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Keywords: *maternal healthcare, pregnant women, telephone follow-up, nigeria.*

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Factors Influencing Pregnant Women's Utilization of Maternal Health Care Services for Delivery in Ogun State, Nigeria

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Abstract- The study assessed the factors influencing the utilization of Maternal Healthcare Centers (MHC) for delivery among pregnant women attending ante-natal care in Ikenne, Ogun state, Nigeria. A total of 96 respondents were selected from 5 MHC for the study using the multistage sampling procedure. All the women were monitored till delivery. Furthermore, 48 (50%) of the respondents were randomly chosen and exposed to motivational telephone calls for 6 weeks preceding delivery dates. Structured questionnaire was used to gather data which were analyzed using descriptive statistics and logistic regression. All analyses were measured at p≤0.05 level of significance. Results showed that most of the women were between 30 and 34 years old, had up to secondary education, recorded parity of 1-2 while timing of first visit was between 20 and 24 weeks of gestation and number of Ante-natal visits were≥ 4. Monthly income was generally less than ₦16,000 (~$80). Some 52% of the women gave fair rating for the services received from the healthcare workers and 58% used the MHC for delivery. However, 84% of those who received telephone calls used MHC for delivery while 59% of those who did not received telephone calls used MHC for delivery. The regression result affirmed the significant impact of corroborative telephone-call motivation of respondents towards utilization of MHC. Similarly, respondents' literacy level, their satisfaction rating for of healthcare workers at the MHC, their monthly income and family (especially husband) influence positively influenced utilization of MHC for delivery. The study recommends mobile phone use for addressing health delivery bottle necks and motivating MHC utilization. Furthermore, careful considerations should be given to subsidizing maternal healthcare cost, conducting periodic appraisal of the quality of ANC education delivery and family ties when formulating policies or initiating programmes targeting maternal healthcare and utilization of MHC services.

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I. Introduction

Utilization of Maternal Healthcare Services (MHS) is associated with improved maternal and neonatal health outcome (Babalola and Fatusi, 2009) and reduction in maternal deaths (UNICEF, 2003). Ante-Natal Care (ANC) is expected to provide pregnant women with necessary information and risks and to enhance their utilization of MHS (Iyaniwura and Yussuf, 2009). About 75% of all maternal deaths are those associated directly and indirectly with some sort of complications during delivery and the week immediately after (Choudhry, 2005). It is therefore crucial that pregnant women should be attended to by skilled attendants (trained doctors, midwives, trained nurses or trained community health officers) (FMOH, 2009).

In developed countries an estimate of 97% pregnant women receive ANC and 99% use skilled obstetric services at delivery while in developing countries 63% and 53% of women use ANC and skilled obstetric care respectively (Agbede et al., 2015). This implies that sometimes women who received ANC from skilled personnel still end up patronizing unskilled obstetric services at delivery. In Nigeria and many other developing countries, pregnant women view the event of child birth with apprehension of possible pain and death unlike the situation in most developed countries (Ekele, Bello, Adamu, 2007). The trust in the healthcare facility to reduce this fear is low and some will even prefer to use the tradition birth attendants for delivery (Agbede et al., 2015). Proportion of deliveries attended to by skilled health personnel in Nigeria declined from 43% in 1990 to 38.9% in 2008 (MDGs, 2010). Although it rose to 53.6% in the year 2012, the trend is currently on the decline despite the interventions put in place (Agbede, 2015).

The study of Agbede (2013) showed that the rate of utilization of MHS in the Public Healthcare Centers (PHC) around Ikenne in Ogun state, Nigeria, has been consistently below 50%. Personal attributes of the pregnant women and level of professionalism displayed by the birth attendants are common correlates of utilization of MHS posited by past studies (Iyaniwura and Yusuf, 2009; Agbede et al., 2015). Therefore, increasing utilization of MHS for delivery require special skills and attitudinal changes from both the providers and the clients.

Two recent international initiatives recommended the use mobile phones as additional instrument in healthcare delivery and a means to boost utilization of MHS for delivery (International Telecommunication Union [ITU] 2009). The Millennium Development Goal 8 also highlighted the need to make use of new technologies available, especially those related to information and communication to improve healthcare delivery. Since the fastest growing new

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technology worldwide is the mobile phone, the need to research into the influence its intervention on enhancing the use of PHC centers for delivery is pertinent and of current importance.

According to Erhunwmunsee (2012), there are over eight million telephone subscribers in Nigeria. Thus, the mobile technology can be utilized for education, intervention and follow-up as obtained in other parts of the world (Lund et al., 2009; Mechael, 2005; Samai and Sengeh, 1997; Musoke 1999; Matthews and Walley 2005; Lungu and Ratsma 2007; Fournier et al., 2009; Svoronos et al., 2010).

