

## Cost of Ante-natal Care among Health Insurance (HI) Enrollees and Out-of-Pocket (OOP) Payers accessing Maternal Healthcare Services in a Tertiary Health Institution in Southwest Nigeria

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### Abstract

Maternal mortality remains a leading cause of death among women of reproductive age group. This study determined the cost of antenatal care among Health Insurance (HI) enrollees and Out-of-Pocket (OOP) payers accessing maternal healthcare services in a tertiary health institution in Southwest Nigeria. A comparative cross-sectional study was carried out among 380 women (190 HI enrollees and 190 OOP payers) attending antenatal care services in a tertiary health institution in Southwest Nigeria using a systematic random sampling technique. Data was gathered using an interviewer-administered semi-structured questionnaire and analyzed using IBM SPSS version 23. Chi-square and binary logistic regression were used to assess the association between dependent and independent variables and a P-value of <0.05 was taken as significant. The overall mean age of respondents in this study was  $33.8 \pm 5.0$  years (HI Group:  $34.1 \pm 4.9$  years and OOP Group:  $33.6 \pm 5.0$  years). The mean total cost of Antenatal Care (ANC) is lesser for HI enrollees (₦5,095.2  $\pm$  1,753.1 equivalent to \$13.3  $\pm$  4.6) as compared with OOP payers (₦15,050.6  $\pm$  5,548.9 equivalent to \$39.6  $\pm$  14.6). Predictors and enablers for HI uptake are marital status, family size, level of education, occupation, appropriate and quality HI package, and trust in the HI scheme. It was concluded that the total cost of antenatal care is lower among the Health Insurance enrollees than the Out-of-Pocket payers. Therefore, interventions to increase awareness and designing more enticing HI packages are recommended.

**Keywords:** Antenatal care, Cost, Health insurance enrollees, Out-of-Pocket payers.

### Introduction

Many lives of our women are being lost in the process of “replenishing the earth” [1]. Maternal mortality is a leading cause of death among women of the reproductive age group [2]. Yearly, 529,000 women loss their lives as a result of pregnancy-related causes (pregnancy, childbirth, and puerperal period), about two third of these deaths (66.3%) occur in sub-Saharan Africa and Nigeria accounts for 10% of

this global mortality with National Maternal Mortality Ratio of 545 deaths per 100,000 live births [3, 4, 5, 6]. The provision of appropriate maternal health care remains one of the main challenges in developing countries and unarguably, the provision of quality clinical services is essential if these high rates of maternal mortality are to be reduced [7].

Maternal health is the wellbeing of women before, during pregnancy, at childbirth, and post-delivery. It entails the provision of

pregnancy-related services to women, and this includes Antenatal Care (ANC), Delivery Care, and Postnatal Care (PNC) [2]. Antenatal Care is the care given by skilled health workers to pregnant women, and this consists of routine check-ups for healthy pregnant women in order to identify signs and risks of disease and provision of timely response [4, 5]. Antenatal care also provides women and their families with appropriate information and advice for a healthy pregnancy, safe childbirth, and postnatal recovery such as care of the newborn, promotion of early and exclusive breastfeeding, and assistance with deciding on future pregnancies in order to improve pregnancy outcomes [8].

Access (which is the ability to make use of resources) to maternal healthcare is the ability of the women to obtain prenatal, antenatal, facility-based delivery, and post-natal care services. Access to maternal care services remains a major developmental challenge around the world, and in sub-Saharan Africa in particular, it has been documented that financial challenge is a barrier to accessible healthcare services for the vulnerable, particularly women [2].

The payment of cash in accessing services at health facilities (called user fees) has been identified as a key barrier to improving maternal health care [9]. Several attempts to remove the user fees have failed in many countries [9]. User fee removal has also raised sustainability concerns because, with its removal, health financing generally relies on donors or on debt relief schemes that may not be available readily [9]. Evidence has shown that there are wide differences in the use of skilled maternal care services between the rich and the poor. This is mainly attributed to economic constraints, availability and perceived quality of services, and other structural factors such as physical distance to facilities [10].

