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Effect of Socioeconomic Status on Maternal Health Care Use in Nigeria

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Abstract:

In spite of the general improvement being witnessed in healthcare delivery globally; maternal and infant mortality rates are very alarming in many Sub-Saharan African countries. Thousands of women and children lose their lives annually due to inadequacy of health facilities, shortage of medical personnel and low level of medical awareness among women. Socioeconomic and demographic factors also play significant roles in influencing women access to maternal health services, and have become a subject of debate among researchers. Using the 2013 Nigerian Demographic and Health Survey data, this study investigated the impact of socioeconomic status on maternal healthcare use in Nigeria. It was found that socioeconomic factors are significant predictors of maternal healthcare. On this premise, it is recommended that policy makers, relevant non-governmental and international organizations put in place policies that can improve the socioeconomic status of women and their husbands in Nigeria.

Keywords: *Maternal, infant, mortality, healthcare, demographic and socioeconomic factors*

1. Introduction

Target one of the third sustainable development goals (SDGs) adopted in 2015 aims at reducing global maternal mortality ratio to less than 70 per 100,000 live births by 2030. In order to achieve this target, maternal mortality rate globally will need to reduce by at least 7.3 percent annually (World Health Statistics, 2016). However, maternal mortality rates remain unacceptably high in developing countries (Women Deliver, 2010). Developing countries suffer disproportionate rates of the global burden of maternal mortality as they account for 99 percent of maternal deaths worldwide (WHO, 2009). Although 80 percent of these deaths results from direct obstetric complications which are either preventable or treatable (Medecins San Frontieres, 2012), the challenges relating to the provision and utilization of maternal health services (MHS) persist in developing countries (Women Deliver, 2010). Utilization of MHS-antenatal care (ANC) and skilled assistance during delivery is almost universal in industrialized countries with 98 percent of women attending at least one ANC visit and 99.5 percent of births attended by a skilled health worker. These figures are not the same for developing countries where only 68 percent of women report at least one ANC visit and barely 59.1 percent of births are attended by a skilled birth attendant (WHO & UNICEF, 2003; WHO, 2007). Reducing maternal mortality requires that all women have adequate access to ANC, skilled attendant during delivery, care and support in the weeks after delivery (WHO, 2014). Nonetheless, evidence reveals acute inequalities in access to MHS between and within developing countries and between rural and urban population (Ronsmans & Graham, 2006). Increasing the number of birth in health facilities is a key factor in reducing pregnancy related death given that a skilled health worker can effectively manage pregnancy related complication if they arise or appropriately refer the patient to the next level of care. Also, skilled assistance during delivery is indispensable in improving maternal health outcome. The skill of the attendant at delivery correlates strongly with the way complications are managed when they arise and how hygienic practices are observed (NPC & ICF International, 2014). This suggests the need for comprehensive and integrative efforts in addressing the determinants of poor maternal health outcome.

It is evident from literature that the health seeking behaviour for MHS in developing countries is characterised by three delays: delay in seeking care, delay in reaching a health facility and delay in receiving treatment at the facility (Thaddeus & Maine, 1994). Other studies also noted that health seeking behaviour for MHS in developing countries is influenced by supply and demand factors, socio-economic factors, and cultural beliefs on health (Ngomane & Mulaudzi, 2012; Pathak, Singh, & Subramanian, 2010; Poureslami, MacLean, Spiegel, & Yassi, 2013). However, there is limited knowledge of factors influencing

the utilization of MHS in Nigeria. It is against this background that this paper attempts to identify factors associated with the utilization of MHS in Nigeria by using data from the 2013 Nigeria demographic and health survey (NDHS).

