MALARIA IN PREGNANCY: PREGNANT WOMEN'S SATISFACTION WITH QUALITY OF SERVICES IN PUBLIC AND PRIVATE HEALTH FACILITIES IN IBADAN

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Abstract

Introduction

Effective treatment is a vital strategy in malaria control and management. This study assessed the satisfaction of pregnant women to malaria in pregnancy (MIP) care and also compared the quality of MIP services in private and public healthcare facilities in Ibadan, Southwest Nigeria.

Methodology

This was a comparative cross-sectional study using mixed methods. A semi-structured interviewer-administered questionnaire was used to obtain information on satisfaction with malaria in pregnancy services from 320 pregnant women selected by simple random sampling from those attending antenatal clinics in private and public sectors. Also, with the aid of an interview guide, key informant interviews were conducted with purposively-selected healthcare providers to assess the management of MIP. A checklist was similarly used to assess the health facilities. Predictors of respondents' satisfaction were assessed using the Chi-Square test and binary logistic regression. All analyses were performed at a statistical significance level of $\alpha_{0.05}$.

Results

The pregnant women were aged 17 to 44 years with a mean age of 29.5±4.8 years. About two-thirds of the women were graduates. Respondents' mean gestational age, gravidity, and median parity was 6.6 ±1.8 months, 2.0±1.2, and 2.0 (range: 1.0 – 9.0), respectively. Most educated women preferred the private health facilities. However, about 62.5% of the women were not satisfied with the overall maternal care services in both the public and private health facilities. Respondents in the private health facilities (40.0%) were more satisfied than those in the public health facilities (35.0%). The overall respondents' satisfaction with malaria care in pregnancy was poor. Multiple logistic regression revealed that the Independent predictors of respondent's overall satisfaction were level of facility (AOR=6.4, 95% CI=1.7, 24.0) and parity (AOR=2.7, 95% CI=1.40, 5.13). Qualitative findings show high awareness and familiarity as well as adherence to the malaria control policy among health workers in both private and public health sectors. Observational checklists revealed better facilities and services in private facilities compared to public health infrastructures.

Conclusion

The private healthcare facilities were rated as providing better services and satisfaction than the public facilities for malaria care among pregnant women. Government needs to put in more effort in improving services in public healthcare facilities.

Keywords: Antenatal care, Satisfaction with healthcare services, Malaria in pregnancy, Congenital malaria, Private health facility, Public health facility

Introduction

Malaria is transmitted through the bites of Anopheles mosquitoes, but less known to many in various communities is that it can also be spread to children during pregnancy as well as before and/or during childbirth. Malaria contracted at this time is called congenital malaria and is a cause of infant death and low birth weight.[1-3] A child dies every minute from malaria in Africa where it is estimated that 9 out of 10 malaria deaths occur.[4] In 2013, there were 528,000 deaths from malaria and about 78% of these were in children under 5 years of age.[5] Governments of malaria-endemic countries contributed 28% of total funding (US$ 900 million) in 2017, a figure unchanged from 2016. Two-thirds of domestically sourced funds were invested in malaria control activities carried out by national malaria programs (NMPs), with the remaining share estimated as the cost of patient care.[4]

Of the estimated 50 million pregnancies that occur each year globally, approximately 25 million is thought to occur in developing countries.[5] Pregnant women and children are thought to be the most vulnerable to malaria. Whereas several initiatives have been implemented over the years to control malaria in pregnancy, none of these has succeeded in its entirety. Without any intervention, malaria would cause 10, 000 of these women and 200, 000 of their infant's death as a result of malaria infection and severe malarial anemia.[5]

In malaria-endemic areas like Nigeria, the World Health Organization (WHO) recommends targeting high-risk groups such as pregnant women and young children with chemoprevention strategies. Approximately 15 million pregnant women remain vulnerable due to limited access to preventive treatments for malaria.[5] More so, the WHO recommends intermittent preventive treatment in pregnancy (IPTp) with the antimalarial drug sulfadoxine-pyrimethamine. Among the 33 African countries that reported on IPTp coverage levels in 2017, an estimated 22% of eligible pregnant women received the recommended 3 or more doses of IPTp, compared with 17% in 2015 and 0% in 2010.[4]

