIMARY HEALTHCARE LEVEL IN LAGOS, NIGERIA

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ABSTRACT

Background: This study assessed client satisfaction and quality of ANC at primary healthcare centres in Lagos, South-West Nigeria.

Methods: This was a descriptive cross-sectional study conducted between April-May 2019 among ANC clients in PHCs in Lagos, South-West Nigeria. Structured pretested interviewer administered questionnaires were used to obtain relevant information. Simple random sampling was used to select PHCs while respondents were recruited consecutively. Quality was assessed using the USAID MCHIP checklist. Data were summarized with proportions, mean, and standard deviation. Bivariate and multivariate analysis were done for predictor variables. Level of significance was set at 5%.

Results: Majority, 269(89.7%) were satisfied with the quality of services. Majority, 280(93.3%) had good perception of services and majority 31(88.6%) observed that ANC services were desirable. The predictor of client satisfaction with ANC services was having planned pregnancy (OR:4.291, 95% CI:1.441-12.783).

Conclusion: Client satisfaction of services were generally good but not optimal. There is need for improved communication skills and family planning uptake in future interventions.

Key words: *Antenatal care, quality of care, primary healthcare, client satisfaction, Nigeria.*

INTRODUCTION:

Antenatal care is an important aspect of preventive medicine and health care providers offering these services can drastically reduce the risk of complications due to pregnancy through various interventions, including health education and counseling of clients. Women's perception of antenatal care visits measures their level of satisfaction which is important in assessing the overall performance of the healthcare system. As *Redshaw* writes "allowing women to express their views on different phases of care, on the care provided by different care professionals and in different settings, provides a richer and more realistic picture of the care they received"[1,2]

The target of the (SDG) is "by 2030, reduce global maternal mortality ratio to less than 70 per 100,000 live births"[3]. In many developing countries, the causes of maternal death are attributed to the three delays: delay in seeking care, delay in reaching appropriate care and delay in receiving care. Delay in receiving care can happen due to inadequate skilled personnel in emergency obstetric care, inadequate supplies and equipment and

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poor quality of services[4].
One of the important problems which is continuously faced these days is the lack of good quality antenatal care and gaining clients' satisfaction, which are important responsibilities of the higher authorities and staff in the health care system.

Clients who are satisfied with services provided are likely to come back for the services and also recommend same facility to others. Evaluating to what extent clients are satisfied with quality of antenatal care services received is clinically relevant, as satisfied patients are most likely to comply with treatments, take an active role in their own care, to continue using medical care services and recommend center's services to others[5].

On the other hand, a dissatisfied client, will complain to twenty or more. They are unlikely to comply with treatments and visits and then will rather patronize unskilled birth attendants. This unwanted action may eventually prove detrimental to maternal and newborn health[5]

Nigeria is one of the top five contributors to global maternal deaths. The country has seen a recent rise in maternal mortality ratio, from 545 per 100,000 live births in the past few years to 814 currently [6]. The concept of quality of care is becoming increasingly recognized as a key element in the provision of health care; it links the outcome of care with the effectiveness, compliance and continuity of care. As a result of this, there are recent recommendations that stress that antenatal care should address both the psychological and medical needs of women attending antenatal clinics [7]. Based on this, the aim of this study was to assess client perception of ANC and their satisfaction with services. We also assessed the quality of ANC and at PHCs in Ifako-Ijaiye LGA of Lagos State and the output could be used for improvement of ANC services delivered by the health system of the study area in particular and other similar settings.

Method

Study setting

Ifako-Ijaiye is a city and local government area in Lagos, Nigeria. It has a land area of 43 square kilometeres and a population of 427,878 people in 2006. Proportion of women of child-bearing age is 28.11%. Maternal health statistics in the L.G.A shows that the birth rate as at 2009 is 792 per 100,000 population [8]. The general hospital is the main public health institution but it is unable to keep up with the numerous diseases that spring up from time to time. Others are the maternal and child health centers, sponsored health-related programmes such as deworming, Immunization, eye treatment, and free diabetes and hypertension diagnosis. These health services are provided by a team of doctors, pharmacists, nurses, community health extension workers and laboratory technicians. Other services provided by the local authorities include education, regular sweeping of the environment, clearing of drainages and waste management. Also, alternative healthcare practitioners such as traditional birth attendants also operate in the area There are 10 primary healthcare centres (PHCs) in Ifako-Ijaiye.

