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Prevalence and determinants of reproductive health services utilisation among childbearing women in Nigeria: Do occupational status and health insurance coverage count?

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Abstract

Maternal healthcare is vital for women of reproductive age, but underutilisation contributes to poor health outcomes. Nigeria's maternal mortality remains high despite efforts to strengthen reproductive health services. There is a paucity of empirical evidence on how occupational engagement and health insurance enrolment shape health service utilization in Nigeria. This study analysed pooled data from 49,415 women in the 2018–2024 Nigeria Demographic and Health Surveys to investigate the influence of occupational status and health insurance on reproductive health service utilisation. Findings showed employed women, particularly professionals, demonstrated better healthcare-seeking behaviours. Health insurance coverage increased the odds of attending ≥8 antenatal care visits (aOR: 1.49, CI: 1.24–1.79) and using skilled delivery assistance (aOR: 1.56, CI: 1.19–2.05), but reduced postnatal health check (aOR: 0.78). Pragmatic policies promoting women's employment, economic empowerment, and universal health insurance are needed to improve outcomes and meet Sustainable Development Goal 3 targets in Nigeria. *(Afr J Reprod Health 2026; 30 [16]: 42-53).*

Keywords: : Occupational status, health insurance coverage, reproductive health services utilisation, childbearing women, Nigeria

Résumé

Les soins de santé maternelle sont vitaux pour les femmes en âge de procréer, mais leur sous-utilisation contribue à de mauvais résultats sanitaires. La mortalité maternelle au Nigéria reste élevée malgré les efforts visant à renforcer les services de santé reproductive. Il existe peu de données empiriques sur la façon dont l'engagement professionnel et l'adhésion à l'assurance maladie façonnent l'utilisation des services de santé au Nigéria. Cette étude a analysé des données regroupées de 49 415 femmes issues des Enquêtes démographiques et de santé du Nigéria de 2018–2024 pour examiner l'influence du statut professionnel et de l'assurance maladie sur l'utilisation des services de santé reproductive. Les résultats ont montré que les femmes employées, en particulier les professionnelles, manifestaient de meilleurs comportements de recours aux soins. La couverture d'assurance maladie augmentait les chances de réaliser ≥8 consultations prénatales (aOR : 1,49, IC : 1,24–1,79) et d'utiliser l'assistance qualifiée à l'accouchement (aOR : 1,56, IC : 1,19–2,05), mais réduisait le contrôle sanitaire postnatal (aOR : 0,78). Des politiques pragmatiques promouvant l'emploi des femmes, l'autonomisation économique et l'assurance maladie universelle sont nécessaires pour améliorer les résultats et atteindre les cibles de l'Objectif de développement durable 3 au Nigéria. *(Afr J Reprod Health 2026; 30 [16]:42-53).*

Mots-clés: Statut professionnel, couverture d'assurance maladie, utilisation des services de santé reproductive, femmes en âge de procréer, Nigéria

Introduction

A reduction in maternal and newborn mortality is a global health priority, serving as a significant driver for improved pregnancy outcomes and strongly associated with adequate reproductive health services utilisation.[1-2] Maternal mortality is a critical indicator of a country's social and economic development.[3] Globally, approximately 260,000 women died during and following pregnancy and childbirth in 2023, with 92% of these deaths occurring in low- and lower-middle-income countries, and most being preventable.[4] Sub-Saharan Africa accounted for around 70% of maternal deaths[4], highlighting the urgent need for reduction strategies in these regions. In Nigeria, maternal mortality remains a significant concern, with the country accounting for over a quarter (28.3%) of global maternal deaths and a maternal