In Nigeria, antenatal care (ANC) utilization rate is still low. About 61% of pregnant women visited a skilled provider at least once during their pregnancy compared with the documented average of 79% for all lower-middle-income countries.[6] ANC enables effective management of pre-natal morbidities and may enable facility delivery and postpartum care, thereby improving maternal and new-born health outcomes.[7-9] In Nigeria, 41% of women who utilized skilled ANC did not deliver in a healthcare facility.[7-10] Studies suggest that dissatisfaction with the ANC experience may partly explain this low level of facility delivery by ANC users. Policies to maximize patient satisfaction at ANC visits may translate into sustained ANC use throughout the pregnancy and increased rates of health facility delivery. The role of health facility and staff characteristics in general outpatients' satisfaction with care is well documented. These include facility infrastructure and amenities availability (equipment, drugs, comfortable waiting area), interpersonal interactions of staff and providers (e.g. courtesy, empathy), providers' technical performance, care logistics and the absence of financial barriers to care.[11-14]

Healthcare can be provided through public and private providers. Public healthcare is usually provided by the government through national healthcare systems.[15] Private sector healthcare delivery in low- and middle-income countries is sometimes argued to be more efficient, accountable, and sustainable than public sector delivery.[14-16] Conversely, the public sector is often regarded as providing more equitable and evidence-based care.[15] This study, therefore, investigated the quality of malaria in pregnancy care received at different private and public health facilities in Ibadan, Nigeria.

Methods

Study Design

This is a comparative cross-sectional study using mixed methods carried out in public and private facilities in Ibadan using questionnaires, interview guides, and a checklist to assess the quality of Malaria in Pregnancy (MIP) services in Nigeria.

Study Area

The study was conducted in Ibadan, Oyo State. Ibadan is the ancient capital of Oyo State, Southwest Nigeria with a landmass of 27,249 square kilometers and a population of about 5.5 million according to the National Population census of 2006. Oyo State has 33 local government areas (LGAs) with Ibadan being the capital and the administrative headquarters of the state. Ibadan is an industrial city and a center for trade and farming, producing cocoa, palm oil, yams, cassava, corn, and fruits. The inhabitants are mainly Yoruba. Forty-nine percent of the total population is female. Of this, 51 percent are in their reproductive ages.[17] Ibadan has 240 public maternal health care facilities out of which 231 (96%) are primary healthcare facilities, 7(2.92%) are secondary facilities and 2 (0.83%) are tertiary maternal health care facilities.[18]

Study Population and Sampling Technique

The study population was conducted among patients and health care providers in private and public health facilities. They were selected as care recipients and care providers respectively. Three hundred and twenty pregnant women participated in the questionnaire survey.

Both public and private health facilities were selected purposively. Three primary and one secondary facilities were sampled to represent private facilities while for the public facilities, 14 primary and one secondary facilities were sampled. The public facilities included one facility each from tertiary, secondary, and primary levels. The private facilities included one urban, suburban, and rural locations respectively. These facilities were chosen by balloting from the prior selection. The pregnant women were selected using simple random sampling from those attending antenatal clinics. Total sampling was done for all available health care providers such as doctors, nurses, pharmacists. Pregnant women coming for ANC visits as well as healthcare workers were included in the study. However, individuals that were too ill to participate in the study were excluded.

Data collection tool

The instrument for data collection was the SERVQUAL Model questionnaire. The questionnaire had sections that covered Sociodemographic characteristics and then the domains of quality and satisfaction: Expectations, Perceptions, Responsiveness, and Empathy.

The SERVQUAL Model questionnaire has the following dimensions: 1) Tangibles-physical facilities, equipment, the appearance of personnel and communication materials. 2) Reliability-the ability of the service provider to perform the promised service responsibly and accurately. 3) Responsiveness-the willingness of employees to help and provide prompt service to customers. 4) Assurance-the knowledge, courtesy, and competence of employees and their ability to inspire trust and confidence in the customer towards the service provider. 5) Empathy-the caring, individualized, and personalized attention provided to customers. The SERVQUAL scale contained 22 pairs of items spanning across five dimensions covering key issues of service quality. It comprises two sets of similar statements; the first is a customer expectations measure (E) and the second is a measure of customers' perceptions as to the actual service delivered by the provider (P). The instrument measures the quality as the difference between expectations and perceptions (E-P). A

five-point Likert scale was used to measure the patients' expectations and perceptions of service quality.