Nigeria accounts for 14 percent of the global burden of maternal deaths (United Nations Economic Commission for Africa [UNECA], 2013). Maternal Mortality Ratio (MMR) for Nigeria is alarmingly high at 576 deaths per 100,000 live births. This implies that for every 1,000 live births in Nigeria between 2006 and 2013, almost six women died during pregnancy, delivery or within two months after delivery. Yet facility-based delivery remains low in Nigeria. Three in five births (sixty three percent) in Nigeria occur at home and just about 39 percent of births are assisted by a skilled health worker (National Population Commission [NPC] & ICF International, 2014). This is markedly inconsistent with target 3.1 of the SDG which is aimed at ensuring skilled attendance at all birth (World Health Statistics, 2016). An important barrier for meeting this target is the health work force crisis in Nigeria (Bangdiwala, Shrikant, Sharon, Okoye, & Stephen, 2010). Nigeria occupies the sixth position in the list of forty-nine countries identified by WHO as countries experiencing deficit in the density of doctors, nurses and midwives (Travis et. al, 2004; WHO 2010). Also, NPC & ICF International (2014) lamented that the health sector in Nigeria is marked by regional disparities in status, service delivery and resource availability. Shortage of health workers and inaccessibility of health services has been implicated as a factor influencing preference for home birth and remarkable patronage of the services of traditional birth attendants (TBAs) in Zambia and Indonesia (Sialubanje, Massar, Hamer, & Ruiters, 2015; Titaley, Hunter, Dibley, & Heywood, 2010).

In an attempt to improve access to maternal health services especially in underserved areas and areas particularly burdened with maternal mortality, the Nigerian government initiated the Midwives Service Scheme (MSS) in December 2009 under which 2, 488 midwives were recruited and deployed to 652 Primary Health Centres (PHC) across the country (Ambimbola, Okoli, Olubajo, Abdullahi & Pate, 2012). However, barriers to maternal health services remain. Ambimbola et al. (2012) noted that several factors exist to cripple the goals of MSS. Significant difficulties demanding attention is the retention, availability and training of midwives and fluctuating levels of commitment from the different states and local government in Nigeria as well as the persistence of home birth in some parts of the country not considering the availability of skilled health workers at MSS facilities.

Although there is evidence to suggest that beside the overwhelming availability of the TBAs in the communities they serve, the cost of the services they provide is also not out of reach for poor women (Sialubanje, Massar, Hamer, & Ruiters, 2015); nevertheless, they cannot substitute for skilled health care providers. Moreover, increased supply of skilled health providers and health facilities does not necessarily translate to increased demand and actual utilization of health services in developing countries. Cost of health services are sometimes prohibitive for poor households and low perception of risk is a formidable barrier to uptake of MHS in some communities (Thaddeus & Maine, 1994).

Studies from Sierra-Leone, a country that experiences 1,165 maternal deaths per 100,000 live births (Statistics Sierra Leone (SSL) & ICF International, 2014) reveals that illiteracy and poverty are important barriers to the utilization of MHS (CARE, 2010). However, there is a knowledge deficit of the determinants of the utilization of maternal health services in Nigeria. For that reason, the present study aims to deal with this knowledge gap and investigate the determinants of uptake of MHS in Nigeria. Identifying these factors is essential for public health intervention that aims to address barriers to MHS.

2. Theoretical Framework

2.1. *The Behavioral Model of Health Services Use*

This work is based on the behavioural model of health services by Andersen (1973). The model explains different individual and community socio-cultural factors that influence and determine the extent of health care utilization by an individual. He stated that those factors cover virtually all the conditions that can necessitate use of medical care. They are categorized into three major groups: predisposing, enabling and need factors.

2.2. *Predisposing Factors*

These refer to the socio-cultural factors and personal characteristics that determine the propensity of using medical services; they exist prior to the emergence of diseases. They are further sub-divided into demographic factors (age, sex, marital status, and past illness), social structure (education, occupation, race, ethnicity, religion and residential mobility) and attitudinal beliefs (values concerning health and illness, attitudes towards health services and knowledge about diseases and health care system).

2.3. *Enabling Factors*

Enabling Factors refer to the resources needed and the knowhow about medical care utilization. It covers the quantity of resources required to utilize health care services and the knowledge about the access and availability of regular source of care. They are also subdivided into Personal and family factors (income, health insurance, third party payment, and extent and quality of social relations), community factors (ratio of health personnel and facilities to population, price of health services, and region of country) and other bio-social factors (genetic factors and psychological characteristics).

2.4. Need Factors

The need factors refer to the perceived or self-reported health status and clinical outcomes that determine the extent and nature of health service need of an individual or community. They are considered as the immediate cause of health service use. They are also subdivided into perceived health state (which refers to individuals' assessment of their general health, their experience of illness and pain, symptoms, and self-diagnoses), and clinical evaluations (which refers to medical diagnosis of peoples' health state by health professionals).