mortality ratio of 1,047 per 100,000 live births.[4] In 2024, only 16.4% of childbearing women received at least 8 antenatal care (ANC) visits, 43% had postnatal checks during the first 2 days after delivery, and 46% of deliveries were attended by skilled providers.[5] Nigeria has a significant amount of clinical and advocacy work to do to reduce maternal mortality and meet the Sustainable Development Goal (SDG) 3 target of reducing maternal deaths to less than 70 per 100,000 live births.[6] Despite efforts towards reinforcing reproductive healthcare services, maternal mortality is declining at an unacceptably slow pace in Nigeria and other developing countries. As evidenced in a study, the lack of access to maternal healthcare services constitutes a major driver of maternal mortality.[7] The underutilisation of these services, often precipitated by inadequate access to facilities and unskilled birth attendants, significantly exacerbates maternal mortality ratios in developing countries[8]. It is, therefore, imperative to implement interventions that enhance access to healthcare facilities, ensure the availability of skilled providers at childbirth, and address sociocultural, economic, and structural barriers.[9,10]

Although geographic access and quality of care have been widely studied as barriers to maternal healthcare utilisation, as well as its patterns in Nigeria,[7,11-13] there is limited evidence using pooled data on specific assessment of occupational status and health insurance coverage as critical determinants of non-utilisation among women of childbearing age. This study, therefore, seeks to bridge this knowledge gap by investigating the prevalence and determinants of reproductive health services utilisation in Nigeria, focusing on the influence of occupational status and health insurance coverage, using the 2018 and 2024 Nigeria Demographic and Health Surveys (NDHS). Evidence from this study provides data to support equity-focused policies that extend health insurance schemes and integrate reproductive health programs into work settings for women outside formal employment, contributing to Nigeria's efforts to meet SDG 3 targets on reducing maternal deaths and ensuring universal reproductive health coverage.

Methods

This study analysed data from the 2018 and 2024 Nigeria Demographic and Health Surveys (NDHS), conducted by the National Population Commission, which were published subsequent to the 2016 World Health Organisation (WHO) recommendation for adequate maternal healthcare utilisation associated with enhanced maternal and child well-being.[14] The surveys collected information on reproductive and health-related issues from women aged 15-49 and men aged 15-59. Our analysis focused on 49,415 childbearing women (15-49) who were married or living with partners and had at least one child. The surveys were funded by the United States Agency for International Development (USAID) and technical assistance was provided by ICF International through the Demographic and Health Survey (DHS) Programme.[5,15] The inclusion of women interviewed in both survey years (2018 and 2024) was to make the data more representative.

The outcome variables, measured as binary outcomes, comprised three indicators of reproductive health services utilisation during pregnancy and childbirth: (1) number of antenatal care (ANC) visits, (2) assistance during delivery, and (3) postnatal health check after hospital discharge/home delivery. Regarding ANC visits, pregnant women were asked about the number of times they received ANC during their recent pregnancy, which ranged from 0 to 20 visits, and was categorized as 0-7 (coded '0') or 8 and above (coded '1'), in accordance with the WHO's recommendation up-to-date recommendation that pregnant women should have at least eight ANC visits is to maximize the benefits of ANC services and is probably associated with greater maternal satisfaction than fewer ANC visits.[14] Regarding assistance during delivery, women were asked about the type of attendant present. Those assisted by traditional birth attendants, relatives/friends, or with no assistance were classified as having 'unskilled birth attendants' (coded '0'), whereas those assisted by health professionals (doctors, nurses/midwives, auxiliary nurse/midwives, or community health extension workers) were classified as having 'skilled birth attendants' (coded '1').[16] Postnatal health check was categorised as follows: women who attended a postnatal health check were coded as 'Yes' (1), and those who did not were coded as 'No' (0).[17]

The main explanatory variables were occupational status and health insurance coverage. Occupational status was categorized into five

groups: not working, professional/technical/managerial/clerical, sales and services, agriculture/household/domestic employees, and skilled/unskilled manual workers. Health insurance coverage, defined as payment for medical expenses by government agencies or private organizations,[18] was dichotomised as 'yes' or 'no'. The covariates, informed by empirical evidence,[16,19] included age, education, partner's education, wealth quintile, decision-making empowerment, media exposure, barriers to healthcare, place of residence, and region. Media exposure was assessed through frequency of television viewing, newspaper/magazine reading, and radio listening. Barriers to healthcare encompassed distance to facilities, financial constraints, and permission issues. Certain covariates were regrouped to enhance statistical validity and facilitate comparison with previous studies.