In Nigeria, Isola (2011) observed that the use of mobile telephone by pregnant women to communicate with their health rangers improved patronage of trained midwives and qualified personnel thus supporting the potential of its ability to enhance utilization of MHS especially when it is purposefully used to reinforce ANC education as detailed in this study. Thus, this paper (an extract from a study) assessed the factors influencing pregnant women's utilization of Maternal Healthcare Services (MHS) for delivery in Ikenne, Ogun state, Nigeria while hypothesizing the women's personal attributes and use of mobile phone reinforcement of ANC education as determinants.

II. Methodology

This study was carried out in Ikenne Local Government Area (LGA) in Ogun state, Nigeria. This LGA is semi-urban comprising of five towns- namely, Ikenne-Remo (the LGA headquarter), Ilishan-Remo, Iperu-Remo, Ogere-Remo and Irolu-Remo. Population of women of reproductive age in the study area was 27, 713 (Nigeria Demographic and Health Survey, 2009). However, the target population included women who were pregnant and in the third trimester of pregnancy (28-40 weeks of pregnancy). The MHS available within the LGA include Babcock University Teaching Hospital at Ilishan, State General Hospital at Ikenne, State Hospital at Iperu, Community Hospital at Ilishan and ten (10) Primary Health Care (PHC) Centres in Wards situated in the five towns. There are also eight registered Private Hospitals/Clinics, some Traditional Birth Attendants (TBA) and Religious Healthcare Centres (RHC) within the Local Government Area.

a) Sampling technique and Data collection

The multistage sampling technique was used to select 96 respondents from among the pregnant women attending antenatal in 5 (randomly selected) of the identified PHC in the study area as specified above. All the women were monitored from first registration for ANC till delivery to determine actual place of delivery. Furthermore, 48 (50%) of the respondents were randomly chosen, across the selected MHC, and exposed to motivational telephone calls for 6 weeks preceding actual delivery dates. Structured questionnaire designed in line with the study objectives was used to gather data from the respondents. Reliability analysis was applied to test the internal consistency of the questionnaire. Result of the analysis showed that the instrument was reliable with average Cronbach's alpha value of 0.82 (Graham and Gisi, 2008; Muhamad, 2010).

b) Method of data analysis

Descriptive statistics and the logit regression model were employed in analyzing data collected in the study. Frequency tables were used to present results for the descriptive analysis while the logit regression model was used to analyze the factors which influenced respondents' utilization of maternal healthcare services for delivery. All statistical analysis were done using the statistical package for social science (SPSS version 17) and set at $P \leq 0.05$ levels of significances. Ethical clearance was obtained from the Ethical Review Committee, Babcock University and consent forms were filled by all participants.

In the regression analysis, the dependent variable was the utilization or non-utilization of the maternal healthcare services by the respondents for delivery. This was coded as '1' representing utilization and '0' representing non-utilization (dummy variable). The independent variables were the respondents' personal attributes (demographic and income variables), exposure to previous intervention program or seminars emphasizing merits of utilization of healthcare services especially for delivery, number of previous births, previous experience with birth complications, proximity to healthcare center, satisfaction rating for healthcare workers, family influence and telephone reinforcement motivating utilization of healthcare services.

III. Results and Discussion

a) Respondents' personal attributes

Respondents' personal attributes analyzed included age, marital status, educational attainment, income, satisfaction rating for healthcare workers, parity and ANC visits. Results as presented in Table 1 showed that most of the respondents were between 30 and 34 years old (46%) and mostly married (98%). Most of respondents had relatively good level of education with majority having secondary education and above (81%). The nexus between education and response to innovations for behavioral change has been detailed in previous studies (Babalola et al., 2013; Omeonu et al., 2014). Thus education is expected to influence utilization of maternal healthcare services. Most of the women earned below ₦16,000 (<$81) (74%) which is clearly below the national minimum wage of ₦18,000. This implies that although, most of these women may depend on their husbands for household financial sustenance, poverty level is likely high among the

women. This may pose a challenge to the women's' ability to make effective demand for necessary healthcare services.

Further results in Table 1 showed that the majority of the respondents (56%) had 1-2 children, thus they are expected to have certain knowledge about pregnancy management and probably formed opinions about where to deliver their babies since they have had children before. Results of antenatal care (ANC) showed that most of the women (70%) had their first visit to the healthcare center between 20th and 24th weeks of pregnancy. However, the majority of the respondents (63%) visited the healthcare facility up to 4 times during ANC. This is expected to positively influence utilization of the healthcare facility for delivery; unfortunately only 29 percent rated the service provided by the healthcare workers as good and this may negatively impact utilization.