Study design and population:

This was a descriptive cross-sectional study that was carried out among pregnant women attending antenatal clinics in the selected PHCs. Sampled pregnant women were selected by consecutive recruitment. Those included in the study were all pregnant women registered and had previously attended ANC while those excluded were first time ANC attendees and female visitors.

Sample size determination

A single population proportion formula was applied to estimate the sample size, Cochran's sample size for single population proportion when N>10,000 [9] Using the formula, a calculated sample size of 300 was obtained.

Sampling technique

For the quantitative study, seven out of 10 PHCs were selected by balloting and the study participants were selected by consecutive recruitment until the desired sample size was achieved. For the qualitative component of the study, one checklist was used for each of the selected PHCs on the clinic days for a period of five weeks to making a total of 35 checklists used.

Data collection instrument:

The instrument utilized were the structured interviewer administered questionnaires[10] which includes

Section 1- the socio-demographic and included Section socio-economic characteristics such as age, marital status ,educational level, employment status, religion among others

Section 2-obstetric profile such as parity, number of children, ANC attendance in previous pregnancy, type of current pregnancy, age of pregnancy among other questions

Section 3 -client perception of ANC services such as accessibility to the centre, time it takes to get to centre, means of getting to the centre, attitude of health worker among others

Section 4- client satisfaction with ANC (measures of satisfaction)such as satisfaction with frequency and spacing ,satisfaction with waiting area, satisfaction with examination room, satisfaction with toilet facility among other measures

The USAID MCHIP [11]observation checklist included;

Section A-Introduction and history taking such as health worker greeting client in a friendly and respectful manner, health worker enquiring about client's age, medication client is taking, last menstrual period among other questions.

Section B-Tests and treatments such as weighing and checking blood pressure, checking for signs of anaemia, counseling on HIV/AIDS, and so on

Section C-counseling and outcome such as health worker informing client about progress of pregnancy, health worker discussing nutrition and healthy eating during pregnancy and other observations related to counseling and treatments.

Study variables

The dependent variable was client satisfaction and perception of ANC services while the independent variable were socio-demographics (age, marital status, ethnicity, religion, occupation, monthly income, educational level, obstetric profile)

Data collection:

The trained research assistants collected data through face-to-face interviews with the respondents after getting consent. Healthcare practices and structural facilities were assessed using observations. Research assistants conducted the interviews in private. A screening question preceded the interviews to exclude clients who were coming for the first time and those who had been interviewed in the previous weeks. After getting consent from clients with two or more ANC visits, the questionnaire was then administered to the clients. Thirty-five observations from all selected PHCs involved observing healthcare workers during clinic hours taking history from pregnant women, tests and treatment given and counseling/outcome. This was carried out by the principal researcher and the research assistants. Some of the components of the checklist such as counseling on HIV, nutrition, and healthy eating during pregnancy, advice on dealing with common symptoms such as nausea and vomiting were assessed by the principal researcher and research assistants during the health talk which were carried out under the shade outside the clinic entrance for some of the centres and at the reception area inside the clinic for others. Components such as clients' age, headaches/blurred vision, weight and blood pressure among others were assessed inside the clinic for all PHCs prior to the consultation sessions with the midwife on duty.

Data analysis:
The EPi-Info version 7.2.1 was used for analysis of data after data was cleaned. Descriptive statistics was calculated for all variables. For continuous variables, mean and standard deviation were calculated. Frequency distribution, cross tabulations was generated using Chi-square test to compare proportions and level of significance was set at 5% (P<0.05).Multivariate logistic regression analysis was done to derive the predictors of client satisfaction. It was used to calculate odds ratios and corresponding 95% confidence intervals for the predictors of client satisfaction with ANC services.