For this study, the 2018 and 2024 NDHS datasets were merged. Data were checked for missing values, which were excluded from the analyses. The merged dataset was weighted using the appropriate sampling weights (v005/10^6) according to the DHS sampling scheme to ensure national representativeness and improve statistical estimates.[20] All analyses were performed using Stata software version 15. The svy command was used to account for the complex survey design of the DHS. The potential multicollinearity between covariates was evaluated using the variance inflation factor (VIF). All variables returned VIF values of < 3.0 which is below the conventional threshold of 5, suggesting that collinearity was not severe enough to distort coefficient estimates or standard errors.

Data were analysed at the univariate, bivariate and multivariable levels. The univariate analysis used descriptive statistics to summarize the background characteristics of the study population (Table 1). The univariate analysis involved the use of descriptive statistics to summarize the background characteristics of the study population (Table 1). In Table 2, bivariate logistic regression analysis was employed to examine the association between each of the main explanatory variables, as well as covariates and the outcome variables at $p<0.05$. At the multivariable level, binary logistic regression models were fitted for each dichotomous outcome: attending at least eight antenatal care visits, receiving skilled delivery assistance, and receiving postnatal health check after hospital discharge/home delivery. Table 3 presents results from two adjusted logistic regression models (Models 1 and 2). Model 1 adjusted for the main explanatory variables only, while Model 2 adjusted for both the main explanatory variables and covariates. Regression results are reported as odds ratios (ORs) with 95% confidence intervals (CIs). Thus, ORs greater than 1.00 indicate a positive association with the outcome, whereas ORs less than 1.00 indicate a negative association.

Results

Percentage distribution of variables in weighted sample

The sampled women were predominantly aged 35 years and above (43.0%), with a mean age of approximately 33 years. A significant proportion of women (42.5%) and their partners (51.9%) had attained secondary or tertiary education. Many women (42.6%) belonged to the lowest wealth quintile households. However, a majority (60.3%) were empowered in decision-making regarding their health, income, and other key aspects. In terms of media exposure and healthcare access, 56.5% of women had limited exposure to mass media, while 70.7% reported no barriers to healthcare utilisation. Geographically, 61% resided in rural areas, with 24% from the North-west region. Occupationally, 52.3% were engaged in sales and services, and a significant majority (96.8%) lacked health insurance coverage. Regarding reproductive health services utilisation, the majority of women (81.7%) attended fewer than eight ANC visits during pregnancy, 64.9% received skilled assistance during delivery, and 81.1% did not receive a postnatal health check after hospital discharge/ home delivery.

Bivariate logistic regression analyses indicating the relationships between explanatory variables and reproductive health services utilisation

The bivariate logistic regression results presented in Table 2 show the bivariate relationships between

Table 1: Background characteristics of the sampled women (Nigeria DHS: 2018-2024)