Key Informant Interviews (KIIs) to appraise and compare the adequacy of the facility structure for the management of malaria in pregnancy in private and public health sectors in Oyo state were done using interview guides. The tools were pretested outside the study area in two facilities one public, and the other private and ambiguous questions were refined.

Data Analysis

Data were analyzed using SPSS version 10 and results presented using appropriate frequency and summary measures, charts, and graphs. Patient satisfaction was computed as the difference between a patient's perception and expectation about the available healthcare services under each dimension assessed. Qualitative data were analyzed with the aid of NVIVO version 10 using a thematic framework approach.

Ethical considerations

Ethical approval was obtained from the Oyo State Ministry of Health Research Ethics Review
Committee before the commencement of the study. Written informed consent was obtained from each respondent.

Confidentiality

All forms of personal identifiers such as names were not used; rather, numerical codes were used as identifiers. Also, data from the study were used for research purposes only. The data were stored in a password-secured folder on one of the researchers' computer.

Results

A. Quantitative results

The respondents were between the ages of 17 to 44 years and their mean age was 29.5 ±4.8 years. Most of the women were highly educated, as about two-thirds of them were graduates or postgraduates. Most of the women were Yoruba (88.8%) as shown in Table 1. About 36.3% of the women were skilled professionals. Of the 320 women interviewed, 160 respondents (50.0%) attended a public healthcare facility while the remaining 160 respondents (50.0%) attended a private healthcare facility as seen in Table 2. Twenty-one respondents (6.6%) were in their first trimester. Moreover, 106 respondents (33.1%) were in their second trimester, while 193 respondents (60.3%) were in their third trimester. One hundred and forty-four respondents (45.0%) were primigravidae while the remaining 176 respondents (55.0%) were multigravida as seen in Table 2. Also, 35.0% were traders, 19.4% were artisans while 9.4% were unemployed. Nearly three-quarters of the respondents with lower educational levels (i.e. primary and secondary) attended a public healthcare facility while more than half of respondents with higher educational levels (i.e. graduate and post-graduate) patronized private healthcare facilities. Most respondents aged 35 years and above preferred the private health facilities while those aged 24 years and below preferred the public facilities.

Most of the respondents (62.5%) were not satisfied with the overall maternal healthcare services. However, further analysis of the service quality scale revealed that most respondents were satisfied with the five domains. About 52.5%, 60.0%, 62.2%, 67.5%, 64.1% of the respondents were satisfied with the tangible, reliability, responsiveness, assurance, and empathy dimensions, respectively.

Table 1: Socio-demographic Characteristics of Respondents

Socio-demographic Characteristics	Frequency	Percentage (%)
Age (years)		
≤ 24	55	17.2
25-29	103	32.2
30-34	108	33.8
≥35	54	16.9
Mean	29.5 ±4.8	
Level of education		
Lower	111	34.7
Higher	209	65.3
Ethnicity		
Yoruba	284	88.8
Igbo	21	6.6
Others	15	4.7
Marital status		
Never married	5	1.6
Currently married	312	97.5
Widowed	2	0.6
Divorced	1	0.3
Type of Marriage		
Monogamy	299	93.4
Polygamy	21	6.6
Religion		
Christianity	167	52.2
Islam	153	47.8
Occupation		
Professionals	116	36.3
Traders	112	35.0
Artisan	62	19.4
Unemployed	30	9.4
Average Monthly Income (₦)		
< ₦20,000	110	34.4
₦20,000 – ₦50,000	146	45.6
>₦ 50,000	64	20.0

Lower Education = Primary and Secondary; Higher Education = Graduate and Post-graduate

