GLOBAL RESEARCH JOURNAL OF PUBLIC HEALTH AND EPIDEMIOLOGY
ISSN: 2368-7920

Abbreviated Key Title: Glob. Res. J. Publ. Health Epidemiol.
ISSN: 2360-7920 (Online) & Open Access.
Vol. 13 (6): Pp. 30-38, June, 2025. Doi.grjphe/10.54978

Medical Research Paper

Households' Socio-Demographic Factors and Health Insurance Uptake among Women of Reproductive Age in Nigeria

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Abstract

This study examined the impact of households' socio-demographic factors on health insurance uptake among women of reproductive age in Nigeria. It utilized datasets from telephone interviews in ten states (Kaduna, Kano, Sokoto, Nasarawa, Yobe, Bauchi, Borno, Gombe, Niger, and Lagos). Among the major findings are that age, education, frequency of watching TV, choice of health facility, and respondents' place of residence had a significant positive effect on women of childbearing age enrolment in health insurance in Nigeria. Specifically, women in the higher educational cadre are 834 times more likely to enrol or renew their health insurance subscriptions than those in the lower educational cadre, and likewise, those who live in urban communities are 108 times more likely to uptake a health insurance policy compared to women in rural areas. These results suggest that policy-makers should re-intensify efforts for universal and sustainable healthcare coverage in Nigeria's urban and rural communities.

Keywords: Health Insurance Coverage, Households, Women of Child-bearing age, NOIPolls, Socio-Demographic Factors, Telephone Polling Methodology..

Accepted 24th June, 2025**.** Published 9th July, 2025

I. INTRODUCTION

Health insurance coverage in a developing country like Nigeria is recognised as a powerful tool for achieving Universal Health Coverage (UHC) for health services among women of childbearing age (World Health Organisation [WHO], 2023). Despite the interventions and health policy reforms (such as the National Health Insurance Act [NHIA] and other domesticated health insurance coverage at the state level to provide affordable health services to pregnant women and the vulnerable population) in the Nigerian health sector to scale up health insurance coverage, especially in the informal sector, the continuous enrolment into health insurance and utilisation of healthcare among women of reproductive age in Nigeria has remained low compared to the global standard. For instance, the WHO recommended a 75% enrolment rate of health insurance for women of reproductive age in developing countries. The Nigeria Demographic and Health Survey report (2023) reported that about 3% and 1% of women of childbearing age in urban and rural areas of Nigeria had health insurance in 2008, while 2% and 1% enrolled in 2013 and 4% and 1% enrolled in 2018, whereas health insurance uptake in urban and rural areas in 2023 stood at 6% and 3%.

In addition, as reported by the National Population Commission (NPC) & WHO (2023), only three percent (3%) of women aged 15-49 had health insurance in Nigeria as compared to men (56.7%). The implication, therefore, is that more women are engaged in out-of-pocket health expenses to pay for their medical bills. Nigeria is ranked the third country with the highest

(76.6%) out-of-pocket spending in the 2023 global health ranking (WHO, 2024).

However, the plights of women are worsened by the current economic fluctuations associated with loss of jobs and increased prices of goods and services, which affected all sectors of the economy, including the health sector. As payment for health costs is mainly through out-of-pocket expenses, this has placed women in a disadvantageous position because they need more medical care services than men, especially within their reproductive ages. Studies have shown that women have higher healthcare utilisation rates, as demonstrated by significantly higher hospitalisation rates and outpatient encounters (United Nations, 2023 & NPC, 2024).

Women of childbearing age, unlike men, are subject to a triple burden of disease, namely, non-communicable and communicable diseases and reproductive health-related diseases (USAID 2023, NPC, 2024). Women within the reproductive age, that is, the years between puberty and menopause, which is acknowledged as a time of health risks specifically associated with sex and reproduction, are exposed to health issues that may result in a significant burden of mortality and disability. This period is equally associated with high mortality and disability associated with HIV/AIDS and maternal conditions. Women are equally exposed to health problems related to pregnancy, childbearing, contraception, cancer, maternal conditions, and sexually transmitted infections (WHO, 2024). Therefore, the burden of these high health costs poses a challenge to women and may affect their healthcare utilisation.