Variable/Category	Number (%) 26,310 (100%) NDHS 2018	Number (%) 23,105 (100%) NDHS 2024	Number (%) 49,415 (100%) Total
Age (years)			
15-24	4,799 (18.2)	3,754 (16.3)	8,553 (17.3)
25-34	10,515 (40.0)	9,110 (39.4)	19,625 (39.7)
35 and above	10,996 (41.8)	10,241 (44.3)	21,237 (43.0)
Mean	32.5 years	33.2 years	32.8 years
Educational attainment			
No education	11,590 (44.1)	9,477 (41.0)	21,067 (42.6)
Primary	4,450 (16.9)	2,923 (12.7)	7,373 (14.9)
Secondary/tertiary	10,270 (39.0)	10,705 (46.3)	20,975 (42.5)
Partner's educational attainment			
No education	9,079 (34.5)	8,059 (34.9)	17,135 (34.7)
Primary	4,147 (15.8)	2,479 (10.7)	6,626 (13.4)
Secondary/tertiary	13,087 (49.7)	12,567 (54.4)	25,654 (51.9)
Wealth Index			
Lowest	11,547 (43.9)	9,489 (41.1)	21,036 (42.6)
Middle	5,359 (20.4)	4,416 (19.1)	9,775 (19.8)
Highest	9,404 (35.7)	9,200 (39.8)	18,604 (37.7)
Decision-making empowerment			
Not empowered	10,748 (40.9)	8,859 (38.3)	19,607 (39.7)
Empowered	15,562 (59.1)	14,245 (61.7)	29,808 (60.3)
Media exposure			
No	14,537 (55.3)	13,392 (58.0)	27,929 (56.5)
Yes	11,773 (44.7)	9,713 (42.0)	21,486 (43.5)
Barriers to healthcare			
No	18,591 (70.7)	16,367 (70.8)	34,958 (70.7)
Yes	7,719 (29.3)	6,738 (29.2)	14,457 (29.3)
Occupational status			
Not working	-	7,103 (30.7)	7,103 (16.6)
Prof/tech/manag/clerical	1,778 (9.0)	1,837 (8.0)	3,615 (8.4)
Sales & services	12,064 (61.1)	10,330 (44.7)	22,394 (52.3)
Agric employee	4,969 (25.2)	3,024 (13.1)	7,993 (18.7)
Skilled/unskilled/others	921 (4.7)	811 (3.5)	1,732 (4.0)
Covered by health insurance			
No	25,579 (97.2)	22,268 (96.4)	47,847 (96.8)
Yes	731 (2.8)	837 (3.6)	1,568 (3.2)
Place of Residence			
Urban	9,535 (36.2)	9,782 (42.3)	19,317 (39.1)
Rural	16,775 (63.8)	13,323 (57.7)	30,098 (60.9)
Region			
North-central	4,838 (18.4)	6,410 (27.7)	11,248 (22.8)
North-east	5,195 (19.8)	4,143 (17.9)	9,338 (18.9)
North-west	7,289 (27.7)	4,636 (20.1)	11,925 (24.1)
South-east	2,959 (11.3)	2,569 (11.1)	5,528 (11.2)
South-south	2,651 (10.1)	2,545 (11.0)	5,196 (10.5)
South-west	3,378 (12.8)	2,802 (12.1)	6,180 (12.5)
Number of ANC visit			
< 8 visits	16,079 (81.1)	10,468 (82.6)	26,547 (81.7)
8 visits and above	3,756 (18.9)	2,205 (17.4)	5,961 (18.3)
Assistance during delivery			
Unskilled health provider	9,044 (45.6)	2,354 (18.6)	11,398 (35.1)
Skilled health provider	10,791 (54.4)	10,319 (81.4)	21,110 (64.9)
Postnatal health check			
No	15,693 (79.5)	10,463 (83.5)	26,156 (81.1)
Yes	4,049 (20.5)	2,061 (16.5)	6,110 (18.9)

Table 2: Bivariate logistic regression analysis of the determinants of reproductive health services utilisation (Nigeria DHS: 2018-2024)