Table 2: Clinical characteristics of respondents

Clinical Characteristics	Frequency (n)	Percentage (%)
Type of facility		
Public	160	50.0
Private	160	50.0
Level of facility		
Primary	15	4.7
Secondary	305	95.3
Gestational age		
1st Trimester	21	6.6
2nd Trimester	106	33.1
3rd Trimester	193	60.3
Mean±SD	6.6 ±1.8	
Gravidity		
Primigravida	144	45.0
Multigravida	176	55.0
Mean±SD	2.0±1.2	
Parity		
Nulliparous	126	39.4
Primiparous	83	25.9
Multiparous	111	34.7
Mean±SD	1.2±1.3	

Women receiving healthcare in private health facilities had a greater proportion of satisfied respondents (40.0%) than their counterparts using public health facilities (35.0%). Respondents who received health services in primary health facilities (80.0%) recorded greater satisfaction than their counterparts (35.4%) who patronized secondary health facilities ($p<0.05$). Women in their third trimester were the most satisfied among their counterparts (42.5%), while respondents in their first trimester were the least satisfied (28.6%). Moreover, multiparous respondents were the most satisfied of their group (45.9%) and primiparous respondents (27.7%) the least ($p<0.05$) (See Table 3).

Table 3: Association Between Overall Satisfaction and Socio-demographic Characteristics

Variables	Overall Satisfaction		X^2	df	P-value
	No	Yes			
Age (years)					
≤ 24	35 (63.6)	20 (36.4)			
25-29	60 (58.3)	43 (41.7)	3.09	3	0.378
30-34	74 (68.5)	34 (31.5)			
≥ 35	31 (57.4)	23 (42.6)			
Level of education					
Lower	68 (61.3)	43 (38.7)	0.11	1	0.739
Higher	132 (63.2)	77 (36.8)			
Ethnicity					
Yoruba	181 (63.7)	103 (36.3)			
Igbo	12 (57.1)	9 (42.9)	2.05	2	0.360
Others	7 (46.7)	8 (53.3)			
Type of Marriage					
Monogamy	185 (61.9)	114 (38.1)	0.76	1	0.382
Polygamy	15 (71.4)	6 (28.6)			
Religion					
Christianity	114 (68.3)	53 (31.7)	4.95	1	0.026*
Islam	86 (56.2)	67 (43.8)			
Occupation					
Professional	83 (71.6)	33 (28.4)			
Traders	57 (50.9)	55 (49.1)	12.03	3	0.007*
Artisan	38 (61.3)	24 (38.7)			
Unemployed	22 (73.3)	8 (26.7)			
Average Monthly Income (₦)					
< 20,000	66 (60.0)	44 (40.0)			
20,000 – 50,000	92 (63.0)	54 (37.0)	0.58	2	0.750
> 50,000	42 (65.6)	22 (34.4)			

** = statistical significance (p<0.05)*

In Table 4, participants receiving healthcare in private health facilities had a greater proportion of satisfied respondents (40.0%) than their counterparts using public health facilities (35.0%). Respondents who received health services in primary health facilities (80.0%) recorded greater satisfaction than their counterparts (35.4%) who patronized secondary health facilities (p<0.05). Women in their third trimester were the most satisfied among their counterparts (42.5%), while respondents in their first trimester were the least satisfied (28.6%). Moreover, multiparous respondents were the most satisfied of their group (45.9%) and primiparous respondents (27.7%) the least (p<0.05). There was no significant association between age, level of education, ethnicity, type of marriage, religion, and monthly income with the respondent's satisfaction with the tangible, reliability (p< 0.05). responsiveness (p< 0.05), and empathy satisfaction dimensions (p< 0.05).

