

Outcome of Increment in User Fees on Utilization of Maternal Health Services in an Urban Comprehensive Health Centre, South-West, Nigeria

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Abstract

Background: Nigeria records one of the highest annual maternal deaths globally, contributing significantly to the high regional burden of maternal mortality in Sub-Saharan Africa. This study determined the outcome of increment in user fees on trends of utilization of maternal health services (MHS) among pregnant women in an Urban Comprehensive Health Centre in South-West Nigeria.

Methodology: Health facility records of pregnant women were reviewed to describe trends of MHS over four-year period from May 2012-April 2016. A before and after analytic design was used to determine the outcome of increment in user fees for MHS by over 230% at the beginning of the third year.

Results: A total of 1,038 and 162 pregnant women registered for antenatal care (ANC) services and delivered at the health facility respectively. There was decreasing trend of utilization of MHS, 47.1% and 50.6% of the pregnant women registered for ANC and had deliveries respectively in the first year and 13.6% and 18% respectively during the fourth year. There was statistically significant reduction in utilization of MHS- ANC registration, HIV testing services and skilled birth attendance- after increment in user fees. However, the reduction in utilization of family planning where there was no increment in user fee was not statistically significant.

Conclusion: There was decreasing trend in utilization of MHS during the period with the increment in user fees being a critical factor. The user fees should be replaced with a robust social health insurance scheme for pregnant women receiving care at the health facility.

Keywords: Maternal Health Services (MHS); Skilled Birth Attendance; Antenatal Care (ANC); User Fees; Health System; Nigeria.

Introduction

Sub-Saharan Africa faces challenge of access to maternal health services (MHS), especially few skilled birth attendants at deliveries and the high costs of maternal healthcare ^[1]. Globally, Nigeria ranked top among countries with highest annual number of maternal deaths. In 2015, with an estimated 58,000 maternal deaths annually, Nigeria accounts for nearly 19% of the global estimates of maternal mortality despite having about 2% of world population ^[2]. Nigerian women have a lifetime risk of maternal death of 1 in 22, third highest after Sierra Leone and Chad ^[2]. The Nigeria Demographic Health Survey (NDHS) 2013

and 2018 reported maternal mortality ratio of 576 and 512 per 100,000 live births respectively ^[3,4].

One of the factors responsible for high maternal mortality in Sub-Saharan Africa, Nigeria inclusive is the low level of utilization of MHS ^[5]. While about two-third of women in Nigeria receive antenatal care (ANC)

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from skilled providers, only one-third of births occur in health facilities^[3]. Unaffordability of MHS remains a critical factor restricting access to good and quality MHS.

User fees constitute a financial barrier to accessing health services in many countries in Sub-Saharan Africa^[6]. Users of public sector health services in most African countries are expected to pay fees at the point of service delivery. The outcome of increment in user fees on utilization of health services varies depending on the type of health care services, type of health facility, location of health facility, and duration when the outcome is measured. Situations where increment in user fees leading to dissuasion of some people from seeking maternal healthcare services or leading to harmful delays in treatment have been reported in the literature^[7].

On May 1st, 2014, the management of a public tertiary health institution in Ile-Ife, Osun state, South West Nigeria increased the user fees for ANC (booking) registration and vaginal delivery at one of its semi-autonomous units, the Urban Comprehensive Health Centre (UCHC) by over 230% from N1, 500 (\$9.3) to N5, 000 (\$30.9) [\$1= N161.86; CBN May, 2014]. The outcome of such financial policy on utilization of MHS is yet to be studied.

It has been observed that Nigeria and her many institutions are not lacking in ability to formulate policies on the key sectors including health sector and every core aspect of its operations. However, there are usually challenges in its implementation and not much is done on the review of outcome and impact of such policies. The increase in user fees for MHS by over 230% at this health facility is a typical case for reference. Therefore, this study aimed to determine trends of utilization of MHS over the four-year period under review and the outcome of increment in user fees on the utilization of the MHS in the facility.

Methodology

Study settings

This study was carried out at the Urban Comprehensive Health Centre (UCHC), Ile-Ife, Osun State, South-West geo-political region of Nigeria. The UCHC is a model Primary Health Care (PHC) facility of a federal teaching hospital that provides preventive, health promotion, curative and rehabilitation services. It offers a wide range of services including infant and child welfare clinic, general out-patient clinic, school and adolescent health services, well woman and man clinics, nutrition clinic, family planning (FP) and maternal health care services (MHS) - prenatal, antenatal, skilled birth attendance and post-partum care to people in Ife central

and Ife East Local Government Areas (LGAs) and other LGAs in Ife-Ijesa zone of the State.