Presently, out-of-pocket expenditure represents 70% of health expenditure in Nigeria [3, 6, 11]. More than 930 million people (about

12% of the world population) spend at least 10% of their household income to pay for health care and healthcare expenditure exceeding 10% of the annual household income remaining having subsistence needs have been met is termed catastrophic [4]. Catastrophic health expenditure depletes household income and contributes to the vicious cycle of poverty and diseases [4].

Though sometimes, the most vulnerable groups in the population (pregnant women inclusive) do benefit from free health care services and exemption mechanism of Government; they, however, still largely pay out of pocket for health care services because free services and exemption mechanisms are mostly politically based, poorly implemented, not fully operational and even sometimes only last few periods of years [12]. Therefore, to protect people from the financial consequences of paying for healthcare services out of their own pockets, health insurance is still the key to reducing the risk of people, especially women, being pushed into poverty, increasing healthcare coverage, and improving equitable access to healthcare services [13].

Health insurance is an alternative approach to health financing, with the possibility of user fee removal at the point of care [9]. However, unlike in developed and high-income countries, where contributions into health insurance are often collected through payroll deductions, it is usually difficult to do so in low-income countries because a large proportion of the population is not formally employed [9]. The National Health Insurance Scheme is aimed at providing equitable access to quality health care services, financial risk protection, reduction in the cost of health care, and increasing healthcare services efficiency [12].

Nigeria was just able to legislate health insurance in 1999 but eventually lunched in 2005, and up till date, over 90% of Nigeria populations are still without health insurance coverage (NHIS covers less than 10%), and this has made the country unable to effectively

address her numerous public health challenges with associated weakness of the health system due to catastrophic health expenditure and high level of poverty due to out-of-pocket payment for health care services that are unaffordable [12, 14, 15].

The cost of maternal health interventions in general and antenatal care in particular is characterized by wide variation in results. According to a book that reviewed the cost of maternal health services using disability-adjusted life years (DALYs) and titled “What is the Cost of Maternal Health Care and how can it Be Financed?” it was documented that the costs can be up to US\$42.41 in a maternity hospital in Argentina [16]. A study done on Out-of-Pocket expenditure on prenatal and natal care in Rajasthan, India, shows the mean OOP expenditure for antenatal care was US\$26 at public health centres and US\$64 at private health centres [17, 18]. Another study estimated the mean societal cost of antenatal care (comprising provider costs, user time, and out-of-pocket expenditures) during the whole pregnancy period (four visits) to equal \$1076 in Cuba and \$194 [5].

A costing study done in three African countries documented the unit societal cost (household + health facility) of one antenatal care visit to range between \$2.2 and \$6.4 in Uganda, between \$3.2 and \$5.8 in Malawi, and between \$3 and \$5.5 in Ghana. This variation was due to the type of provider (hospital/health centre) and ownership (mission versus public) [5]. On average, women in Nigerian spent between N1, 350 - N14, 850 (USD\$9 - 99) for a total package of maternal health services [3]. The average amount spent on ANC is USD 12.4 in a study done in a rural community of Kaduna State, Nigeria [4]. Cost of Antenatal care in Nigeria ranges ₦25,000 to ₦35,000 (\$55 to \$77) [19].

This research aimed at determining the cost of ante-natal care among Health Insurance (HI) enrollees and Out-of-Pocket (OOP) payers accessing maternal healthcare services in a

tertiary health institution in Southwest Nigeria. It also aimed to determine factors associated with the uptake of health insurance among the respondents.

## **Methodology**

This survey is a comparative cross-sectional study carried out among 380 women (190 HI enrollees and 190 OOP payers) accessing antenatal care services in a tertiary health institution in Ekiti State Southwest Nigeria. Ekiti State, which is one of the thirty-six states in Nigeria, is located in the southwestern part of the country. The State was carved out of the old Ondo State in October 1996 with the headquarters located in Ado-Ekiti. It has three senatorial districts (Ekiti Central, Ekiti South, and Ekiti North senatorial districts. Ekiti Central and Ekiti North) divided into sixteen (16) Local Government Areas (LGAs). Ekiti State has an estimated total population of 2,384,212 (National Population Commission figures of 2006) with a 2021 projection of 3,816,784 based on an annual growth rate of 3.2% [20]. Federal Teaching Hospital Ido-Ekiti is a Federal Government of Nigeria-owned Tertiary health Institution located in Ekiti State, South West region of Nigeria. The hospital was established in 1954 as a General Hospital but was changed to Federal Medical Centre Ido-Ekiti in the year 1988 and later to a Teaching Hospital by 2014. The hospital offers undergraduate and postgraduate medical training. It serves as a referral center for all other health institutions such as general hospitals, specialist centres, and comprehensive health centres in Ekiti state [21].