Ethical consideration:
Ethical approval (ADM/DCST/HREC/APP/2840) was obtained from the Health Research Ethics Committee of the Lagos University Teaching Hospital, Lagos. Confidentiality of the participants' responses were guaranteed by using numbers rather than names to identify the respondents and the questionnaires. The participants were given the assurance that the data collected was purely for research purposes.
Written informed consent was obtained from all the respondents after explaining the nature of the study, its goals and assurance that participation was purely voluntary without consequences for non-participation. They were also informed they could withdraw at anytime during the study.

Results
A total of 300 questionnaires were distributed and were completely filled and returned which gave a response rate of 100%

Socio-demographic characteristics of respondents
Most 114(38.0%)of the respondents were between 25-29 years of age. The mean age was 29.92±5.38 years. Majority, 283(94.3%) were married, 219 (73.0%) were of the Yoruba tribe, 189 (63.0%) were Christians and 163 (54.3%) had secondary education.

Obstetric profile of respondents
About 95(31.76) had a parity of 2 children. With regards to number of living children, 172(57.3%) had 1 living child, while majority 205(68.3%) were at gestational age 7-9 months. Majority, 78(26.0%) has 3 ANC visits and majority 235(78.3%) did not use the center for previous pregnancy.

Overall perception of ANC services.
Majority, 280(93.3%) perceived the ANC services as good while 20(6.7) perceived the services as poor.

Overall level of satisfaction.
Majority, 269(89.7) were satisfied while 31(10.3) were dissatisfied with services received**.**

Overall assessment of quality of ANC services rendered.
Majority, 31(88.6%) provided desirable quality ANC services.

Factors affecting perception and level of satisfaction with ANC services

There was a statistically significant association between marital status,(P < 0.001),educational level(P <0.001),and good perception of ANC services respectively. Respondents who were married and had post-secondary education had significantly better perception of ANC services than other respondents. Respondents with planned pregnancy had significantly better perception than those with unplanned pregnancy. (p=0.003). There was a statistically significant association between marital status (p<0.001), religion(p=0.048), monthly income(p=0.020), number of ANC visits(p=0.031), parity (0.018), planned pregnancy(p=0.004) and level of ANC satisfaction. Respondents who were married, were Christians, had a monthly income >50,000, twice number of ANC visits, two children and planned pregnancy had significantly better satisfaction than other respondents.

Predictors of perception of quality ANC care as good and client satisfaction with ANC services

Using married as a reference, unmarried respondents had significantly less odds of perception of ANC as good (OR 0.086 95% C.I: 0.017-0.429).

Using unplanned pregnancy as a reference, respondents with planned pregnancy were four times more likely to have better perception of ANC services with a significant difference (OR:4.291, 95% CI: 1.441-12.783). Using unplanned pregnancy as a reference, respondents with planned pregnancy were twice more likely to be satisfied with ANC services (OR:2.563, 95% CI:1.074-6.115).

Table 1: Socio-demographic characteristics of respondents

Variable	Frequency	Percentage (%)
Age (years)		
<20	6	2.0
20-24	38	12.7
25-29	114	38.0
30-34	73	24.3
≥35	69	23.0
Mean age 29.92±5.38 years		
Marital status		
Single	15	5.0
Married /Co-habiting	283	94.3
Divorced /separated / widowed	2	0.7
Tribe		
Yoruba	219	73.0
Igbo	47	15.7
Others (Hausa, Edo, Delta, among others)	34	11.3
Religion		
Christianity	189	63.0
Islam	109	36.3
Others	2	0.7
Educational Level		
No formal education	3	1.0
Primary	26	8.7
Secondary	163	54.3
Post-secondary	108	36.0
Employment status		
Employed	234	78.0
Unemployed	66	22.0
Estimate monthly income/allowance (Naira)		
<20 000	5	1.7
20000-50000	100	33.3
>50 000	195	65.0