The health facility runs daily antenatal care (ANC) registration and once a week focused ANC clinic. It has a labour room for vaginal delivery and postnatal ward for women who recently delivered. Complicated pregnancy and labour cases are referred to the main teaching hospital, which is 7–10-minute ambulance drive from the UCHC.

Study Design

This is a descriptive study that reviewed the trend of maternal health services' utilization over a four-year period (May 2012- April 2016) and before-and-after analytic design to determine the outcome of increment in user fees on utilization of maternal health services at a health facility.

Sampling technique and instrument

All women who received documented services such as antenatal registration (booking), ANC visits, skilled birth attendance (SBA), HIV testing services (HTS), and family planning in registers or record books within the four-year period (May 2012- April 2016) were included in the study. Three appropriate pre-designed proforma forms for this study were used to extract relevant information from the registers and other relevant source documents. The proforma was designed by the lead researcher, vetted and reviewed by co-researcher with necessary corrections made and approved before use in this study.

Data collection procedure

Using appropriate proforma forms, data were extracted from daily facility antenatal register, delivery register and monthly new user family planning (FP) record by the lead researcher and a research assistant who had been trained on contents of the study instrument. The variables on which data were collected for MHS include bio-socio demographics such as, age of pregnant women at ANC registration, gestational age (GA) at registration and delivery, parity, expected date of delivery (EDD); monthly summary of HTS and SBA, outcome of delivery and immediate post-partum condition. Data for summary of number of new users of FP in the facility was collected using appropriate proforma.

Categorization of study variables

The independent variables include the bio-socio characteristics of pregnant women. The outcome variables include number of pregnant women who: registered for ANC per month, had HTS done per month, had skilled birth attendants at delivery per month; mother's immediate postpartum condition (24 hours

post-delivery), baby's delivery outcome (dead or alive); and monthly and annual numbers of new users of FP.

Data analysis

Data were entered using Microsoft Excel 2010 version into pass-worded personal computer and analysed using SPSS statistical software version 20. Univariate analysis was conducted to generate descriptive statistics such as frequency tables, means of continuous variables and line graphs to highlight the trends of utilization of MHS over the four-year period. Bivariate analysis done include t-test for comparison of monthly means of number of pregnant women that registered for ANC and deliveries at the health facility before and after increment in user fees. Chi square test was done to determine association between relevant categorical variables. The level of significance was determined at p-value <0.05.

Ethics approval

Ethical approval for the study was obtained from Health Research and Ethics Committee, Institute of Public, Obafemi Awolowo University, Ile-Ife, Osun state, Nigeria (HREC NO: IPHOAU/12/748). Permission to use the maternal health services' records for the study was obtained from the Physician-in-Charge of the health facility. Individual personal identities were removed from data collected from the health facility registers. Entering data into pass-worded personal computer ensured data security and the proforma kept in a locked file cabinet with restricted access.

Results

Bio-socio demographics of pregnant women at registration for ANC services in the health facility during the period under review

About one-third (34.9%) of the clients were between the age group of 25-29, 30.0% were between 30-34 years, 16.1 % were 20-24 years old, while 14.5% were 35 years and above. Three percent of the pregnant women that registered for ANC at the facility were teenage mothers. Age of 1.7% of the clients was reported missing in the facility registers.

About one-third (30.9%) of the pregnant women were primigravida. About one-quarter were with their second pregnancy. Sixty-eight (6.6%) of the women were gravida 5 or more. About two-fifth (40.2%) of the pregnant women had no children, while about one-quarter (26.1%) had 1 child and 3.1% had more than 3 children. Most (76.2%) of the pregnant women registered the index pregnancy for ANC during their second trimester. Only 11.5% of the women booked at first trimester (Table 1).