The study populations were women accessing antenatal care services at Federal Teaching Hospital, Ido-Ekiti, and respondents were selected using a systematic random sampling technique. Data was gathered using an interviewer-administered semi-structured questionnaire between October 2020 and February 2021. The content of the questionnaire was adapted from World Bank Living Standard

Measurement Survey [22, 23]. The questionnaire has three sections that assessed the socio-demographic characteristics, cost of antenatal care, source of information on health insurance, and factors affecting health insurance uptake. This instrument was assessed by public health experts and epidemiologists from Federal Teaching Hospital, Ido-Ekiti. It was tested for internal validity using a reliability test, and Cronbach's alpha coefficient of 0.81 was gotten.

Data collected were analyzed using IBM SPSS version 23. Cost of care was the dependent variable, and this was obtained in Naira and also converted to US Dollar equivalent using the Central Bank of Nigeria foreign exchange rate of ₦380 to \$1 as at April 2021. This was done to enable comparability with studies outside the country. Frequency, percentages, mean and standard deviation were presented in tables at the univariate level of analysis. Chi-square and binary logistic regression were used to assess the association between dependent and independent variables at bivariate and multivariate levels of analysis, respectively. P-value <0.05 was taken as significant.

Ethical approval was sought and obtained from the Human Ethics and Research Committee of Federal Teaching Hospital, Ido-Ekiti, Ekiti State, Nigeria. Participation was anonymous and voluntary. Informed consent was taken by ticking a yes/no question.

## Results

### Socio-demographic Characteristics

A total of 373 respondents participated in the study. Table 1 shows the socio-demographic characteristics of the respondents. The overall mean age of the respondents accessing Antenatal care services is  $33.8 \pm 5.0$ . The mean age of the HI group ( $34.1 \pm 4.9$ ) is slightly higher than the OOP group  $33.6 \pm 5.0$ , but this is not statistically significant ( $p = 0.324$ ). About 10% of respondents in the OOP group are unmarried pregnant mothers, as against 2.1%

among the HI group. This difference is statistically significant ( $p = 0.002$ ). Also, about two fifths of the HI enrollees accessing ANC have a family size of five and above as against three quarters among the OOP payers with a statistically difference of  $p < 0.001$ . A majority (three quarters) of the HI enrollees accessing ANC services have tertiary education as against about one-third among the OOP payers, and this difference was statistically significant at  $p < 0.001$ . More than half of the respondents accessing ANC services are civil servants in the HI group, but among the OOP group, close to half of the respondents were traders. This difference in occupation across the two groups was statistically significant at  $p < 0.001$ .

### Cost of Antenatal Care

The mean total cost of Antenatal Care (ANC) is lesser for HI enrollees ( $₦5,095.2 \pm 1,753.1$  equivalent to  $\$13.3 \pm 4.6$ ) as compared with OOP payers ( $₦15,050.6 \pm 5,548.9$  equivalent to  $\$39.6 \pm 14.6$ ). This difference is statistically significant. However, this difference in cost is majorly due to the difference in the direct cost of ANC services between the two groups {HI- $₦1,132.8 \pm 1052.7$  ( $\$3.0 \pm 2.8$ ) vs. OOP -  $₦11,178.2 \pm 5241.0$  ( $\$29.4 \pm 13.8$ )}, as the indirect cost is almost similar { $₦3962.4 \pm 1464.3$  ( $\$10.4 \pm 3.9$ ) vs.  $₦3872.4 \pm 1620.7$  ( $\$10.2 \pm 4.3$ )}.