Variable/Category	Number of ANC visit OR (95% CI)	Assistance during delivery OR (95% CI)	Postnatal health check OR (95% CI)
Occupational status			
Not working (Ref.)	1.00	1.00	1.00
Prof/tech/manag/clerical	7.65 (6.70-8.73) ***	1.43 (1.23-1.65) ***	2.42 (2.12-2.76) ***
Sales & services	2.91 (2.62-3.24) ***	0.51 (0.47-0.56) ***	1.87 (1.70-2.06) ***
Agric employee	1.34 (1.18-1.52) ***	0.31 (0.29-0.34) ***	1.50 (1.34-1.68) ***
Skilled/unskilled/others	3.29 (2.80-3.87) ***	0.74 (0.64-0.86) ***	2.67 (2.29-3.10) ***
Covered by health insurance			
No (Ref.)	1.00	1.00	1.00
Yes	3.24 (2.80-3.74) ***	3.34 (2.74-4.09) ***	1.12 (0.94-1.33)
Age (years)			
15-24 (Ref.)	1.00	1.00	1.00
25-34	1.81 (1.67-1.95) ***	1.53 (1.44-1.61) ***	1.19 (1.11-1.28) ***
35 and above	1.87 (1.71-2.03) ***	1.53 (1.44-1.63) ***	1.15 (1.07-1.25) ***
Educational attainment			
No education (Ref.)	1.00	1.00	1.00
Primary	5.16 (4.60-5.80) ***	1.64 (1.53-1.76) ***	2.05 (1.88-2.23) ***
Secondary/tertiary	13.8 (12.63-15.17) ***	4.53 (4.29-4.78) ***	2.54 (2.39-2.71) ***
Partner's educational attainment			
No education (Ref.)	1.00	1.00	1.00
Primary	5.21 (4.59-5.90) ***	1.57 (1.46-1.68) ***	2.36 (2.15-2.59) ***
Secondary/tertiary	11.10 (10.04-12.27) ***	3.24 (3.08-3.41) ***	2.58 (2.42-2.76) ***
Wealth Index			
Lowest (Ref.)	1.00	1.00	1.00
Middle	3.75 (3.40-4.13) ***	1.78 (1.68-1.89) ***	1.64 (1.52-1.77) ***
Highest	11.37 (10.48-12.34) ***	4.95 (4.66-5.26) ***	2.12 (1.99-2.26) ***
Decision-making empowerment			
Not empowered (Ref.)	1.00	1.00	1.00
Empowered	2.84 (2.67-3.03) ***	1.74 (1.67-1.83) ***	1.59 (1.50-1.68) ***
Mass media exposure			
No (Ref.)	1.00	1.00	1.00
Yes	6.09 (5.71-6.49) ***	3.08 (2.93-3.24) ***	2.04 (1.93-2.16) ***
Barriers to healthcare			
No (Ref.)	1.00	1.00	1.00
Yes	0.56 (0.53-0.60) ***	0.56 (0.53-0.58) ***	0.82 (0.77-0.87) ***
Place of Residence			
Urban (Ref.)	1.00	1.00	1.00
Rural	0.24 (0.23-0.25) ***	0.36 (0.34-0.38) ***	0.56 (0.53-0.60) ***
Region			
North-central (Ref.)	1.00	1.00	1.00
North-east	0.36 (0.31-0.42) ***	0.59 (0.55-0.63) ***	1.11 (1.01-1.21) *
North-west	0.65 (0.58-0.73) ***	0.52 (0.48-0.55) ***	0.80 (0.73-0.88) ***
South-east	5.97 (5.38-6.62) ***	3.56 (3.16-4.00) ***	2.75 (2.49-3.03) ***
South-south	5.81 (5.22-6.47) ***	0.95 (0.87-1.04)	1.62 (1.45-1.81) ***
South-west	16.19 (14.60-17.95) ***	3.02 (2.71-3.37) ***	2.85 (2.59-3.14) ***