Table 1: Pregnant women's parity and gestational age at registration for ANC services

	Frequency (N= 1038)	Percentage (%)
Gravidity of pregnant women		
1	321	30.9
2	257	24.8
3	238	22.9
4	135	13.0
5 and above	68	6.6
Others*	19	1.8
Parity of pregnant women		
0	417	40.2
1	271	26.1
2	221	21.3
3	94	9.1
4	28	2.7
5 and above	4	0.4
Others	3	0.3
Gestational age (GA) of pregnant women		
First trimester (0-13 weeks)	119	11.5
Second trimester (14-26 weeks)	791	76.2
Third trimester (27-40 weeks)	100	9.6
Others	28	2.7

Others* -Gravidity, parity or GA record missing or client lost to follow-up; ANC-Antenatal care

Trend of utilization of maternal health services at the UCHC during the period under review

The total number of pregnant women who registered for ANC at the facility during the period was 1,038, with average of 21 pregnant women per month, though this was not evenly distributed. About half (47.1%) of the pregnant women registered for ANC services in the first year (May 2012 to April 2013), while 26.6% registered in the second year. The third year under review (May 2014 to April 2015) had the lowest utilization rate of 12.7% (Figure 1).

The total number of women who had skilled birth attendance at the facility during the period was 162 with an average of 3 per month, though this was not evenly distributed. Only 15.6% of pregnant women that registered for ANC services had their delivery at

the facility. More than half (50.6%) of all deliveries took place in the first year of review (May 2012-April 2013). Third year recorded lowest (12.9%) skilled birth attendance at the facility (Figure 1).

A total of 2,155 new users of family planning (FP) services were recorded during the four years under review. Utilization of FP services by new users in the first year (May 2012-April 2013) and the fourth year was high and similar, 32.4% and 30.2% respectively. Utilization was lowest in the third year (16.5%) (Figure 1).

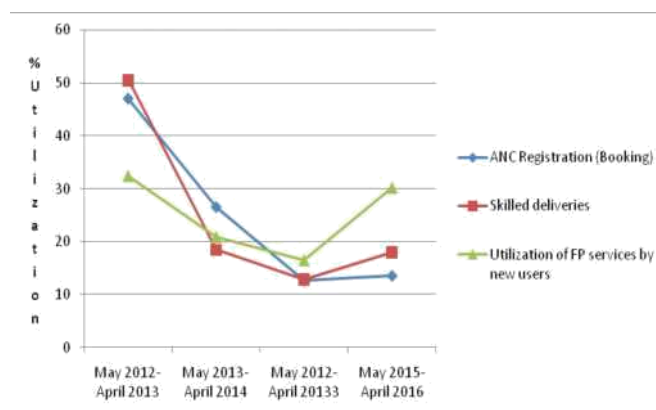


Figure 1: Trend of Utilization of Maternal Health Services at the UCHC between May 2012 and April 2016

Intra-partum and immediate postpartum condition of skilled birth attendance at deliveries in the UCHC during the period under review

Majority (88.3%) of babies delivered to pregnant women in the facility had normal birth weight (2.5-3.9Kg), while, 10% of the babies had low birth weight. One perinatal death was recorded during the review period giving a perinatal mortality of 6 per 1,000 live births (Table 2).

Table 2: Intra-partum and immediate postpartum condition of skilled birth attendance at deliveries

	Frequency N=162 (n=161; missing value=1)	Percentage (%)
Birth weight (Kg)		
<2.5	16	9.9
2.5-3.9	143	88.3
4.0 and above	2	1.2
Outcome (baby)		
Alive	160	98.8
Dead	1	0.6
Postpartum condition		
Satisfactory	153	94.4
Fair	1	0.6
Poor/Transfer to specialist in the main hospital	7	4.3

Relationship between parity, age and gestational age of pregnant women registered for ANC services at the UCHC during the period under review

A higher proportion of primigravidas (Para 0) registered for ANC services in the first trimester compared to other trimesters and the converse is the case for pregnant women of higher parity. However, this association was not statistically significant (χ^2 3.749; p =0.441). Similarly, there was no statistically significant association between age of pregnant women and the gestational age at which they registered for ANC services at the facility (Table 3).