Table 2: Obstetric profile of respondents

Variable	Frequency	Percentage (%)
Parity		
1	83	27.7
2	95	31.7
3	84	28.0
4	38	12.6
Number of living children		
0	11	3.7
1	172	57.3
2	82	27.3
3	27	9.0
4	8	2.7
History of previous abortion		
Yes	76	25.3
No	224	74.7
History of still birth		
Yes	37	12.3
No	263	87.7
Type of current pregnancy		
Planned	200	66.7
Unplanned	100	33.3
Gestational age		
1-3months	5	1.7
4-6months	90	30.0
7-9months	205	68.3
Number of ANC visits		
2	33	11.0
3	78	26.0
4	50	16.7
5	33	11.0
6	33	11.0
7	18	6.0
8	55	18.3
Used the center for previous pregnancies		
Yes	65	21.7
No	235	78.3
Currently receiving care at another center		
Yes	34	11.3
No	266	88.7
Other place of receiving care		
Government health facility	2	5.9
Private health facility	19	55.9
Traditional birth attendants	13	38.2

Table 3: Perception of quality of Antenatal services

Variable	Freq(n=300)	(%)
Rating of the accessibility to the center		
Easily accessible	194	64.7
Moderately accessible	94	31.3
Hard to access	12	4.0
Travel time to the clinic		
Less than 30minutes	230	76.7
Between 30 minutes to 1hour	68	22.7
More than 1hour	2	0.6
Attitude of health care providers at the clinic		
Respectful	280	93.3
Disrespectful	20	6.7
The health care provider that is disrespectful (n=20)		
Doctor	6	30.0
Nurses	14	70.0
Feel comfortable to discuss problems with the health personnel		
Yes	285	95.0
No	15	5.0
Healthcare personnel discuss and advise on health condition		
Yes	296	98.7
No	4	1.3
Rating of waiting time to see health care provider		
Moderate	191	63.7
Fair	95	31.7
Time wasting	14	4.6
Disappointed at the clinic for not seeing a healthcare provider at the clinic		
Yes	31	10.3
No	269	89.7
Rating of the healthcare performance at the clinic		
Excellent	34	11.3
Good	229	76.3
Fair	37	12.4
Rating of charges / fee for the services		
Expensive	1	0.3
Less Expensive	68	22.7
Least expensive	231	77.0
Rating of the structure and equipment of the clinic		
Excellent	11	3.7
Good	178	59.3
Fair	103	34.3
Poor	8	2.7
Rating of the services rendered at the clinic		
Excellent	32	10.7
Good	237	79.0
Fair	30	10.0
Poor	1	0.3
Overall perception of ANC	280	93.3
Good perception		
Poor perception	20	6.7

Table 4: Client Satisfaction with Antenatal care

Variable	Frequency (n=300)	Percentage (%)
Client Satisfaction with the frequency and spacing of your antenatal visit		
Very satisfied	135	45.0
Mostly satisfied	124	41.3
Somewhat satisfied	38	12.7
Not satisfied	3	1.0
Client Satisfaction with the waiting room area		
Very satisfied	66	22.0
Mostly satisfied	136	45.3
Somewhat satisfied	84	28.0
Not satisfied	14	4.7
Client Satisfaction with the examination room		
Very satisfied	75	25.0
Mostly satisfied	150	50.0
Somewhat satisfied	70	23.3
Not satisfied	5	1.7
Client Satisfaction with the toilet facility		
Very satisfied	13	4.3
Mostly satisfied	83	27.7
Somewhat satisfied	120	40.0
Not satisfied	84	28.0
Client Satisfaction with the drugs and supply at the center		
Very satisfied	54	18.0
Mostly satisfied	189	63.0
Somewhat satisfied	50	16.7
Not satisfied	7	2.3
Client Satisfaction with the cost of service		
Very satisfied	97	32.3
Mostly satisfied	162	54.0
Somewhat satisfied	40	13.4
Not satisfied	1	0.3
Client Satisfaction with the health care provider		
Very satisfied	72	24.0
Mostly satisfied	182	60.7
Somewhat satisfied	42	14.0
Not satisfied	4	1.3
Would use this center in the subsequent pregnancies		
No definitely not	4	1.3
No, I don't think so	9	3.0
Yes, I think so	97	32.4
Yes, definitely	190	63.3
Will recommend this center to friends and family		
No definitely not	4	1.3
No, I don't think so	10	3.4
Yes, I think so	81	27.0
Yes, definitely	205	68.3
Overall satisfaction with ANC services		
Satisfied	269	89.7
Dissatisfied	31	10.3