Table 4: Association between the Overall Satisfactions with the Clinical Characteristics

Variables	Overall Satisfaction		X^2	df	P-value
	No	Yes			
Types of facility					
Public	104 (65.0)	56 (35.0)	0.85	1	0.356
Private	96 (60.0)	64 (40.0)			
Level of facility					
Primary	3 (20.0)	12 (80.0)	12.13	1	0.000*
Secondary	197 (64.6)	108 (35.4)			
Gestational Age (months)					
1st Trimester	15 (71.4)	6 (28.6)			
2nd Trimester	74 (69.8)	32 (30.2)	5.18	2	0.075
3rd Trimester	111 (57.5)	82 (42.5)			
Parity					
Nullipara	80 (63.5)	46 (36.5)			
Primipara	60 (72.3)	23 (27.7)	6.83	2	0.033*
Multipara	60 (54.1)	51 (45.9)			
Gravidity					
Primigravida	89 (61.8)	55 (38.2)	0.05	1	0.816
Multigravida	111 (63.1)	65 (36.9)			

** = statistical significance (p<0.05)*

Regression analysis of overall satisfaction of respondents to healthcare services in their various centers showed, after adjusting for confounding, that respondents who used primary health care facilities (AOR=6.4, 95% CI=1.71,23.99) were 6 times more likely to be satisfied with services received than their counterparts patronizing secondary healthcare centers (p<0.05), while multiparous respondents (AOR=2.7, 95% CI=1.40, 5.13) were about 3 times more likely to be satisfied than primiparous women (p< 0.05). See details in Table 5.

Table 5: Binary Logistic Regression of factors associated Overall Satisfaction with Maternal Healthcare Services

Variables	AOR	95% CI (AOR)		P-value
		Lower	Upper	
Religion				
Christianity	0.69	0.43	1.13	0.139
Islam (Ref.)	1			
Occupation				
Professional	0.90	0.36	2.29	0.827
Traders	2.19	0.87	5.52	0.095
Artisan	1.55	0.58	4.14	0.381
Unemployed (Ref.)	1			
Level of facility				
Primary	6.41	1.71	23.99	0.006*
Secondary (Ref.)	1			
Parity				
Nullipara	1.77	0.94	3.36	0.079
Primipara (Ref.)	1			
Multipara	2.68	1.40	5.13	0.003*

** = statistical significance (p<0.05)*

After adjusting for confounding, the regression analysis of the tangible satisfaction of respondents to healthcare services showed that women who were traders (AOR=2.5, 95% CI=1.06, 5.90) had two times higher odds of having tangible satisfaction compared to other occupations. Moreover, respondents who patronized primary healthcare centres (AOR=5.5, 95% CI= 1.20, 5.53) had five times higher odds of gaining tangible satisfaction than their counterparts attending secondary health facilities. Adjusting for confounding in the regression analysis of reliability satisfaction of healthcare services by respondents' multiparous women (AOR=2.1, 95% CI=1.13, 3.80) were two times more likely to have reliability satisfaction than their nulliparous and primiparous co-respondents. Attendees of the primary health facilities were 4.6 times more likely than those in the secondary health facilities to be satisfied with the reliability satisfaction dimension (AOR=4.6, 95% CI=0.99, 21.05). Concerning the analysis of responsiveness satisfaction to healthcare service after adjusting for confounding, respondents in their 2nd trimester (AOR=2.9, 95% CI=1.01, 8.11) and those in their 3rd trimester (AOR= 3.6, 95% CI=1.32, 9.73) were both 2 times and 3 times more likely to have responsiveness satisfaction than those in their first trimester. Furthermore, multiparous women (AOR=2.4, 95% CI=1.24, 4.58) were two times more likely to express responsiveness satisfaction than their nulliparous and primiparous counterparts.

B. Qualitative results

Nineteen KIIs were conducted among 5 doctors, 12 nurses, 1 Community Health Officer (CHO), and 1 Community Health Extension Workers (CHEW). Of the 19 healthcare workers, 6 were males while 13 were females. Fifteen were from private health while 4 were from the public health facilities. All the doctors were males while 11 out of the 12 nurses sampled were females (Table 6).