Table 3: Relationship between Parity, Age and Gestational age of the pregnant women who registered for ANC services

Variables	Gestational age at ANC registration			Chi Square	Df	P value
	First Trimester (%)	Second Trimester (%)	Third Trimester (%)			
Parity						
0	54(45.4)	314(39.7)	39(39.4)	3.749	4	0.441
1-2	51(42.9)	388(49.0)	44(44.4)			
3 and above	14(11.7)	89(11.3)	16(16.2)			
Age group						
15-24	23(19.8)	158(20.3)	12(12.2)	7.578	6	0.271
25-29	41(35.3)	266(34.1)	42(42.9)			
30-34	35(30.2)	246(31.6)	25(25.5)			
35 and above	17(14.7)	109(14.0)	19(19.4)			

ANC- Antenatal care; Df- Degree of freedom

Comparison of utilization of maternal health services at the UCHC before and after the increment in user fees

There was a decline in the level of utilization of MHS after increment in user fees. This difference is statistically significant for the monthly average of pregnant women: that registered for ANC services (t-cal. 19.21; p <0.001); had HIV Testing Services (t-cal. 17.00; p <0.001); and had skilled birth attendance at the facility (t-cal. 7.27; p 0.01). However, there was no statistically significant difference in the level of utilization by new users of FP services where there was no change in user fees during the period under review (t-cal. 0.23; p 0.63) (Table 4).

Table 4: Comparison of utilization of maternal health services before and after increment in user fees at the UCHC

Independent Variables	Groups	N	Mean	SD	t ^{cal}	p ^{val}
ANC registration	Before review	24	32.75	17.35	19.21	<0.001*
	After review		10.70	5.32		
HTS for pregnant women	Before review	24	32.50	17.32	17.00	<0.001*
	After review		11.00	5.35		
Skilled birth attendance	Before review	24	4.66	1.57	7.27	0.01*
	After review		3.25	2.49		
Family planning by new users	Before review	24	47.00	17.49	0.23	0.63
	After review		41.16	19.52		

*= $p < 0.05$ = statistically significant; ANC- Antenatal care; HTS- HIV testing services

Discussion

Findings and interpretation

There is decreasing trend of utilization of maternal health services (MHS) over the four-year period under review. During this period, a total of 1,038 and 162 pregnant women registered for antenatal care (ANC) services and delivered at the facility respectively. The proportion of pregnant women who registered for ANC services at the facility fell by about three and half folds from the first year (May 2012-April 2013; $n=489$)- to the fourth year (May 2015-April 2016; $n=141$). Similarly, trend of skilled birth attendance at the facility fell by more than two and half folds from first year ($n=82$) to fourth year ($n=29$). Though, the Nigeria Demographic and Health Survey (NDHS) report was not disaggregated on LGA or community level basis, findings from our study seem to contrast the NDHS 2013 and 2018 in Osun state, where this health facility is located. In the NDHS reports, Osun State recorded one of the highest ANC utilization among women of reproductive age group in all the states of the Nigerian federation, 98.2% in NDHS 2013 and 95.5% in NDHS 2018, and delivery at health facility, 89.1% in NDHS 2013 and 91.6%, in NDHS 2018^[3,4]. A probable explanation is that pregnant women in the study area might prefer other health facilities in the community for MHS, especially skilled attendance during pregnancy and delivery. Also, the state government at this time has a free maternal health policy in principle at all the state-owned health facilities. As stated earlier, the Urban Comprehensive Health Centre (UCHC), Ile-Ife, being a Federal Government owned health facility, charges user fees for MHS. This could also be another reason for general low utilization of the UCHC for MHS, in contrast to the NDHS 2013 and 2018 findings.

The proportion of those who registered for ANC services and later delivered at the facility during the 4-year period under review was only 15.6%. Though, a few who had high-risk pregnancies or developed complication before or during labour were referred to obstetricians for specialized care at the main hospital. Many studies have reported similar findings of low health facility delivery among women who receive ANC at government health facilities. Osubor et al^[8], reported low utilization of maternal health services, especially in government health facilities. In the study, only 15.7% of the pregnant women preferred government facility for baby delivery while private maternity center was the most preferred place for baby delivery (37.3%), followed by traditional birth attendants (TBAs) (25.5%)^[8].

Findings from this present study show that over 76% of pregnant women who registered for ANC did so during second trimester and 9.6% during third trimester. This is consistent with findings from a study by Adekanle and Isawumi^[9] on high prevalence (82.6%) of late entry (second and third trimesters) to antenatal care at two Public health facilities in Oshogbo, Osun State. Ekele and Audu^[10], and Nwagha *et al*^[11] reported late registration for ANC in Sokoto, North West Nigeria and in Enugu, South East Nigeria.