Table 5: Assessment of quality of ANC services rendered at the PHCs

Variable	Frequency (n=35)	Percentage (%)
The health worker washed his/her hand with soap or use alcohol hand rub prior to examination		
Yes	25	71.4
No	10	28.6
The health worker weighed the client	35	100.0
The Health worker checked blood Pressure	35	100.0
The health worker checked for sings of anemia		
Yes	23	65.7
No	12	34.3
The health worker provided any counseling on HIV/PMTCT		
Yes	17	48.6
No	18	51.4
The health worker gave the client any of the following treatments Folic acid and iron tablets		
Yes	33	94.3
No	2	5.7
Tetanus toxoid injection		
Yes	32	91.4
No	3	8.6
Anti-Malaria prophylaxis		
Yes	35	100.0
ITN/ITN freely given to the client during ANC		
Yes	11	31.4
No	24	68.6
The health worker informs the client about the progress of pregnancy	35	100.0
The health worker discussed nutrition and healthy eating during pregnancy	35	100.0
The health worker advice on dealing with common symptoms such as nausea and constipation		
Yes	29	82.9
No	6	17.1
The health worker discussed on dangers of alcohol and substance abuse during pregnancy		
Yes	10	28.6
No	6	17.1
The health worker discussed on dangers of alcohol and substance abuse during pregnancy		
Yes	10	28.6
No	25	71.4
The health worker told client on when to return for next visit		
Yes	33	94.3
No	2	5.7
The health worker spoke in easy to understand language for the client		
Yes	35	100.0
Overall quality of ANC services provided		
Desirable	31	88.6
Not desirable	4	11.4

Table 6: Factors affecting good perception of antenatal care

Variable	Perception of Antenatal care		Total n=300 (%)	X^2	P-value
	Poor perception n=20 (%)	Good perception n=280 (%)			
Marital status					
Not married	6(35.3)	11(64.7)	17(100.0)	23.74	**<0.001***
Married	14(4.9)	269(95.1)	283(100.0)		
Educational Level					
Primary	7(24.1)	22(75.9)	29(100.0)	15.76	**<0.001***
Secondary	8(4.9)	155(95.1)	163(100.0)		
Post-secondary	5(4.6)	103(95.4)	108(100.0)		
Estimate monthly income					
<N30,000	3(18.8)	13(81.3)	16(100.0)	5.68	**0.049*^**
N30,000-N50,000	8(9.0)	81(91.0)	89(100.0)		
>N50,000	9(4.6)	186(95.4)	195(100.0)		

statistically significant (p<0.05) ^Fisher's exact P value

Table 7: Factors affecting client satisfaction with ANC services

	Level of satisfaction		Total	X^2	p-value
	Dissatisfied n=31 (%)	Satisfied n=269(%)	n=300 (%)		
Marital status					
Not married	9(52.9)	8(47.1)	17(100.0)	35.31	**<0.001***
Married/co-habiting	22(7.8)	261(92.2)	283(100.0)		
Religion					
Christianity	14(7.4)	175(92.6)	189(100.0)	4.72	**0.048***
Islam	17(15.3)	94(84.7)	111(100.0)		
Educational Level					
Primary	9(31.0)	20(69.0)	29(100.0)	16.12	**<0.001***
Secondary	16(9.8)	147(90.2)	163(100.0)		
Post-secondary	6(5.6)	102(94.4)	108(100.0)		

Table 8: Predictors of good perception of antenatal care and client satisfaction.