In summary, Anderson's Behavioral Health Model provides a number of personal, socio-cultural, and demographic factors that are important for the explanation of the health need of an individual. This study will use some of the factors proposed by the model to assess the impact of socioeconomic status on the access to maternal health care in Nigeria. Clinical evaluations will not be used in this study; the focus will only be on the predisposing and enabling health variables available in the Nigerian Demographic and Health Survey dataset.

2.5. Review of Related Literature

In consonance with the postulations of the above theory, many empirical studies like Mengistu and James (1996), Addai 1998, Lidoroh (2010), Amin, Shah and Becker (2010), Heidi, Wong and Tucker (2006), Regassa (2011), Nwosu, Urama and Uruakpa (2012), Etukudo and Inyang (2014), Sabiti, Amoateng and Ngake (2014), and Budhwani, Hearld and Harbison (2015) have repeatedly shown that socio-demographic and economic factors significantly affect utilization of maternal health services.

However, the direction and nature of causation of the socioeconomic variables varies from one study to another, and has been the reason why many more studies are needed to investigate the impact of socioeconomic factors on the maternal health utilization. For instance, Mengistu and James (1996) and Regassa (2011) found that age is a major determinant of healthcare utilization; younger women are found to use healthcare services than older ones. Contrariwise, Asimwe (2010) found dominant influence of affordability instead of age, while Heidi et al (2006) found no significant difference between younger and older women's usage of maternal health care services.

In addition to age, many other socio-demographic and economic factors like marital status, level of income and place of residence were found to significantly affect the utilization of antenatal care and delivery services by pregnant women in Western Province of Kenya (Lidoroh 2010). Married women are likely to use maternal health services because of greater assistance, encouragement and financial support from their husband than their unmarried counterpart who are pregnant out of wedlock, and might not be able to get any assistance and advice to use maternal health services. Similarly, the level of income of women (and the husband) cannot be under-estimated in analyzing maternal health services. In a study conducted by Amin et al (2010) to investigate the health-seeking behaviours of women in different aspects of maternal health like antenatal care, delivery and postnatal care, the level of income of the women was found to be the most significant factor. Women with higher income level were found to use maternal health services than those with lower income level.

Maternal education has also been found to determine the extent of utilization of maternal healthcare services in Addai 1998, Celik and Hotchkiss 2000 and Sabiti, et al 2014. For instance, Sabiti et al (2014) found that the level of education of a woman is the most important determinant of maternal health utilization in Uganda. Educated women are found to be more likely to use antenatal care services, receive tetanus toxoid injection and deliver their babies in public health care centers than their (rural) uneducated counterparts who use unskilled delivery assistants.

In addition to the household level dimension of investigating the socioeconomic factors-maternal nexus, many other researchers like Budhwani, Hearld and Harbison (2015) also examined community level factors that are associated with maternal health care utilization. In their study conducted in Pakistan, they found that there is significant impact of socioeconomic factors on maternal health at individual and community levels. They found positive effect of individual level variables, education and wealth on the utilization of maternal health care across all five measures. They argued that individual and community factors account for disparity in prenatal, delivery, and postnatal care in Pakistan, and advocated for better incentives for health workers, increased girls' education and better transportation to ease movement of pregnant women across communities.

In Nigeria, studies like Babalola and Fatusi (2009), Etukudo and Inyang (2014), and Nwosu et al (2012) have also shown that socioeconomic factors play significant role in influencing maternal health services utilization. While Etukudo and Inyang (2014), and Nwosu et al (2012) used individual level data, Babalola and Fatusi (2009), just like Budhwani, et al (2015), used different levels of data aggregation to examine socioeconomic factors and maternal health relationship. They found that the effect of the factors depends on the economic level; education is significant at individual level, socioeconomic status at household level while urban residence and community media saturation are significant at community level. They therefore argued that the effect of the socioeconomic factors is better understood when respondents are considered at different levels.

In a study conducted by Etukudo and Inyang (2014) in Jesse kingdom of Ethiopia West Local Government area in Delta State, Nigeria, it was revealed that duration of marriage, education, employment status, family income, parity, husband's education and the choice of healthcare services and distance to hospital affect utilization of maternal health. Distance and mothers' education are shown to be the strongest determinants of the choice and use of maternal health care services than other factors.

In view of the import of maternal health, conflicting direction of the causation of the socio-demographic and economic factors, and the need to provide guide for the relevant policy makers, this study uses a different and more recent survey dataset, Demographic Health Survey (2013) to contribute to literature on maternal health care research by investigating socioeconomic factors that influence healthcare seeking behavior of women in Nigeria.