Equally, women fall under the poor category in society, especially in developing countries like Nigeria. Poverty is very common and more prevalent among women with great implications without some fundamental rights to getting better jobs, medical services, a clean environment, and access to good drinking water (USAID, 2024 & UNICEF, 2023). The National Population Commission (2024) and the National Bureau of Statistics (2023) reported that the poverty scourge in Sub-Saharan Africa gives way to lack of knowledge, hunger and malnutrition, sicknesses, inability to access credit facilities, short life span, and hopelessness among women of childbearing age.

Consequently, women of childbearing age in developing countries face the challenges of poverty whereby they are unable to afford necessities of life, health services, good drinking water, food, and nutrition, as well as good and affordable housing (WHO, 2022). Women are less shortened by ownership, economic independence, and social integration than men (United Nations, 2024). This is also worsened by a high likelihood of widowhood and dependent living arrangements. Also, lower proportions of women than men have their cash income from labour as a result of the unequal division of paid and unpaid work. All these factors negatively influence health status and healthcare utilisation among older women, including lower rates of hospitalisation and outpatient encounters (USAID, 2023; UNICEF, 2024).

Several factors have been identified to influence women's enrolment in health insurance in Nigeria. The Nigeria Demographic and Health Survey of 2018 reported that 51.6% of women aged 15-49 indicated that they have serious problems accessing health care for themselves when they are sick and attributed it to their inability to get money for medical payments (WHO, 2024). The Nigeria Demographic Health Survey also reported that the percentage of women with more than a secondary education who have employer-based insurance increased from zero percent in 2008 to eleven percent (11.0%) in 2018, while urban women are four percent (4.0%) more likely than rural women to have employer-based insurance coverage. In the same vein, eleven percent (11.0%) of women with more than a secondary school education had employer-based insurance. Women (7%) and men (8%) in the highest wealth quartile are most likely to have employer-based insurance (UNICEF, 2023 & USAID, 2024).

Many studies have been conducted on the determinants of health insurance coverage in Africa (Bolarinwa, Babalola, Adebayo, & Ajayi, 2022; Adeolu & Johnson, 2019; Nnamuchi, Odinkonigbo, Obuka, & Agu, 2019; Adebola, 2020; Ipinnimo, Durowade, Afolayan, Ajayi, Akande, 2022; Esan, Adeomi, & Afolabi, 2023). Results from these previous studies revealed that factors such as age, education, place of residence, region of residence, marital status, ethnicity, employment status, religion, ethnicity, household wealth quintile, gender, household size, and exposure to media were predictors of health insurance enrolment. However, there is limited evidence on the predictors of health insurance coverage among women of reproductive age in Nigeria using a nationally representative household survey and telephone polling methodology as it is being adopted in this research. Evidence suggests that gender plays an important role in health insurance enrolment in Nigeria. Women face different health risks and difficulties in accessing healthcare services (UNICEF, 2023). They also bear a greater burden of disease and have limited access to resources (WHO, 2023).

However, there is substantial empirical evidence from the literature that has explored the nexus between households' socio-demographic factors and health insurance coverage, but only a few of these studies have focused on health insurance enrolment among women of reproductive age. Hence, this research utilised a generalised logit regression model to establish the exact nature of the relationship between households' socio-demographic factors, such as paternal and maternal levels of education, age group, respondents' place of residence, choice of health facility, frequency of watching television, and enrolment of health insurance among women of reproductive age in Nigeria. Understanding these factors can help policymakers develop health

policies that will scale up the health insurance enrolment rate among women of reproductive age in Nigeria.

Access to affordable health insurance remains out of reach for most women of reproductive age without formal employment in Nigeria (USAID, 2024). The International Labour Organisation (ILO, 2024) revealed that a higher percentage of women are in informal employment than men. It is against this backdrop that this study explores the factors associated with enrolment in health insurance among women of reproductive age in Nigeria to inform policy decision-making towards addressing the problem of low enrolment in health insurance. This study contributes to domestic and international literature and a better understanding of the correlates of enrolment in health insurance among women of reproductive age in Nigeria. Thus, the goal of this study is to identify households' socio-demographic characteristics that will explain the health insurance enrolment rate among women of reproductive age in Nigeria.