Table 1 : Demographic information of respondents

Variables	Control (n= 96) Freq	%
Age		
19-24yrs	31	32.3
25-29yrs	21	21.8
30-34yrs	30	45.5
35-39yrs	8	8.33
≥40	6	6.25
Marital status		
Married	94	97.9
Education		
Below Secondary	18	18.8
Secondary and above	78	81.3
Husbands' Education		
Below Secondary	16	16.7
Secondary and above	82	85.4
**Income level (₦)*		
≤15,000	52	54.2
16,000-30,000	19	19.8
31,000-45,000	9	9.38
>45,000	16	16.7
Parity		
None	9	9.38
1-2	54	56.3
3 and above	33	34.4
Timing of ANC first visit		
8-16 weeks	12	12.5
20-24 weeks	67	69.8
28 weeks +	17	17.7
No. of ANC visits		
1 ANC visit	9	9.38
2 ANC visit	22	25.9
3ANC visit	5	5.21
4 and above	60	62.5
Satisfaction rating for HC workers		
poor	18	18.4
fair	50	52.3
good	28	29.3

* $1 is approximately ₦199

Source: Computed from field Survey (2014)

Table 2 : Distribution of respondents by decided actual place of delivery

Place of delivery	Selected MHC					
	Irolu (n = 10)	Ilishan (n= 10)	Ikenne (n= 28)	Ogere (n= 28)	Iperu (n= 20)	Total (n= 96)
MHC	2 (20%)	6 (60%)	12 (43%)	24 (85%)	12 (60%)	56 (58%)
Private Hosp	2 (20%)	2 (20%)	2 (7%)	3 (11%)	4 (20%)	13 (14%)
Church	6 (60%)	2(20%)	8 (29%)	1 (4%)	1 (5%)	18 (19%)
TBA	0 (0%)	0 (0%)	6 (21%)	0 (0%)	1 (5%)	7 (7%)
Home	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (10%)	2 (2%)

Source: Computed from field survey (2014)

b) *Respondents' actual place of delivery*

Results in Table 2 shows that the majority of the respondents (58%) use the MHC for the delivery of their babies. Aggregating the data for MHC and private hospital, 72% of the respondents utilized skilled health attendants for delivery while 28% of the respondents still patronized unskilled birth attendants such as the Traditional Birth Attendants (TBA), church or religious centre and delivery at home (attended to by family or friend).

c) *Impact of telephone follow-up and determinants of utilization of MHC*

The result of the assessment of the impact of the telephone follow-up on use of MHC for delivery is presented in Figure 1. Fifty percent of the women (48 women) were followed-up by weekly mobile phone communications. Results showed that telephone follow-up led to an apparently increase in the use of MHC and decrease in the use of other facilities. Disaggregating utilization of MHC by telephone follow-up showed that 84% of those who received telephone calls used MHC for delivery while 59% of those who did not received telephone calls used MHC for delivery.