3. Nature and Sources of Data

The data employed in this paper is derived from the Nigeria Demography and Health Survey (NDHS) 2013. This Survey was implemented by the National Population Commission, which is saddled with the responsibility of collecting, collating and analysing the data. NDHS was sponsored by USAID in collaboration with ICF, United Kingdom Department of International Development (DFID). The NDHS 2013 collect information on maternal and child health, family planning, fertility and diseases as: HIV/AIDS and malaria.

The target population for NDHS includes: children of age 0-5 and adults (men and women) of age 15-49. Information were collected from the respondents using three different questionnaires. These respondents were randomly selected across the 36 states of Nigeria and the Federal Capital Territory (FCT). The questionnaires used are the household questionnaire, women questionnaire and men questionnaire. 38,948 women were interviewed and information about their personal characteristics, socioeconomic status, antenatal care, delivery and postnatal care which are useful to this study were collected. The respondents were also asked questions about problems and challenges encountered in the use of maternal health care. Information about reproductive history, child mortality, marriage and sexual activities, family and work were also collected.

4. Presentation and Analysis of Results

Logistic regression through Stata-13 was used in data analysis. Three models were used to analyze the use of maternal health care. The indicators of maternal health care use in the study includes: antenatal care, type of assistance received during delivery and postnatal care. Each of these indicators were used as dependent variables in the models. While, the independent variables comprise of socioeconomic status measured by income, education and employment status. Control variables such as personal characteristics, duration of marriage, distance to health facilities, place of resident, attitude towards family planning and parity were included. Two models were estimated each for the three dependent variables. First models were estimated without covariates to show the effect of socioeconomic status on maternal health use and second models were estimated with covariates to control for the effect of other factors. The variables in this analysis were selected based on literatures reviewed and their significant in explaining the use maternal healthcare.

4.1. Summary Statistics of the Respondents

The summary statistics, in table1 below, shows the raw relationship between maternal healthcare use and socioeconomic status which in this study comprises of wealth, employment status and educational qualification. The table shows that among the richest indicated by the wealth index, 96% attended antenatal care during pregnancy, 80% delivered in a health facility and 94% went for postnatal care. While, among the poorest women in the data set, only 32% attended antenatal care, 1% delivered in a health facility and 46% went for postnatal care. The summary statistics also indicated that 98% of women with tertiary certificates attended antenatal, 91% gave birth in a health facility and 96% attended postnatal care. In contrast, only 43% of women with non-formal education attended antenatal, 40% gave birth in a health facility and 60% used postnatal care. In terms of employment status, greater percentage of the working-class women uses maternal care and less of the unemployed use maternal care. In summary, table1 shows strong positive relation between high maternal health use and higher socioeconomic status.

Variables	Antenatal Use	Didn't use Ant.	Deliver in Health F.	Deliver Elsewhere	Postal Natal Care	Didn't Attend Post.
Wealth index						
Richest	96	4	80	20	94	6
Richer	87	13	57	43	86	14
Middle	75	25	38	62	78	22
Poorer	53	47	18	82	61	39
Poorest	32	68	1	99	46	54
Social class						
Working	70	30	40	60	82	18
Not Working	56	44	28	72	76	24

Maternal education						
Tertiary	98	2	91	9	96	4
Sec. or Prim.	84	16	54	46	84	16
No Education	43	57	11	89	60	40
Reasons women didn't deliver at health facility						
Too costly	38	62			50	50
Not too cost	49	51			59	41
Far Distance	38	62			45	55
Distance not far	50	50			60	40
Lack of trust	59	41			61	39
Trust	48	52			58	42
Marital status						
Married	66	44	36	64	81	19
Widowed	75	35	52	58	84	16
Divorced/Sep.	71	39	37	63	82	18
Never Married	79	21	44	56	82	18
Paternal education						
Tertiary	92	8	68	32	90	10
Sec. or Prim.	79	21	48	52	83	17
No Education	39	61	10	90	59	41
	89	11	63	37	90	10
Residential area						
Urban						
Rural	54	56	23	77	71	29
Religion						
Catholic	84	16	67	33	90	10
Christians	82	18	56	44	84	16
Islam	54	56	21	79	75	25
Tradit/No Rel	45	55	21	79	7	93

Table 1: Summary statistics of the respondents

4.2. Main Estimations of Socioeconomic Status and maternal health services

The estimated models in this paper show estimation of maternal healthcare use as dependent variable and socioeconomic factors as independent variables. The socioeconomic status variables are: wealth index, educational qualification and employment status. Wealth index is subdivided into richest, richer, middle, poorer and poorest. Socioeconomic status variables are regressed against maternal healthcare services (antenatal use, place of delivery and postnatal care), the results are presented below.