Hence the literature review is the following this section, followed by the research methodology. The empirical findings and discussion of the findings are present in the next section, followed by the conclusion and suggestions for the formulation of policies.

Health insurance enrolment, whether public with the federal or state governments or privately owned in the form of HMOs, protects individuals from the danger of incurring medical bills. We can also state that it is a method of paying for health care that protects an individual from having to pay the actual or complete cost of medical services when this deteriorates due to illness or injury (Federal Ministry of Health [FMH], 2022). The National Health Insurance scheme, which is an offshoot of Nigeria's health policies, is geared towards the provision of a more affordable and efficient healthcare system in the country. National and state health insurance, as well as Health Maintenance Organisation (HMO) coverage, was introduced in Nigeria in the year 2005. The act of parliament that came into force in October 2014 envisages a healthcare system that will cover all strata of society in both urban and rural communities (UNICEF & WHO, 2023). However, the coverage is limited to public and large private organisations. The enrolment into the health insurance scheme in Nigeria is still voluntary; however, in Ghana, it is mandatory and has more efficient coverage (Odeyemi & Nixon, 2013). It mandates employers of labour of both public and private organisations with up to ten employees to be a part of the scheme. The scheme demands a complimentary payment of ten percent (10.0%) of the employee's monthly salary and five percent (5.0%) from the employer. This scheme does not provide coverage for all Nigerians, especially the self-employed, the unemployed, and other employees of small companies that have less than ten employees (FMH, 2022 & WHO, 2023). In Nigeria, health insurance can be obtained from private organisations or government agencies. The rapidly growing empirical literature across domestic and international countries on National Health Insurance Scheme enrolment across households looked at several issues. For example, the empirical literature indicates a relationship between households socio-demographic profiles, health insurance uptake, and service utilisation (Badu, Agyei-Baffour, Acheampong, Opoku, & Addai-Donkor, 2018); health insurance and healthcare service utilisation among households (Adesina, Ayorinde, Oladele, Olufadewa, Oyewole, & Ogundele, 2022); and National Health Insurance Scheme Services and Patient Satisfaction (Osarobo & Ayo, 2022). Other strands of the literature looked at the nexus between health insurance coverage and modern contraceptive use and its successes, National Health Insurance Scheme (NHIS) accessibility and utilisation in Nigeria (Bolarinwa, Babalola, Adebayo, & Ajayi, 2022; Adeolu & Johnson, 2019; Nnamuchi, Odinkonigbo, Obuka, & Agu, 2019; Adebola, 2020; Ipinnimo, Durowade, Afolayan, Ajayi, Akande, 2022; Esan, Adeomi, & Afolabi, 2023). To the best of our knowledge, previous studies have given little attention to the empirical relationship between national, state, and private health insurance coverage among women of childbearing age and household socio-demographic factors in Nigeria.

Consequently, large chunks of the previous studies focused on National Health Insurance Scheme (NHIS) enrolment, which covers only employees working with the federal government without giving preference to state and private sector employees or women of reproductive age despite the increasing rates of maternal morbidity and mortality in Nigeria. Therefore, the nature of the analysis in this research was ignored in the previous studies. In this regard, our study employed descriptive and inferential statistics to explore the direction of the relationship between households' socio-demographic factors and health insurance enrolment rate at the federal, state, and private sector spectrum among women of childbearing age in Nigeria.

2. METHODOLOGY

This research adopted a quantitative research approach to analyse the effect of households' socio-demographic factors on the enrolment of health insurance at the federal, state, and private sector spectrum among women of reproductive age in Nigeria. The research used a recent dataset collected through telephone interviews to test the validity of the study hypothesis.