### Source of Information on Health Insurance

Sources of information with difference exhibiting statistically significant between HI and OOP group are such from family (66.9% for HI as against 38.9% for OOP and  $p < 0.001$ ), insurance company (29.8% for HI as against 5.1% for OOP and  $p < 0.001$ ), radio (8.1% for HI as against 3.2% for OOP and  $p = 0.004$ ), television (12.9% for HI as against 3.8% for OOP and  $p < 0.001$ ) and newspaper (47.3% for HI as against 54.6% for OOP and  $p = 0.047$ ).

## Predictors of Health Insurance Uptake

Married mothers are 5.2 times more likely to take up health insurance than unmarried mothers ( $p= 0.026$ ; CI 1.729 -36.995), those with a family size of  $< 5$  are 2.9 times more likely to take up health insurance than those with a family size of 5 and above ( $p= 0.006$ ; CI 1.358 - 6.360). Also, those with tertiary education are 1.8 times likely to take up health insurance than those with primary education ( $p= 0.048$ ; CI 1.056 – 3.103), and civil servants are 3.4times more likely to take up HI services than the unemployed ( $p= 0.047$ ; CI 1.282 – 40.569). Also, those who the health insurance package fits their households are about 24 times more likely to take up insurance than those who think otherwise ( $p= <0.001$ ; CI 10.206 – 50.998), and those who have trust in the HI organization management are 20 times more likely to take up the skin than those with distrust ( $p= <0.001$ ; CI 7.361– 59.039). However, thinking health insurance is for those who fall sick (AOR 0.143,  $p = 0.026$  and CI 0.026-0.789) and those who think health insurance is only for those who cannot afford healthcare payment (AOR 0.263,  $p = 0.041$  and CI 0.069 - 0.974) are less likely to take up health insurance package than those who think otherwise.

## Discussion

The overall mean age of respondents in this study is  $33.8 \pm 5.0$  years. However, though the mean age of the Health Insurance (HI) group ( $34.1 \pm 4.9$  years) is slightly higher than the Out-of-Pocket (OOP) group ( $33.6 \pm 5.0$  years), there is no statistically significant in difference. The mean age of respondents as found in this study is within the normal age range of women of reproductive age group (18 – 49 years), which is expected in a study to access the cost of maternal healthcare services. However, this study finding is higher than as reported in a Vietnam study, where mean ages of 27.2 years and 27.0years were documented for Health

Insurance and Out-of-Pocket clients, respectively, in a related study done in Vietnam [24]. It is also higher than in a study on the influence of Health Insurance on utilization of maternal healthcare services in Kunda Health District, where the mean age of  $29.16 \pm 6.25$  years was reported [9]. This difference might be due to cultural differences on the age of marriage and childbirth. Though the high mean age of women accessing maternal healthcare services in this study is good as matured mothers tend to have a better understanding, education, and maternal outcome, it may also not be too good as teratology increases with increase maternal age.

The high majority of respondents in this study are married; 98.9% for Health Insurance enrollees and 93.2% for Out-of-Pocket Payers. This difference might be because married women may have a better opportunity to their husband HI facility and improve access to maternal care. The findings in this study are similar to findings documented in Northern Nigeria, Ghana, and Rwanda, where 91.7%, 91%, and 96.3% respectively were documented as a married proportion of women accessing one form of maternal healthcare services or the other [3, 25, 26]. However, it is higher, as reported in some other studies done in Southwest Nigeria and Tanzania, where 78.6% and 82.5% of the women were married [1, 27].

More than half of the respondents in the HI group of this study have a family size of less than five as against just about one quarter in the OOP group. This difference is statistically significant and may be due to better exposure and knowledge among the HI enrollee on the benefit of smaller family size and insurance in relation to health. Lower family size helps reduces the risk associated with childbirth. This finding is similar to the 47.06% to 53.96% reported in a study done on perceived and the real cost of ANC seeking and their implication for women's access to IPT of Malaria in pregnancy [27].