	Good perception			
Variable	Odd ratio	95% C.I		
		Lower	Upper	p-value
Marital status				
*Married	1			
Not married	0.086	0.017	0.429	0.003
Type of pregnancy				
*Unplanned	1			
Planned	4.291	1.441	12.783	0.009
	Predictor of Client satisfaction			
Type of pregnancy				
Unplanned	1			
Planned	2.563	1.074	6.115	0.034

*reference value

DISCUSSION

From this study, 269(89.7%) were satisfied with the services. About 280(93.3%) had good perception while 31(88.6%) observed that ANC services were desirable.
The mean age of the respondents was 29.92±5.38years.Most of the respondents were between 25-29 years of age. This is not surprising because it is believed that most women within this age group would have been married and raising a family. The age range of majority of the respondents in this study was similar with that of another local study conducted in South Africa where majority were between the ages of 20 – 29 years. In another study in Tanzania, the median age of the respondents was 27 years[12,13]

The educational level of the respondents showed some similarity with respondents in another local study in Tanzania which reported that 37% of the respondents had no formal education, and 49% had completed primary education [12]. But differed from a study in South Africa where majority (82%) had completed 6–11 years of education [14].
This study revealed that 93.3% described the healthcare providers as respectful while 6.71% described them as disrespectful. This negative perception of nurses(70%)and doctors(30%)as disrespectful respectively may signify that the clients) are unlikely to adhere to or comply with treatments. Though these clients are in the minority(6.7%), they could easily spread the word of this bad experience which may eventually discourage facility utilization by prospective clients. In maternity hospitals and public health facilities in the US and South-East Nigeria respectively, most clients testified that their nurses and doctors had good attitude towards them[15,16].In a study conducted in Cameroun and South-south Nigeria, respondents reported poor nursing skills(3.6%) and unfriendliness of the nurses(5%) [17,18]while in Namibia, 12.6% of the clients complained of staff attitude[19]

Waiting time to see healthcare provider is an important aspect that is considered in the perception of ANC services. It was reported from this study that 63.7% rated the waiting time to see the health care provider as moderate. This might be attributed to the high number of clients in comparison to the health workers available. This highlights the health workforce challenges in the country and calls for recruitment of more manpower. In a similar study conducted in public primary healthcare centers in Nnewi North LGA South East Nigeria, the results showed that most of the respondents felt that the overall waiting time was adequate[16] Another study conducted in rural Malawi showed that 23% of the clients reported to have waited one hour or longer before receiving antenatal care services, which was not adequate[19]. This could probably be due to the rural location of the facility where there may not have enough healthcare workers. Similar study conducted in public health facilities in Kenya and Namibia showed that over half, 55% of the clients in Kenya and less than fifty percent of the clients in Namibia reported that the time they had to wait for their antenatal care consultation was too long and was a problem. This means that if they have to wait so long, they may not keep appointments as they may prioritize other competing needs thereby affecting utilization.

Overall, respondents appeared to have good perception of ANC services, except for some lapses in courtesy of healthcare workers especially nurses as noted earlier. This can be compared to the Cameroun and Sagamu studies (Southwest Nigeria) studies which reported high perception levels among the respondents [17,20]
This study revealed that majority(89.7%) of the respondents were mostly satisfied with the healthcare providers at the facility. This might be due to the type of care given to the respondents who appeared to have taken good care of the clients. In studies conducted in PHCs in India and Egypt, majority of the clients (83%) were satisfied with the services they received in addition to the performance of nurses and other staff and the pattern of staff arrangement [21,22]

Looking at the factors influencing client satisfaction, it can be deducted that marital status, Christianity, post-secondary education, estimated monthly income, parity, previous ANC visits and type of pregnancy were significantly associated with clients' satisfaction with ANC services. This means that when women are educated, they are more vocal and information-seeking and thus know what to expect and are already enlightened. When they have good purchasing power, they are capable of paying for services rendered to them so long the services are of high quality and invariably, they are satisfied. The number of ANC visits was also a factor associated with client satisfaction. Familiarity with the heath centre setting was also a positive factor as women who were 'regulars' had higher satisfaction rates. Respondents with planned pregnancy were more satisfied probably because they got the counseling and family planning methods in that centre and so are happy with the results and hence more satisfied with services. This shows that family planning is key and thus women of reproductive age should be counseled always on the need to plan their families through family planning services.