2.1 Theoretical Framework

The theoretical framework for the study is anchored in Andersen's behavioural model of healthcare service utilisation. The model acts on the assumption that health insurance enrolment among women of reproductive age at the federal, state, and private sector levels is influenced by three key factors, namely, predisposing factors, enabling factors, and the need for care factors, as depicted in Figure 3.1

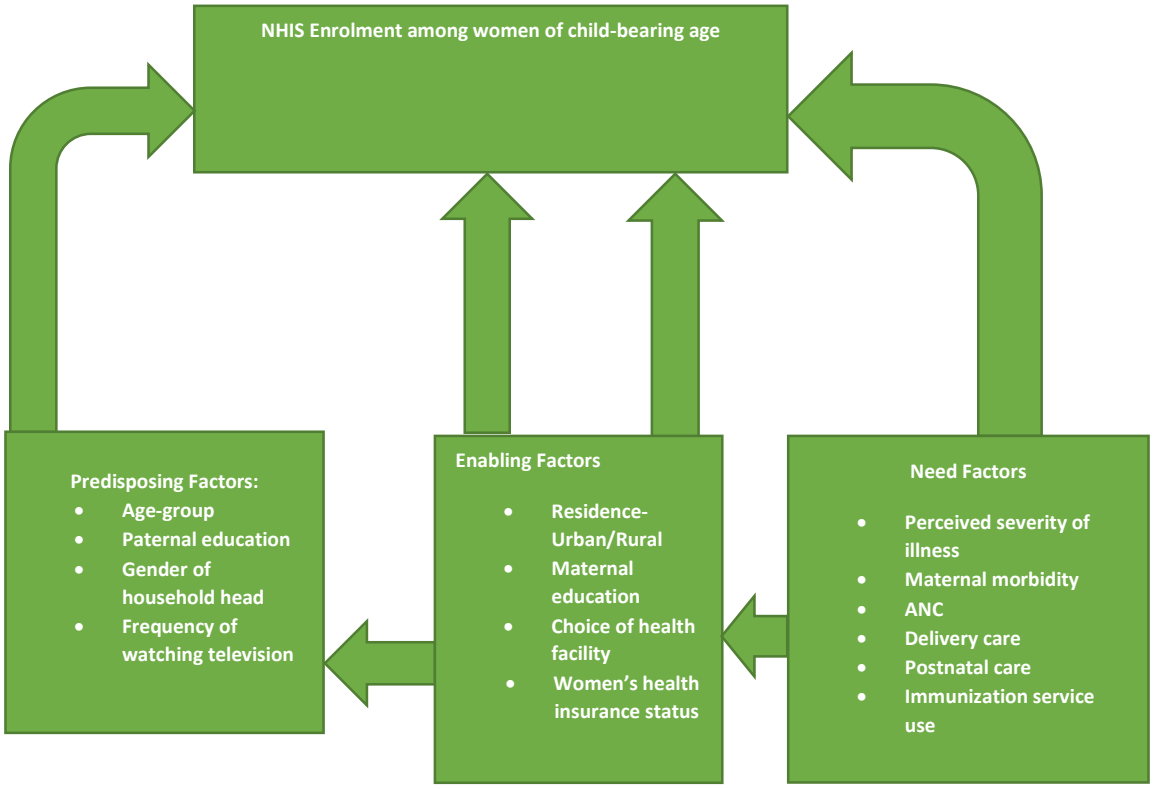

Figure 1: Various Household Socio-Demographic Factors

Source: Adapted from Osarobo & Ayo (2022)

Figure 1 explains the various household socio-demographic factors influencing health insurance coverage among women of reproductive age in Nigeria.

Anderson's behavioural healthcare utilisation model was proposed in 1968. It suggestspredisposing factors. These factors are age, level of education, gender of household head, and enabling factors such as residence (urban/rural), maternal level of education, and choice of the health facility, as well as the need factors that include maternal morbidity, perceived severity of illness, and the need to attend ANC, delivery service, and postnatal and immunisation services, which influence women's health insurance coverage.

According to Osarobo and Ayo (2022) and Adesina et al. (2022), the need for health insurance coverage becomes vital because women's bodies undergo a complete hormone cycle each month or year as they age due to birth parity and other reproductive health issues. There are numerous advantages associated with access to insurance policies. These include access to timely and quality healthcare services, protection against unexpected medical expenses, peace of mind, and incentives for maintaining a healthy lifestyle (Adebola, 2020; Ipinnimo et al., 2022; Esan et al., 2023).