The mean total cost of Antenatal Care (ANC) is lesser for HI enrollees (₦5,095.2 ± 1,753.1 equivalent to \$13.3 ± 4.6) as compared with OOP payers (₦15,050.6 ± 5,548.9 equivalent to \$39.6 ± 14.6). However, this difference in cost is majorly due to the difference in direct cost of ANC services between the two groups {HI: ₦1,132.8 ± 1052.7 (\$3.0 ± 2.8) vs OOP - ₦11,178.2 ± 5241.0 (\$29.4 ± 13.8)}, as the indirect cost are almost similar {₦3962.4 ± 1464.3 (\$10.4 ± 3.9) vs ₦3872.4 ± 1620.7 (\$10.2 ± 4.3)}. This difference might be due to the fact that the HI enrollees pay only a small percentage of their direct healthcare cost (co-insurance) during the period of their active enrolment. The findings in this study for both groups (\$13.3 vs. \$39.6) are within the range documented by in a study to access cost and pattern of financing maternal healthcare services in rural communities of Northern Nigeria (\$9 - \$99) [3]. The finding for the OOP is also similar to the finding in Rwanda, where the cost of ANC is documented as \$44 [5]. The OOP cost of ANC in this study is lower than the OOP cost of ANC in India, where the cost of \$56 was documented [18]. However, this study finding, especially for the OOP cost of ANC, is higher than the cost in Northern Ghana (\$8.6) and rural Bangladesh (\$2.66) [15, 28]. These differences might be due to Government subsidy and support for maternal care in one form or the other.

This study found that marital status (being married: AOR = 5.2), family size (size of <5: AOR= 2.8), education (tertiary education: AOR = 1.8), occupation (civil service: AOR = 3.4),

appropriate and quality health insurance package (AOR = 24.7) and trust in the HI scheme (AOR = 20.8) are predictors and enablers for uptake of Health Insurance among the respondents. This is similar to findings in studies conducted among low – middle-income countries and Ghana where factors such as education, family size, household income, knowledge, quality of service, and trust in the scheme were documented as enablers for uptake of Health Insurance [29, 30, 31]. It is also similar to findings in studies done to determine factors affecting uptake of CBHI in low- and middle-income countries, to determine same in Addis Ababa and among respondents in the formal sector of Kenya where income level, level of education, quality of healthcare, appropriate package, trust in the scheme and household size were documented predictor for uptake. However, while this study documented smaller household size as a predictor for uptake, Adebayo et al. and Nigussie's studies documented large household size on the contrary [32, 33, 34].

This study also found that lack of adequate information by believing Health Insurance is for those who fall sick frequently and those who cannot afford healthcare payment are factors serving as a barrier to uptake. This is, however, different to barriers documented in a study on challenges of NHIS in Nigeria where poor support to HI, lack of regulatory framework, inadequate financial support, and unrealistic enrolment requirements were documented [35].

**Table 1.** Socio-demographic Characteristics of Respondents accessing Antenatal Care Services (Compared between the HI enrollees and OOP payers)