Table 6: Socio-demographic characteristics of the Key Informant Interview Participants (N = 19)

Healthcare Workers	Sex		Health Facility		Total
	Male	Female	Private	Public	
Medical Doctors	5	0	4	1	5
Nurses	1	11	0	12	12
CHO	0	1	0	1	1
CHEW	0	1	0	1	1
Total	**6**	**13**	**4**	**15**	**19**

CHO = Community Health Officer; CHEW = Community Health Extension Worker

Most of the respondents were aware of the malaria control policy. The majority of the respondents were conversant with the malaria control policy. There was no difference in the awareness and familiarity with the malaria control policy between health workers in the private and public facilities. This is illustrated by the following quotes:

> *…They are policies given by WHO, we are given, we have a booklet, a handbook on malaria treatment but it is almost everybody that must have known the policy…at least I have the idea* ***(Nurse, Public).***

> *Malaria control policies are strategies that are put in place to bring down the scourge of malaria…* ***(Doctor, Private).***

Control of malaria during pregnancy

Respondents described different ways of preventing and treating malaria during pregnancy. Most respondents

suggested the use of chemotherapy for prophylaxis and prevention using insecticide-treated nets.

> *…We give them prophylaxis and active anti-malaria, depending on the patient, maybe every week, then if they come with malaria and they breakdown and we do some test and they are tested of malaria we give them combination therapy* ***(Doctor, Private).***
>
> *We run a test, using Rapid kit for malaria and then give them the necessary tablet most especially, we use ACT (****Doctor, Private****).*
>
> *We are using mosquito nets, and we are encouraging the people to use the mosquito nets, and to avoid stagnant water and to be cutting their bush around the house, then they should use door nets* ***(CHO, Public).***
>
> *We give LLINs for the pregnant mother that come to book for the first time, and after 16 weeks of gestational age, we give them the SP (Sulfadoxine-pyrimethamine), for prevention of malaria, 4 weeks interval we still give them the second one, and 4-week interval we give them the third one. And we counsel them to net all the windows and doors at home, and to make sure we counsel them on environmental sanitation, and they should clear bush around the house, drain the gutters, removal of broken bottles and damaged tires. To prevent stagnant water from producing mosquito* ***(Nurse, Public).***

Drugs Available for Malaria Treatment

Respondents described the various drugs available in their health facilities for the treatment of malaria, mostly artemisinin-based medication. Both oral and intramural routes are used.

> *I give them quinine, Fansidar® and combination therapy (****Doctor, Private****)*
>
> *We give them artemether-lumefantrine given to us (by government). If we don't have the one given by the government, we ask them to go and buy it (****Nurse, Public****).*
>
> *…Arthermeter lumefantrine and artemether injection (****Doctor, Private)***
>
> *…Coartem®, ACT (artemisinin-based combination therapy) and SP (Sulfadoxine-pyrimethamine) (****Nurse, Public****)*

Measures taken when Rapid Diagnostic Tests is negative

Most respondents complied with the malaria treatment guidelines by stating that a pregnant woman that tests negative with RDT does not imply that she is free from malaria. Some healthcare workers sampled suggested that the pregnant woman still goes for further laboratory tests like the microscopic test for malaria and a Widal test for typhoid fever. Others suggested that they will continue with prophylaxis whether the women test negative or positive to RDT. Some responses are shown below:

> *Well, I just …give them prophylaxis (****Doctor, Private****)*
>
> *We still give them (malaria treatment), treat them for 5, 6, 7 months with SP (Sulfadoxine-pyrimethamine) (****Doctor, Private****)*
>
> *If the test is negative, then I will, if and she complains and it is related to malaria, maybe she has a body temperature and another complain, we will refer the patient to have widal test, whether she has typhoid* ***(CHEW, Public)***

*...It depends on other complaints, it may not be malaria, so you know, supposing pregnant women are complaining about headaches, we will treat her based on what she is complaining of, sometimes we can tell them to go and do microscopy test outside (**Nurse, Public**)*

*...At times, the RDT may be negative and the person still have malaria, we won't say because she's negative, we won't treat her and at the time, we need to be very careful with the use of RDT, at times the RDT may have expired, so it will be given you the wrong result (**Nurse, Public**)*

Checklist results

Using the checklist, a comparison of the available and functional basic amenities revealed that private health facilities had better surroundings, waiting areas, toilets facilities than the public facilities. All the health facilities studied had stethoscopes and sphygmomanometer. All the private health facilities sampled had refrigerators for the storage of drugs compared with their counterparts in the public health facilities. Most of the private and public health facilities sampled had written guidelines for the treatment of malaria in pregnancy. Also, the private health facilities had more personal protective equipment, disinfectants, and sterilization equipment compared with the public health facilities. Besides, more private health facilities had laboratories within their premises and available drugs compared to public health facilities. These findings are shown in Figures 1 and 2.