4.2.1. Effect of Socioeconomic Status on Antenatal Use

Effect of Socioeconomic Determinants				
	(1)		(2)	
Wealth Index				
Richest	0.341***	(0.0063)	0.258***	(0.0282)
Richer	0.288***	(0.0069)	0.211***	(0.0193)
Middle	0.230***	(0.0074)	0.194***	(0.0153)

Poorer	0.127***	(0.0082)	0.116***	(0.0130)
Maternal education				
Tertiary	0.278***	(0.0084)	0.318***	(0.0562)
Sec. or Primary	0.221***	(0.0078)	0.182***	(0.0146)
Social class				
Working	0.063***	(0.0078)	0.063***	(0.0111)
Reasons didn't deliver in health facility				
Cost			-0.163***	(0.0168)
Distance			-0.054***	(0.0147)
Lack of trust			-0.073**	(0.0419)
Age			0.0004	(0.0007)
Marital Status				
Married			-0.040 -0.022	(0.0390) (0.0623)
Paternal education				
Tertiary			0.213***	(0.0228)
Sec. or Primary			0.156***	(0.0131)
Residential area Urban			0.146***	(0.0153)
Religion				
Catholic			0.097*	(0.0522)
Christians			0.055	(0.0479)
Islam			0.109*	(0.0454)
Child Rank			-0.025	(0.0017)
Ideal No. of Child.			0.0008***	(0.0002)
Constant	-1.099***	(0.0410)	-1.635***	(0.256)
N	19567		10752	
adj. R-sq				
Standard errors in parentheses				
=* p<0.05	** p<0.01	*** p<0.001"		

Table 2: Logistic Coefficient Estimates of the Effect of Socioeconomic Status on Antenatal Use

Table 2, presented above, shows the probit coefficient estimates of the effect of socioeconomic status on antenatal use. It also enabled us to test the robustness of our result using model1 and model2. Model1 is a regression result including only socioeconomic factors as covariates. While model2, which is our model of interest, adds all potential covariates that may affect the rate of antenatal use. Model1 shows that evaluated at sample means, change in wealth index of women from poorest to richest increases their probability of attending antenatal care by 0.34 percentage point. Model2 shows that this coefficient reduces to 0.26 percentage point after the inclusion of all the potential covariates that can affect antenatal care use. Also, from model1, change in wealth index of women from poorest to middle class increases the probability of attending antenatal by 0.23 percentage point. Model2 shows that the coefficient reduces to 0.19 percentage point. The slight reduction in the coefficients after controlling for other covariates signifies that wealth is not the only determinant of antenatal use, other factors affect antenatal use. Some of these potential factors includes: women personal characteristics, distance to health care, cost of treatment, marital status, maternal education, paternal education and religion. Model1 further shows the effect of education and employment status of women. Increase in maternal education to tertiary level will increase the probability of

attending antenatal during pregnancy by 0.28 percentage which increases to 0.32 percentage points after including the covariates in model2. Increase in maternal education to primary/secondary certificate increases the probability of attending antenatal care by 0.22 percentages and the coefficient reduces to 0.18 percentage point in model2. The coefficients on employment status of women gave similar results to wealth index and education. All the coefficients stated are positive and statistically significant. The coefficients on other important covariates includes: husband's level of education 0.21, cost of care 0.16, and distance to health facility -0.05, urban 0.15 which are also statistically significant. In summary, it implies that in addition to socioeconomic status, women are more likely to attend antenatal if: they considered cost of care not expensive, reside close to health facility, married to highly educated husband and live in urban areas. The coefficients on religion, marital status and age were not statistically significant signifying that they are less likely to affect women antenatal attendance.