The outcome of increment in user fees on the utilization of maternal health services (MHS) at the UCHC, revealed a reduction in level of utilization of MHS that was statistically significant. These MHS include the antenatal (ANC) registration ($p < 0.001$), HIV Testing Services for pregnant women ($p < 0.001$) and skilled birth attendance ($p = 0.01$). This is consistent with report from a study in a public health facility in Ilesa, Osun State, South West Nigeria, where the number of mothers receiving ANC and the resultant number of deliveries at the hospital declined significantly ($p = 0.001$) after introduction of user fees^[12]. Similar findings of decrease (to varying degree) in utilization of ANC and facility deliveries following increase in user fees were also

reported in other countries such as Kenya, Papua New Guinea, and Ecuador^[13-16]. However, Akashi et al^[17] in a Cambodian hospital study noted an increasing facility delivery following fee introduction and quality of care improvements. In contrast to statistically significant reduction in level of utilization of MHS in the UCHC, our study found no statistically significant difference ($p 0.63$) in level of utilization by new users of family planning (FP) services at the same health facility where there was no change in user fees during the 4-year period under review. These findings corroborate our alternative research hypothesis on the outcome of increment in user fees on the utilization of MHS and the null hypothesis on utilization of closely related health services (new users of

FP) among women of reproductive age group in the same health facility.

Strengths and weaknesses of the study

This study draws attention to the implication of financial policy of health managers in health facilities on the pregnancy outcomes and core indicators for maternal health services (MHS). It brought to the fore the need to determine effect of increment in user fees on utilization of MHS and necessity for policy review from time to time. This study analysed data on MHS retrospectively and as such there were missing data on a few observations. Because the study used health facility secondary data, there was little information on respondents' socio-economic status. The choice of new users of family planning (FP) services where there was no increase in user fees in the same health facility as the comparison group was because similarly trained and motivated federal government health workers offered both maternal health and FP services. Also, women of reproductive age group from the same community accessed these health services. At the time of this study, almost all primary health care (PHC) facilities in the community and other parts of the state that offer similar MHS were owned by the State Government and did not charge user fees. These state-owned PHC facilities also experienced disruption of their services over a six-month duration because the health workers were on strike due to poor welfare and delayed payment of salaries and allowances. These situations made those health facilities unsuitable for use as the comparison arm for our study.

Relevance of the findings: implications for health facility managers and policy-makers

This study showed there is low and decreasing trend in utilization of maternal health services (MHS) in the health facility during the period under review with the increment in user fees being a critical factor. Subsidies in MHS at the UCHC and similar public healthcare facilities may be introduced to improve utilization of MHS and pregnancy outcomes. The user fees, which constitute financial barrier to MHS, should be removed through a robust and compulsory social health insurance scheme for all pregnant women.

Unanswered questions and future research

The difference in maternal health services (MHS) utilization that was observed before and after increment in user fees might not be solely explained by the change in user fees as there might be other factors that could contribute to the reduction in level of utilization of MHS. These factors may include other health system's factors such as attitude of health care workers (HCWs), frequent strike actions by the HCWs; and clients' factors such as socio-economic factors, health-seeking behavior, and

satisfaction with MHS at the health facility. These factors could be further examined through a primary qualitative or quantitative research or a mixed method. This might also provide insightful information from client perspective on the general low and decreasing trend in utilization of MHS at the health facility.

Conclusion

There is low level of utilization of maternal health services (MHS) in the Urban Comprehensive Health Centre with decreasing trend of the services' utilization over the four-year period under review. The proportion of skilled birth attendance at the facility among those who registered for ANC services is very low. The majority of the pregnant women registered late (after first trimester) for ANC services. The outcome of increment in user fees on utilization of MHS in the facility revealed statistically significant reduction in level of the services' utilization.

Abbreviations

ANC: Antenatal care; FP: Family planning; HCWs: Health care workers; HTS: HIV testing services; MDG: Millennium development goals; MHS: Maternal health Services; NDHS: Nigeria demographic health survey; PHC: Primary health care; SBA: Skilled birth attendance; TBAs: Traditional birth attendants; UCHC: Urban comprehensive health centre; UNICEF: United Nations Children's Fund; WHO: World Health Organization

Competing interests

The authors declare that they have no competing interests.

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