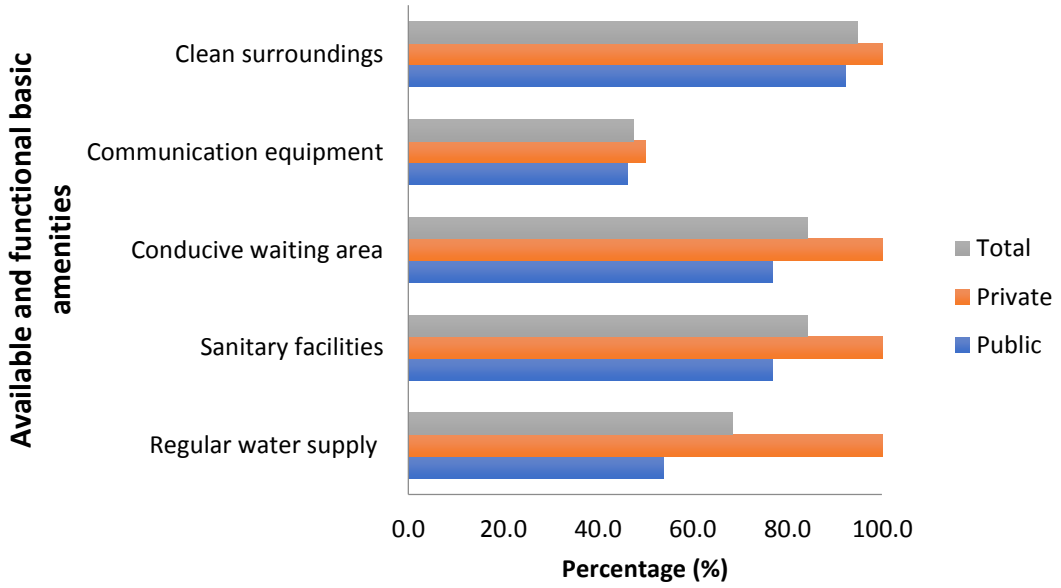

Figure 1: Comparison of available and functional basic amenities between public and private facilities

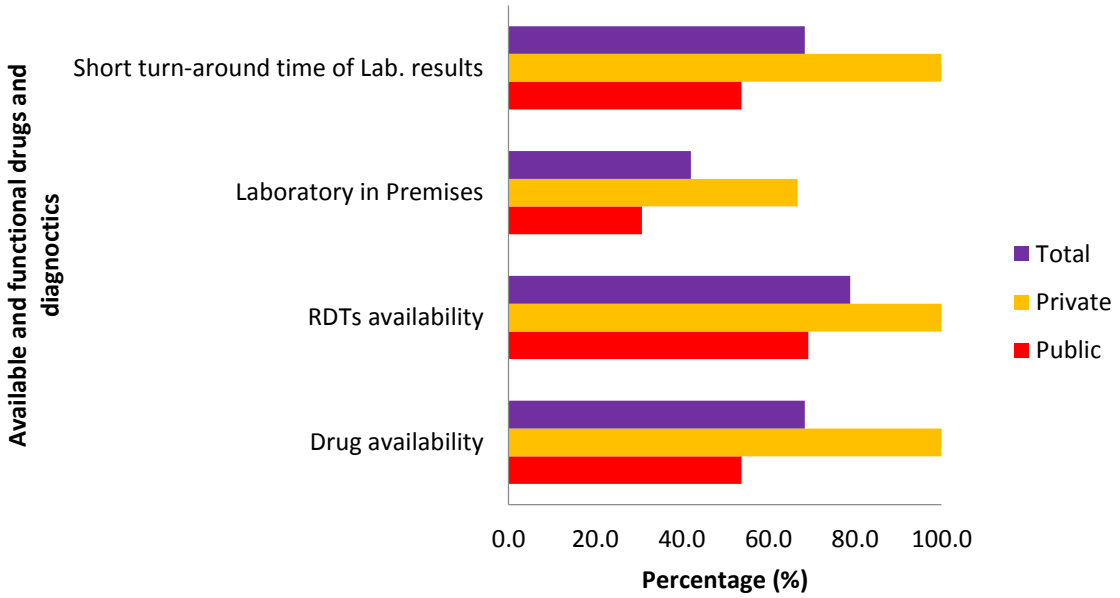

Figure 2: Comparison of available and functional malaria drugs and diagnostics between facilities