4.2.2. Effect of Socioeconomic Status on the Place of Delivery

Effect of Socioeconomics Status on Facility Use for Delivery				
	(3)		(4)	
Wealth index	pldelivery		pldelivery	
Richest	0.589***	(0.0096)	0.484***	(0.0142)
Richer	0.445***	(0.0109)	0.358***	(0.0138)
Middle	0.327***	(0.0114)	0.265***	(0.0132)
Poorer	0.163***	(0.0115)	0.138***	(0.0129)
Women Educational Level				
Tertiary	0.561***	(0.0116)	0.436***	(0.0183)
Sec. or Prim.	0.269***	(0.0068)	0.156***	(0.0093)
Working Class	0.049***	(0.0066)	0.037***	(0.0075)
Age			0.002***	(0.0005)
Marrital Status				
Married			0.020	(0.0238)
Widowed			0.091*	(0.0401)
Divorced/Separated			.	.
Husband Education				
Tertiary			0.122***	(0.0142)
Sec. or Prim.			0.082***	(0.0097)
Urban			0.142***	(0.0083)
Religion				
Catholic			0.210***	(0.0387)
Christians			0.054	(0.0347)
Islam			-0.052	(0.0340)
Child Rank				(0.0012)
Ideal No. of Child.			-0.012***	
Constant	-3.103***	(0.0548)	-3.089***	(0.220)
N	31036		27453	
adj. R-sq				
Standard errors in parentheses				
=** p<0.05	** p<0.01		*** p<0.001"	

Table 3: Logistic Coefficient of Socioeconomic Status on place of delivery

In estimating the effect of socioeconomic status on the place of delivery, we started by including only socioeconomic factors as covariates (model3 as shown in table 3 above). The coefficient on the variables richest is 0.56, middle class is 0.33, tertiary certificate is 0.56, primary/secondary certificate is 0.27 and for working class is 0.05. Including other important covariates (model4) which is the preferred specification to control for the effect of socioeconomic factors slightly reduces the values of the coefficients. The variable richest reduces to 0.48 while middle class, tertiary certificate, secondary and working

class reduces to 0.27, 0.44, 0.04 and 0.04 respectively. Each of the coefficients is statistically significant at one percent level. As expected the values of the coefficients in model3 estimations are higher than the preferred model due to the fact the model3 without the necessary covariates is endogenous to the effect of those covariates. Meaning it overstated the effect of socioeconomic factors on the use of a health facility in delivery. Model4 gives the closest effect of socioeconomic status as it controls for many other determinants of giving birth in a health facility. However, both models reveal clear patterns that increase in a woman socioeconomic status increases the probability of her giving birth in a health facility. The values on the variables husband education, dwelling (Urban), religion and child rank are also statistically significant implying that they are important triggers to a woman delivery in a health facility.

4.2.3. Effect of Socioeconomic Status on Postnatal Care

Effect of Socioeconomic Status on Postnatal Care				
	(5)		(6)	
Wealth Index				
Richest	0.244***	(0.0138)	0.213***	(0.0485)
Richer	0.176***	(0.0126)	0.187***	(0.0424)
Middle	0.127***	(0.0123)	0.135***	(0.0390)
Poorer	0.055**	(0.0154)	0.070	(0.0388)
Educational Level				
Tertiary	0.134***	(0.0119)	0.256**	(0.0648)
Sec. or Prim.	0.091***	(0.0136)	0.117***	(0.0347)
Working Class	0.027*	(0.0118)	0.033	(0.0288)
Reason didn't Give Birth in Health Facility				
Cost			-0.136**	(0.0448)
Distance			-0.16***	(0.0395)
Trust			-0.015	(0.0803)
Age			0.003	(0.0019)
Marrital Status				
Married			-0.116	(0.0696)
Widowed			0.072	(0.1313)
Divorced/Separated			.	.
Husband Education				
Tertiary			-0.005	(0.0501)
Sec. or Prim.			-0.007	(0.0354)
Urban			0.104**	(0.0322)
Religion				
Catholic			0.181	(0.1238)
Christians			0.017	(0.1448)
Islam			0.028	(0.1434)
Child Rank			-0.0022	(0.0045)
Ideal No. of Child			-0.0008	(0.0005)
Constant	-0.409***	(0.118)	-0.458	(0.744)
N	5694		1690	
adj. R-sq				
Standard errors in parentheses				
=* p<0.05	**p<0.01		*** p<0.001"	

Table 4: Logistic Coefficient Estimates of the Effect of Socioeconomic Status on Maternal Use