2.2 Data Collection Method

The datasets used for the empirical section of this study are collected through telephone interviews. The innovative mobile telephone data collection methodology yields a large sample size in a relatively short period compared to other survey methods (Ampeh et al., 2018 & Amaral et al., 2022). Therefore, high mobile telephone penetration rates in developing countries, Nigeria inclusive, provide new opportunities for alternative sampling and data collection methods (Global Digital Insight, 2022).

However, for this research, a fairly representative random sample of 5 288 participants was primarily selected via random-digit dialling national telephone methodology and supplemented with in-person interviewing in areas with less than 80% mobile phone ownership, such as the rural areas of the sampled states. The stratification of the survey sample size and post-stratification weights applied to this survey helps reduce non-response bias and improve statistical precision. This study addressed non-response bias by estimating call outcomes and response rates in accordance with the American Association of Public Opinion Research guidelines for telephone interviews (2022).

According to Gallup (2022) and World Development Indicators (2023) reports, a good response rate for telephone interviews hovers around 5% to 30% and above. Therefore, the response rate for this research was estimated at 35.3% for the ten states under review with a 95% confidence level and a +-5% margin of error. This is in line with the response rates generated in the studies conducted in Guinea Conakry, Ghana, and Sudan by Ampeh et al. (2018) and Romero et al. (2022) using telephone interviews. Response rates in telephone interviews are comparatively the same as with other data collection methodologies (Amaral, Dinarte-Diaz, Dominguez, Perez-Vincent & Romero, 2022 & Ampeh et al., 2018; L'Engle, Sefa, Adimazoya, Yartey, Lenzi, Tarpo, Heward-Mills, Lew & Ampeh, 2018).

This research employed quantitative research methodology to pool disaggregated datasets across ten states in Nigeria to test the validity of the hypotheses established in the study. This study used survey datasets collected on maternal and child healthcare services across ten states in Nigeria. These ten states include Kaduna, Kano, Sokoto, Nasarawa, Yobe, Bauchi, Borno, Gombe, Niger, and Lagos. According to the Nigeria Demographic and Health Survey (NDHS, 2018) and Multiple Indicators Cluster Survey (MICS, 2021), these study locations represent a fair share of women of reproductive age in Nigeria. The justification for the choice of the study locations is that the issue of neonatal deaths is much more prevalent in the northern region of Nigeria comparatively, while Lagos State serves as a comparative indicator (WHO, 2023 & UNICEF, 2022).

In addition, a proportionate stratified sampling technique was used to sample 5,288 targeted women of child-bearing age, aged 18-49, across 10 states in Nigeria. The sample size was stratified into states, senatorial districts, and local government areas to make it representative of the study population; the study sampled 500 participants each across the 10 states, making a total sample size of 5,288. The reliability of the instrument used for this survey was tested using Cronbach's Alpha, and the reliability index achieved was 0.81, indicating that the questionnaire used for this study is reliable and consistent. The research employed a set of analytical tools such as chi-square, cross-tabulations, and a generalised linear logit model to analyse the survey datasets. In the descriptive statistical section of this study, the datasets were weighted to make the sample size even more representative of the study population.

2.3. Statistical Analysis

This research adapted the multivariate logistic regression model of Mohammed, Njiforti & Sanusi (2021) to model the effect of households' socio-demographic factors on National Health Insurance Scheme enrolment among women of reproductive age in Nigeria. However, the model by Mohammed et al. (2021) is different from ours because their analysis looked at how women's work affects reproductive health outcomes in Nigeria, while our study focused on how household characteristics relate to health insurance enrolment for women of reproductive age in Nigeria. The multivariate logistic regression model has been widely utilised in the literature. It continues to be empirically useful in assessing statistical linkages of health indices in the domain of public health. Hence, the dependent variable in this study is categorical. However, for the dependent variable ( ) in this research, a respondent scored 1 if she is on federal, state, or private health insurance coverage and 0 if otherwise; we operationalised this with the enrolment of women of reproductive age on health insurance. Therefore, algebraically, this relation is expressed as

$$\Omega(Y = 1/X) = X; 1 - \Omega(Y = 0) = 0 \quad (1)$$

$$X = \frac{e^{(\beta+\alpha_1 x_1+\alpha_2 x_2+\ldots+\alpha_n x_n)}}{1+e^{(\beta+\alpha_1 x_1+\alpha_2 x_2+\ldots+\alpha_n x_n)}} \quad (2)$$