Discussion

This comparative cross-sectional study was conducted among pregnant women in private and public healthcare facilities as well as healthcare providers in selected health care facilities in Ibadan, Nigeria. This study's questionnaire respondents were women of the reproductive age group. In a similar study in Ilorin, Nigeria, women attending antenatal care services in four selected private health were aged between 15–45 years.[19] Compared to this study's respondents, a lower mean age of 25.2±5.1 years was found among women attending antenatal care clinics in a Cameroonian study.[20] The present study revealed that a small proportion of the respondents were in their first trimester. Similar observations were made in Nigeria,[21-23] Cameroon,[20] Ethiopia,[24, 25] Myanmar,[26] and Malawi.[27] Late booking for antenatal care may be due to poverty, ignorance, or misconception of the essence and appropriate time for commencement of antenatal care.[22, 28] The majority of the respondents were graduates. This finding agrees with the report of Bello and colleagues[29] from a study done among women attending antenatal care in Ibadan, Nigeria. However, some studies[20, 30, 31] revealed that a low level of education among pregnant women might be the reason for the late initiation of antenatal care. This finding suggests that an improvement in maternal literacy and empowerment is an important panacea for maternal mortality in developing countries.[28] This is also in line with the report of some authors among pregnant women in public and private health facilities in Northern Ethiopia and Sudan, respectively.[32, 33] The majority of the respondents in both health sectors were not satisfied with the malaria in pregnancy services received in both the private and public health facilities. In contrast to this finding, most women were satisfied with the antenatal care services received in private health facilities in Ilorin.[19] Similarly, most of the pregnant women in a health facility in South Western Ethiopia were satisfied with the ANC services they received.[34] Furthermore, authors[20, 30] from Kenya Namibia and Cameroon revealed that the majority of the pregnant women were satisfied with the antenatal care services they received. The present study also revealed that nearly all the pregnant women attending antenatal care services in a secondary and tertiary health facility in Ibadan, Nigeria were satisfied with the healthcare services they received.[29] A plausible reason for the overall low level of satisfaction expressed by pregnant women in this study may be because patient satisfaction was computed as the difference between a patient's perception and expectation about the available healthcare services. Hence, respondents expected higher quality healthcare services from the public hospitals which are funded by the government than the private hospital that is funded by individuals.

Also, the pregnant women attending private health facilities seem more satisfied with the malaria services received than those attending the public health facilities. This finding is consistent with the result of a cross-sectional comparative study which reported that pregnant women in private health facilities in Lagos, Nigeria were more satisfied with the antenatal care services they received than those in the public health facilities.[14]

The result of this study also agrees with findings from several studies that assessed general patients' satisfaction for healthcare services received in private and public health facilities in Nigeria,[35] Ghana,[36] Thailand,[37] Pakistan,[38, 39] Bangladeshi,[39] Iran,[40] Poland[41] and Sudan.[33] Conversely, a systematic review of the comparative performance of private and public healthcare systems in developing countries argued that although, the private healthcare sector had better timeliness and hospitality to patients but they often violate medical standards of practice and had poor patient outcomes.[15]

However, this study, like any other cross-sectional study, has some limitations in that causal inferences cannot be made.

Conclusion

Respondents were not satisfied with the overall maternal healthcare services in the sampled health facilities. They however were more satisfied with the services of the private health facilities. The private health facilities had a more adequate structure for the management of malaria in pregnancy than the public facilities. It appeared that the private facilities provided better services and satisfaction than the public facilities. The government needs to put in more effort in improving services in public facilities.

Conflict of interest

The authors declare there are no conflicts of interest.

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