Variable	Health Insurance Enrollee- n (188)	Out-of-Pocket Payer- n (185)	Total N = 373	$\chi^2$	P-value
	(%)	(%)	N (%)		
<b>Age group (in years)</b>					
15 – 24	2 (1.1)	10 (5.4)	12 (3.2)	6.626	<b>0.036</b>
25 – 34	102 (54.3)	105 (56.8)	207 (55.5)		
35 and above	84 (44.6)	70 (37.8)	154 (41.3)		
Mean age $\pm$ SD	34.1 $\pm$ 4.9	33.6 $\pm$ 5.0	33.8 $\pm$ 5.0	0.988 <sup>t</sup>	0.324
<b>Marital Status</b>					
Married	184 (97.9)	167 (90.3)	351 (94.1)	9.709	<b>0.002</b>
Not married	4 (2.1)	18 (9.7)	22 (5.9)		
<b>Family type (n = 351)</b>					
Monogamy	167 (90.8)	115 (68.9)	282 (80.3)	26.581	<b>&lt;0.001</b>
Polygamy	17 (9.2)	52 (31.1)	69 (19.7)		
<b>Family size</b>					
< 5	116 (61.7)	52 (28.1)	168 (45.0)	42.511	<b>&lt;0.001</b>
$\geq$ 5	72 (38.3)	133 (71.9)	205 (55.0)		
<b>Religion</b>					
Christianity	153 (81.4)	94 (50.8)	247 (66.2)	38.960	<b>&lt;0.001</b>
Islam	35 (18.6)	91 (49.2)	126 (33.8)		
<b>Ethnicity</b>					
Yoruba	181 (96.3)	146 (78.9)	327 (87.7)	25.985	<b>&lt;0.001</b>
Others	7 (3.7)	39 (21.1)	46 (12.3)		
<b>Locality of residence</b>					
Rural	71 (37.8)	91 (49.2)	162 (43.4)	4.976	0.083
Semi-urban	61 (32.4)	48 (25.9)	109 (29.2)		
Urban	56 (29.8)	46 (24.9)	102 (27.3)		
<b>Highest educational level</b>					
Primary	0 (0.0)	28 (15.1)	28 (7.5)	80.809	<b>&lt;0.001</b>
Secondary	40 (21.3)	92 (49.8)	132 (35.4)		
Tertiary	148 (78.7)	65 (35.1)	213 (57.1)		
<b>Main occupation</b>					
Trader	48 (25.5)	89 (48.1)	137 (36.7)	68.230	<b>&lt;0.001</b>
Farmer	0 (0.0)	16 (8.6)	16 (4.3)		
Artisan/ technician	2 (1.1)	4 (2.2)	6 (1.6)		
Civil servant	108 (57.4)	35 (18.9)	143 (38.3)		
Professional	16 (8.5)	19 (10.3)	35 (9.4)		
Student	6 (3.2)	9 (4.9)	15 (4.0)		
Unemployed	8 (4.3)	13 (7.0)	21 (5.6)		
<b>Monthly income (Naira)</b>					
< 30,000	56 (29.8)	56 (30.3)	112 (30.0)	0.010	0.919
$\geq$ 30,000	132 (70.2)	129 (69.7)	261 (70.0)		
Median income (IQR)	80000 (85500)	70000 (62000)	80000 (70000)	16915.000*	0.647

\*Mann-Whitney U test

**Table 2.** The Costs of Antenatal Care among Respondents (Compared among Health Insurance Enrollees and Out-of-Pocket Payers)

Variable	Health Insurance Enrollee	Out-of-Pocket Payers	t test	P-value
	n = 188	n = 185		
	Mean ± SD	Mean ± SD		
<b>Antenatal Care</b>				
Direct cost	₦1132.8 ± 1052.7	₦11178.2 ± 5241.0	-25.758	<0.001
	(\$3.0 ± 2.8)*	(\$29.4 ± 13.8)*		
Indirect cost	₦3962.4 ± 1464.3	₦3872.4 ± 1620.7	0.563	0.574
	(\$10.4 ± 3.9)*	(\$10.2 ± 4.3)*		
Total cost	₦5095.2 ± 1753.1	₦15050.6 ± 5548.9	-23.440	<0.001
	(\$13.3 ± 4.6)*	(\$39.6 ± 14.6)*		

\* = Calculated US Dollar equivalent of the Nigeria Cost Value using the Central Bank of Nigeria exchange rate of ₦380 per dollar as at 23/04/2021.

**Table 3.** Respondents' source(s) of information about Health Insurance Scheme (Compared among Health Insurance Enrollees and Out-of-Pocket Payers)

Variable	Health Insurance Enrollee	Out-of-Pocket Payer	Total	$\chi^2$	P-value
	n (%)	n (%)	N (%)		
	N = 658*	N = 550*	N = 1208		
Healthcare practitioner	164 (89.9)	160 (86.5)	324 (87.2)	0.334	0.564
Friends	125 (66.9)	72 (38.9)	197 (53.0)	58.447	<0.001
Insurance	55 (29.8)	10 (5.1)	65 (17.5)	78.338	<0.001
Radio	15 (8.1)	6 (3.2)	21 (5.7)	8.075	0.004
Television	24 (12.9)	7 (3.8)	31 (8.4)	20.146	<0.001
Internet	96 (51.6)	104 (56.5)	200 (54.0)	1.774	0.183
Newspaper	88 (47.3)	101 (54.6)	189 (50.9)	3.937	0.047
Book & medical journals	91 (49.2)	90 (48.4)	181 (48.8)	0.049	0.824