Table 4, presented above, shows the variations in the use of postnatal care by selected socioeconomic status, women personal characteristics, community characteristics and household characteristics. We begin the estimation in a similar manner to table 2 and 3. Model5 indicates that change in a woman wealth index from poorest to richest increases her probability of attending postnatal by 0.24 percentage point which reduces to 0.21 percentage point in model6 after including other potential covariates. The coefficients on tertiary education and employment status in model5 are 0.13 and 0.03 which are 0.26 and 0.03 respectively in model6. This implies that the effects of other control variables do not affect the influence of education and employment status in determining postnatal care use. The table also reveal that women who do not give birth in a health facility due to cost (-0.14) of care and distance to health facility (-0.16) are less likely to use postnatal care services. Also, women who live in urban areas are 0.10 percentage point more likely to attend postnatal care compare to women who live in the rural areas. The coefficients on the socioeconomic status, cost of care, distance to health facility and urban are statistically significant, while the coefficients on marital status, age, husband education and religion are not statistically significant.

5. Discussion of Result

This study was motivated by the high rate of maternal mortality in Nigeria. Every single day, Nigeria losses about 2,300 under five-year olds and 145 women of child bearing age making the country the second largest contributor to under five and maternal mortality in the world (Unicef 2016). In this light, the study used the Demographic and Health Survey data which covers the entire country in contrast to some studies that used a specific region in their analysis of maternal health care utilization. Combining the analysis in table 2, 3 and 4 in respect to the three indicators of maternal health care, socioeconomic status was found to be a significant predictor of maternal health care utilization. This finding is consistent with the finding of Etukudo and Inyang 2014; Babalola and Fatusi (2009); Saeed et al (2013) those education, occupation and family incomes are significant variables for utilization of maternal health care services. Taking each of the socioeconomic variables, Babalola and fatusi (2009) emphasized that educated women acquired higher level of health awareness, greater knowledge of available health services, improved ability to afford the cost of medical care, improved ability and freedom to make health-related decisions, including choice of maternal service use. The effect of education on the three indicators of maternal health care indicated that educated women have more knowledge about the need for maternal health care utilization and the danger of neglecting such care. Knowing that under normal circumstances, the higher the qualification of an individual the higher the income earned. It will imply that need plus ability leads to effective demand, hence more educated women will ordinarily use maternal health care services more than the uneducated women. Wealth and employment are strong predictors of maternal health care use, especially in a country like Nigeria where health insurance coverage is still very inadequate and most care receive are highly dependent on out of pocket payment. It means better health care services is mostly accessible to the few rich and the majority of the poor are left to share the few, inadequate and poorly managed public hospitals. On the average therefore, the populace with high socioeconomic status will have higher use of maternal health facilities. This finding is also consistent with studies from other countries such as Saeed et al (2013) (Ghana) and Amin et al (2010) (Bangladesh).

Our study also found that women who resides in urban areas and close to health facilities are more likely to use maternal health care services compare to their counterparts residing in the rural areas with a long distance to health facilities. This portray the Nigerian situation where most of the maternal health care facilities are situated in the urban part of the country and the poor road connections to rural areas makes accessibility difficult to the rural dwellers. Cost of care and bad attitudes of health care workers especially in government hospitals have slightly contributed to poor maternal healthcare utilization. Babalola and fatusi (2009) also noted that the poor staffing and facility of maternal health care in the rural areas encourages rural women preferring traditional birth attendance to medical attendance.

The statistical values on marital status, religion and age confirmed that those variables have no relationship with maternal healthcare utilization which contradicts the findings of Etukudo and Inyang (2014). They found that age and marital status are important determinants of health care utilization. The tables also show that women who married educated husbands are more likely to use maternal health care services compared to women who married less educated or illiterate husbands. This may result from the fact that educated husband may have better knowledge of the need of maternal health care, have money to pay their wives hospital bills and probably live in the urban areas where health care facilities are situated.

6. Conclusion

This study found that the strong and consistent determinants of the three maternal healthcare utilization indicators are socioeconomic status and place of resident. Other important determinants include: cost of care, distant to health care facility and poor attitudes of health care workers. Policies to increase national health insurance coverage among low socioeconomic status and rural women should be encouraged. Policy makers should also target the revitalization of abandoned primary healthcare facilities in the rural areas. The importance of health care sensitization and increased women education cannot be overemphasized as an important predictor of maternal healthcare utilization.

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