In equation, Ω Denotes the probability that a woman enrolls for the National Health Insurance Scheme while $1-\Omega$ Connotes the probability that a woman is not on any health insurance coverage. In equation 2, α represents the intercept term while denoting the regression coefficients to be estimated for variable vector X_i **= 1,2,3 …** ***n*****,** which are the predictors of the outcome variable Y (health insurance coverage). However, the predictor variables that are operationalized within the vector in this study are group, paternal level of education, maternal level of education, household decision-making, respondents' place of residence (urban/rural), and choice of health facility. Meanwhile, $e^{(\beta+\alpha_1 x_1+\alpha_2 x_2+\ldots+\alpha_n x_n)}$ Denotes the odds ratios of the estimated parameters in the logit model. In addition, the study also employed

cross-tabulation and chi-square analytical tools to analyze the association between women's enrolment in health insurance and household socio-demographic factors.

3. FINDINGS AND DISCUSSION OF RESULTS

Table 1: Weighted Socio-Demographic Characteristics of Participants (N=5 288)

		Frequency Count	Percentage (%)
Age-Group	18 - 20	141	3%
	21 - 25	591	11%
	26 - 30	1229	23%
	31 - 35	1499	29%
	36 - 40	1327	25%
	41 - 45	390	7%
	46 - 49	111	2%
Level of Education	No formal education	607	11%
	Incomplete Primary	190	4%
	Complete Primary	856	16%
	Incomplete Secondary	265	5%
	Complete Secondary	1726	33%
	Higher education (Post-secondary and above)	1644	31%
Residence	Urban	2544	48%
	Rural	2744	52%

Source: Author's Computation (2024)

Table 1 presents the socio-demographic characteristics of the study participants such as age group, level of educational attainments, and place of residence in the last five years, it equally shows that the study participants were between the reproductive age of 18-49 years

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Table 2: Analysis of the Association Between Households' Socio-Demographic Characteristics and Health Insurance Coverage among Women of Childbearing Age in Nigeria (Obs=5 288)

		No		Yes		χ^2	P-Value	Odds Ratio	C.I.
		N	%	N	%				
Age-Group	18 - 20	126	3%	16	1%	204.009	.000	456.023	1.456
	21 - 25	509	13%	82	6%				
	26 - 30	972	26%	257	17%				
	31 - 35	1055	28%	432	29%				
	36 - 40	843	22%	497	34%				
	41 - 45	237	6%	155	10%				
	46 - 49	59	2%	47	3%				
Household Decision Making	My husband	3173	83%	901	61%	315.387	.000	630.106	1.341
	Myself	628	17%	585	39%				
Level of education	No formal education	541	14%	68	5%	464.918	.000	834.202	1.267
	Incomplete Primary	163	4%	28	2%				
	Complete Primary	688	18%	153	10%				
	Incomplete Secondary	232	6%	40	3%				
	Complete Secondary	1304	34%	427	29%				
	Higher (Post-secondary and above)	873	23%	770	51%				
Level of education of spouse	No partner	127	3%	31	2%	223.656	.000	467.034	1.117
	No formal education	306	8%	34	2%				
	Incomplete Primary	31	1%	2	0%				
	Complete Primary	178	5%	24	2%				
	Incomplete Secondary	70	2%	9	1%				
	Complete Secondary	1010	27%	257	17%				
	Higher (Post-secondary and above)	2079	54%	1128	76%				
Frequency of watching TV	Not at all	1202	32%	529	36%	26.169	.000	52.201	1.678
	Less than once a week	462	12%	184	12%				
	At least once a week	749	20%	206	14%				
	Almost every day	1388	36%	567	38%				
Choice of Health facility	General Hospital	1687	46%	861	58%	120.284	.000	140.404	1.324
	Primary Health Facility	1298	35%	298	20%				
	Private Hospital	272	7%	126	9%				
	Tertiary Hospital	338	9%	160	11%				
	Others	127	3%	34	2%				
Residence	Urban	1719	45%	839	56%	54	.000	108	1.289
	Rural	2082	55%	647	44%				