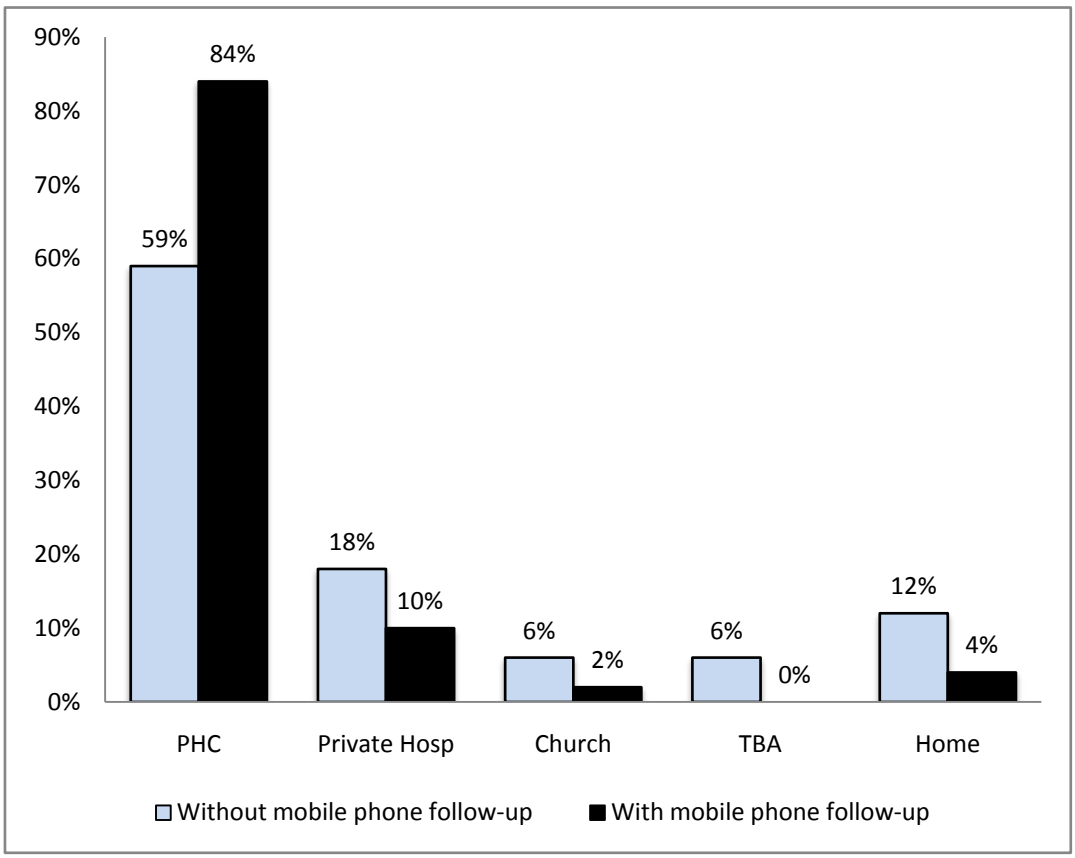

Fig. 1 : 'With' and 'without' mobile phone follow-up

The logistic regression analysis was conducted to determine the factors which significantly influence respondents' utilization of the healthcare facility for delivery and the results presented in Table 3. The analysis was done after mobile phone follow-up.

Results showed that respondents' participation exposure to telephone calls (reiterating knowledge received during ANC and motivating use of skilled birth attendants) significantly (at $p = 0.009$) increased the utilization of MHC for delivery. This result is consistent with the reports of Lund et al. (2009); Samai and Sengeh (1997); Musoke (1999); Matthews and Walley (2005); Lungu and Ratsma (2007). Other factors which positively and significantly increased respondents' utilization of MHC services included respondents' literacy level ($p = 0.006$), respondents' satisfaction rating for of healthcare workers at the MHC ($p = 0.003$), respondents' monthly income ($p = 0.042$) and family (especially husband) influence ($p = 0.047$). This implies that increasing these variables will significantly increase pregnant women's patronage of the MHC for delivery of their babies and by implication ameliorate complications attached to births attended by unskilled birth attendants.

Table 3 : Factors influencing respondents' utilization of MHC facility for delivery

Independent Variables	Beta coefficient	S.E.	Sig.
Constant	-7.380*	1.773	0.010
Mobile phone follow-up (dummy: no = 0; yes = 1)	0.217*	0.0510	0.009
Literacy level (dummy: below sec = 0; sec & above = 1)	0.318*	0.079	0.006
Satisfaction rating of HC workers	2.359*	0.783	0.003
Number of previous births	-0.103	0.172	0.550
Proximity to HC facility (dummy: no = 0; yes = 1)	0.424	0.387	0.273
Number of ANC visits	0.305	0.180	0.095
Monthly Income (in naira)	0.130*	0.060	0.042
Family influence (dummy: no = 0; yes = 1)	0.289*	0.124	0.047

*Dependent variable is the actual utilization of healthcare facility (utilization =1; otherwise = 0); -2 Log likelihood = 122.504; Nagelkerke R^2 = 0.482; *sig ≤ 5%*

Source: Computed from field survey (2014)

IV. Conclusion and Recommendations

This study assessed the factors influencing the utilization of Maternal Healthcare Centers (MHC) for delivery among pregnant women. The participants were selected from among pregnant women attending ante-natal care in the healthcare centers in Ikenne LGA of Ogun state Nigeria. The investigation concluded by affirming significant impact of corroborative telephone-call motivation of respondents towards utilization of MHC. Similarly, respondents' literacy level, their satisfaction rating for of healthcare workers at the MHC, their monthly income and family (especially husband) influence positively influenced utilization of MHC for delivery. Based on the findings of the study, it is recommended that with the increase in availability of mobile communication services providers in Nigeria, phones should be intensively used for addressing health delivery bottle necks and motivating MHC utilization. Furthermore, careful considerations should be given to subsidizing maternal healthcare cost, conducting periodic appraisal of the quality of ANC education delivery and family ties when formulating policies or initiating programmes targeting maternal healthcare and utilization of MHC services.

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