Note: Ref.= reference category; * $p < 0.05$; ***$p < 0.001$

the outcome variables and the main explanatory variables, as well as the covariates.Regarding the number of ANC visits, the results indicated that women's occupational status and health insurance coverage were significantly associated with having at least 8 ANC visits. Specifically, employment across various occupations increased the odds of achieving this threshold, with health insurance coverage demonstrating a notable impact (OR: 3.24, CI: 2.80-3.74). All covariates were significantly associated with the likelihood of having at least eight ANC visits (p<0.05). In terms of assistance during delivery, occupational status again was significant, with women in professional/technical/managerial roles showing higher odds of skilled assistance (OR: 1.43, CI: 1.23-1.65). Health insurance coverage also increased the likelihood of skilled delivery assistance (OR: 3.34, CI: 2.74-4.09). Receiving assistance from a skilled provider was significantly influenced by all covariates (p<0.05). For postnatal checks, women being employed was significantly associated with receiving a postnatal health check after hospital discharge/ home delivery, although no significant, health insurance coverage increased in likelihood. Notably, all covariates demonstrated significant relationships with receiving postnatal health check (p<0.05).

Adjusted logistic regression analyses

The adjusted logistic regression analyses presented in Table 3 revealed a consistent pattern of effects for the main explanatory variables, albeit with some variations in the influence of selected covariates on the number of ANC visits, delivery assistance, and postnatal health check, as observed in the bivariate logistic regression results.

Number of ANC Visits

Models 1 and 2 indicated that employed women, regardless of occupational status, exhibited a significantly higher likelihood of achieving at least 8 ANC visits during pregnancy compared to their unemployed counterparts. Furthermore, women with health insurance coverage demonstrated a heightened likelihood of achieving this threshold (aOR: 1.49, CI: 1.24-1.79). The likelihood of having at least 8 ANC visits increased concomitantly with women's age, education, household wealth index, and partner's education. Notably, empowered women (aOR: 1.11, CI: 1.02-1.21) and those exposed to mass media (aOR: 1.18, CI: 1.07-1.29) exhibited higher odds of achieving at least 8 ANC visits. Conversely, rural women were less likely to achieve this threshold (aOR: 0.80, CI: 0.74-0.87) compared to their urban counterparts. Regional variations were observed, with women from Southern regions demonstrating a higher likelihood of achieving at least 8 ANC visits.

Assistance during delivery

The adjusted logistic regression results surprisingly indicated that employed women had lower odds of receiving skilled delivery assistance compared to unemployed women. However, health insurance coverage significantly enhanced the likelihood of skilled delivery assistance (aOR: 1.56, CI: 1.19-2.05). Increases in women's age, educational attainment, and household wealth index corresponded with an increased likelihood of receiving skilled delivery assistance. Additionally, women whose partners had secondary or tertiary education were 1.25 times more likely to receive skilled delivery assistance. Empowerment (aOR: 1.09, CI: 1.03-1.16) and mass media exposure (aOR: 1.14, CI: 1.06-1.24) also contributed to increased likelihoods. Women who reported experiencing healthcare access barriers and rural residents had reduced odds of receiving skilled delivery assistance (aOR: 0.80, CI: 0.76-0.86 and aOR: 0.87, CI: 0.81-0.94, respectively). Regional variations were observed, with women in North-east, North-west, and South-south regions demonstrating lower odds of receiving skilled delivery assistance.

Postnatal health check

Models 1 and 2 revealed that employed women, regardless of occupational status, are more likely to receive a postnatal health check after hospital discharge/home delivery. Surprisingly, women with health insurance coverage were 0.78 times less likely to receive a postnatal health check. Formal education among women and their partners was significantly associated with increased uptake of a postnatal health check. Conversely, women from highest wealth quintile households exhibited reduced odds of receiving a postnatal health check (aOR: 0.88, CI: 0.79-0.98). Women who had mass media exposure were more likely to receive a

Table 3: Adjusted logistic regression analysis of the determinants of reproductive health services utilisation (Nigeria DHS: 2018-2024)