*******Variables are significant at 5%

Source: Author's Computation (2024)

Table 2 illustrates the relationship between National Health Insurance Scheme enrolment among women of childbearing age and households' socio-demographic factors in Nigeria. The table depicts a somewhat positive significant level of association between the rate of health insurance enrolment among women of reproductive age and households' socio-demographic factors. For instance, respondents in the upper age group ($p < 0.000$; CI: 1.456; 204.009) are 456.023 times more likely to enrol in health insurance coverage compared to respondents in the lower age group.

Also, women in households where decision-making is taken majorly by their spouses ($p < 0.000$; CI: 1.341; 315.387) are 630.106 times more likely to have health insurance coverage compared to women in households where decisions are being taken by themselves. This is because empirical literature reports that there are more men in the formal employment sector than women, and the majority of the men in the formal employment sector have health insurance coverage. The table also establishes a positive relationship between women in the higher educational quintile and health insurance coverage as indicated by $p < 0.000$; CI: 1.267; 464.918. This implies that women in the higher educational cadre are 834.202 times more likely to enrol or renew their health insurance subscriptions than those in the lower educational level.

In addition, respondents whose spouses are on the highest cadre of education ($p < 0.000$; CI: 1.117; 223.656) are 467.034 times more likely to uptake a health insurance policy compared to respondents whose spouses are on a lower educational cadre. However, respondents with a high frequency of watching television are 52.201 times more likely to be on health insurance coverage compared to other women with a low-frequency rate of watching television, as indicated by $p < 0.000$; CI: 1.678; and 26.169. Women's place of residence (urban/rural) also plays a significant role ($p < 0.000$; CI: 1.289; : 54) in the enrolment of health insurance, as shown in table 2 above. By implication, women who live in urban communities are 108 times more likely to enrol in a health insurance policy compared to women who live in rural communities. This result is in line with the studies conducted by Bolarinwa, Babalola, Adebayo & Ajayi (2022); Adeolu & Johnson (2019); and Nnamuchi, Odinkonigbo, Obuka & Agu (2019), who reported a significant positive effect between NHIS and socio-economic factors among male and female genders in Ghana, Mali, and Burkina Faso.

Our results are also in conformity with Ipinnimo et al. (2022) and Esan, Adeomi, & Afolabi (2023), who found that factors such as age, education, place of residence, region of residence, marital status, ethnicity, employment status, religion, ethnicity, household wealth quintile, gender, household size, and exposure to media were predictors of health insurance enrolment. Furthermore, gender plays an important role in health insurance enrolment in Nigeria (Nnamuchi et al., 2019; Adebola, 2020). For example, women face different health risks and difficulties in accessing healthcare services (UNICEF, 2023), and they bear a greater burden of disease and have limited access to resources (WHO, 2023). This suggests that access to affordable health insurance remains out of reach for most women of reproductive age without formal employment in Nigeria (USAID, 2024). It is also established that a higher percentage of women are in informal employment than men.

4. CONCLUSION AND RECOMMENDATION

In the course of analysing the effect of households' socio-demographic factors on the uptake of health insurance policy among women of reproductive age in Nigeria. This research found that households' socio-demographic factors, such as age group, paternal and maternal levels of education, frequency of watching TV, choice of health facility, and respondents' place of residence, had a positive significant effect on women's uptake of health insurance, with their p-values less than $\alpha=0.05$. Following these results, government at all levels, stakeholders in the private sector, and non-governmental organisations should re-intensify more efforts in establishing monitoring and compliance mechanism agencies. This is particularly across all states in Nigeria to ensure that the National Health Insurance Authority Act (NHIA) defines a structure for the implementation of recovering contributions from the informal sector and ensures complete incorporation of women in the rural communities across the country. This breakthrough is critical to increasing the uptake of women of childbearing age in health insurance policies and establishing universal and sustainable healthcare coverage in Nigeria's urban and rural communities.

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