The availability and provision of the important components of antenatal care determines the quality of antenatal care services. From our study, majority of the health care providers (94.3%) gave folic acid and iron tablets to their clients. This denotes that most of the healthcare providers know the importance of folic acid and iron supplementations to pregnant women so as to prevent neural tube defects and anemia respectively. However, in a study done in regional hospitals in Australia among indigenous women, it was observed that only 27% of the clients were given folic acid and more than half were prescribed iron tablets during pregnancy prior to 20 weeks gestation. This was very low compared to that observed in this study. This has a meaning with regards to developed countries as the defects in pregnancy and anemia are more common in developing countries[23]

Results from our study showed that all (100%) the healthcare providers checked the weight and blood pressure of their clients and provided antimalarial prophylaxis. While 65.7% checked for signs of anemia and 91.4% provided T.T injections. This observation showed that normal routine checks were being carried out at the ANC clinics. This is important so that danger signs are detected early and promptly treated and referred [24]. However, a study conducted in South Africa only recorded that 55% observations were made concerning receiving tetanus toxoid vaccination [12] In a study conducted in public health facilities, India, it was observed that less than one thirds of the clients had their weight measured in at least one of the visits, and only 40% had routine blood test and 38% urine test. A Study in Zambia observed that half had voluntary counseling and testing (VCT) for HIV, de-worming medication was received by about one- third and only about a quarter had their urine tested at antenatal [13].On the danger signs during pregnancy, it was observed that 71.4% of the clients were asked about vaginal bleeding, 100% of the healthcare providers asked about headaches and /or blurred vision, 88.6% were asked about swollen face or hands, severe abdominal pain, decrease/stop in fetal movement whether they had any other problems they were concerned about. By asking these questions danger signs in pregnancy can be detected early and managed accordingly. Similarly, in a study conducted in 11 antenatal clinics in Tanzania, the danger signs most commonly informed by the provider were vaginal bleeding (50%), and severe headache/blurred vision (45%) while the least informed danger signs were excessive tiredness and breathlessness [14]

Strengths and limitations of the study

A reasonably large sample size of about 300 women enhanced the statistical power of the study. This further enhanced the generalizability of the study. Assessing quality and satisfaction from both user and provider was also a strength to our study. In addition, a validated checklist, the USAID MCHIP was used.

Interviewing the women in the facility was a limitation because the presence of the health workers could have biased their responses thereby increasing perception and satisfaction rates. This could have been the reason for the very high satisfaction rate recorded. Being a cross-sectional study, causal effects cannot be inferred. Another limitation is the possibility of Hawthorne effect when observing the health workers in the assessment of quality of ANC. To reduce this, the observer blended with the clients as much as possible.

CONCLUSIONS

Client satisfaction of services were generally good but not optimal. Predictor of good perception of ANC services and client satisfaction was having planned pregnancy. Therefore, there is need for improved communication skills and family planning uptake in future interventions.

There is also need to employ more health workers so as to reduce the health workforce challenge and thus waiting time by clients in all the PHCs in the study area. Furthermore, since women with unplanned pregnancy are less likely to be satisfied with antenatal care services when compared with women with planned pregnancy, probably due to their emotional state, it is recommended that healthcare workers continue to educate all women especially those of reproductive age on the need for family planning. Additionally, female education, purchasing power and number of ANC attendants are key factors in client satisfaction of ANC services.

What is known about this topic

- A lot of attention is now focused on the issue of client/patient care and this study contributes to the body of information much needed in low and middle income countries. Many studies in similar settings have documented high rates of satisfaction and quality.

What this study adds

- This study has shown having planned pregnancy as a predictor of high satisfaction rate thereby buttressing the need for improved family planning uptake in this region.

Competing interest- The authors declare that they have no competing interests.

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Authors' contributions

CAN- was involved in the conception, design, acquisition, and analysis, interpretation of data and drafting and revision of the manuscript. IPO- was involved in the conception, design, analysis, interpretation of data, drafting of the manuscript and substantively revised it. TWL- was involved in the design, interpretation of data and substantive revision of the manuscript. All authors read and approved the final manuscript.

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