\*Multiple responses

**Table 4a.** Multivariate binary logistic regression for the socio-demographic and economic predictors of health insurance uptake among Health Insurance Enrollees Respondents

Variable	AOR	95% CI	P-value
<b>Marital Status</b>			
Married	5.192	1.729 – 36.995	0.026
Not married (ref)	1.000		
<b>Family size</b>			
< 5	2.939	1.358 – 6.360	0.006
≥ 5 (ref)	1.000		
<b>Religion</b>			
Christianity	1.717	0.666 – 4.429	0.264
Islam (ref)	1.000		
<b>Ethnicity</b>			



Yoruba	1.932	0.741 – 6.885	0.277
Others (ref)	1.000		
<b>Highest educational level</b>			
Primary (ref)	1.000		
Secondary	0.258	0.039 – 1.690	0.158
Tertiary	1.816	1.056 – 3.103	<b>0.048</b>
<b>Main occupation</b>			
Trader	0.438	0.071 - 2.711	0.375
Farmer	2.568	0.193 – 45.600	0.436
Artisan/ technician	0.313	0.047 – 2.068	0.228
Civil servant	3.383	1.282 – 40.569	<b>0.047</b>
Professional	1.563	0.660 – 3.703	0.295
Student	0.787	0.252 – 2.459	0.228
Unemployed(ref)	1.000		
<b>Monthly income (in Naira)</b>			
< 30,000	0.780	0.142 – 1.597	0.310
≥ 30,000 (ref)	1.000		
<b>Health Insurance provides financial risk protection</b>			
Yes	0.542	0.160 – 1.832	0.324
No	1.000		
<b>Health Insurance helps improve the quality of healthcare services</b>			
Yes	0.837	0.265 – 2.645	0.762
No	1.000		

AOR – Adjusted Odd Ratio, 95%CI – 95% Confidence Interval, ref – Reference Category

**Table 4b.** Multivariate binary logistic regression for other predictors of health insurance uptake among Health Insurance Enrollees Respondents

Variable	AOR	95% CI	P
<b>Health Insurance has benefit above paying out-of-pocket</b>			
Yes	1.751	1.422 – 7.271	0.041
No	1.000		
<b>Only those who fall sick should consider enrolment into Health Insurance</b>			
Yes	0.143	0.026 – 0.789	<b>0.026</b>
No	1.000		
<b>Only the poor who cannot afford to pay for healthcare need to join the schemes</b>			
Yes	0.263	0.069 – 0.974	<b>0.041</b>
No	1.000		
<b>I think that the Health Insurance benefit package meets the requirements of my household</b>			
Yes	24.745	10.206 – 50.998	<b>&lt;0.001</b>
No	1.000		
<b>I think that CBHI management is trust worthy</b>			
Yes	20.846	7.361 – 59.039	<b>&lt;0.001</b>
No	1.000		
<b>Health rating of me and my family</b>			

Good	1.857	0.171 – 20.190	0.611
Fair	0.854	0.074 – 9.749	0.854
Poor	1.000		

AOR – Adjusted Odd Ratio, 95%CI – 95% Confidence Interval ref – Reference Category

## Conclusion

The cost of antenatal care is significantly low and lesser among the Health Insurance enrollees than the Out-of-Pocket payers. The difference in the cost was majorly in the direct cost of medical care, which health insurance aims to achieve. This study also found out that marital status (being married), family size (size of <5), education (tertiary education), occupation (civil service), appropriate and quality health insurance package, and trust in the HI scheme are enabling factors for the

uptake of health insurance while inappropriate information by believing health insurance is for those who fall sick frequently and those who cannot afford healthcare payment alone are barrier factors. Therefore, interventions to increase awareness among the public, eliminate myths and misconceptions on health insurance, and designing of more enticing HI packages by HMOs are recommended to increase uptake.

## Competing Interest

The authors declare no competing or conflict of interest.

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