Variable/Category	Number of ANC visit		Assistance during delivery		Postnatal health check	
	Model 1 aOR (95% CI)	Model 2 aOR (95% CI)	Model 1 aOR (95% CI)	Model 2 aOR (95% CI)	Model 1 aOR (95% CI)	Model 2 aOR(95% CI)
Occupational status						
Not working (Ref.)	1.00	1.00	1.00	1.00	1.00	1.00
Prof/tech/manag/clerical	7.05 (6.18-8.06) ***	1.50 (1.29-1.76) ***	1.30 (1.12-1.50) ***	0.38 (0.32-0.44) ***	2.45 (2.14-2.80) ***	1.45 (1.26-1.67) ***
Sales & services	2.90 (2.61-3.22) ***	1.27 (1.12-1.43) ***	0.51 (0.47-0.55) ***	0.31 (0.28-0.34) ***	1.87 (1.71-2.06) ***	1.44 (1.31-1.60) ***
Agric employee	1.35 (1.19-1.54) ***	1.03 (0.89-1.20)	0.31 (0.29-0.34) ***	0.26 (0.24-0.29) ***	1.50 (1.34-1.67) ***	1.24 (1.10-1.40) ***
Skilled/unskilled/others	3.25 (2.76-3.82) ***	1.36 (1.12-1.65) **	0.73 (0.63-0.85) ***	0.42 (0.36-0.49) ***	2.67 (2.30-3.11) ***	1.98 (1.69-2.32) ***
Covered by health insurance						
No (Ref.)	1.00	1.00	1.00	1.00	1.00	1.00
Yes	2.04 (1.73-2.40) ***	1.49 (1.24-1.79) ***	3.08 (2.37-3.99) ***	1.56 (1.19-2.05) **	0.88 (0.73-1.07)	0.78 (0.63-0.95) *
Age (years)						
15-24 (Ref.)		1.00		1.00		1.00
25-34		1.14 (1.03-1.26) *		1.25 (1.16-1.34) ***		0.95 (0.88-1.03)
35 and above		1.24 (1.11-1.39) ***		1.42 (1.31-1.54) ***		0.93 (0.85-1.02)
Educational attainment						
No education (Ref.)		1.00		1.00		1.00
Primary		1.57 (1.35-1.83) ***		1.19 (1.08-1.30) ***		1.24 (1.11-1.38) ***
Secondary/tertiary		2.11 (1.83-2.43) ***		2.05 (1.87-2.26) ***		1.23 (1.10-1.37) ***
Partner's educational attainment						
No education (Ref.)		1.00		1.00		1.00
Primary		1.25 (1.06-1.48) *		0.97 (0.88-1.07)		1.54 (1.38-1.73) ***
Secondary/tertiary		1.68 (1.44-1.95) ***		1.25 (1.15-1.36) ***		1.45 (1.31-1.61) ***
Wealth Index						
Lowest (Ref.)		1.00		1.00		1.00
Middle		1.35 (1.20-1.53) ***		1.16 (1.07-1.25) ***		0.99 (0.90-1.09)
Highest		1.83 (1.61-2.08) ***		1.96 (1.77-2.18) ***		0.88 (0.79-0.98) *
Decision-making empowerment						
Not empowered (Ref.)		1.00		1.00		1.00
Empowered		1.11 (1.02-1.21) *		1.09 (1.03-1.16) **		1.00 (0.93-1.07)
Mass media exposure						
No (Ref.)		1.00		1.00		1.00

Yes	1.18 (1.07-1.29) **	1.14 (1.06-1.24) **	1.25 (1.15-1.36) ***
Barriers to healthcare			
No (Ref.)	1.00	1.00	1.00
Yes	0.99 (0.91-1.08)	0.80 (0.76-0.86) ***	1.02 (0.95-1.09)
Place of Residence			
Urban (Ref.)	1.00	1.00	1.00
Rural	0.80 (0.74-0.87) ***	0.87 (0.81-0.94) ***	0.87 (0.81-0.94) ***
Region			
North-central (Ref.)	1.00	1.00	1.00
North-east	0.55 (0.46-0.64) ***	0.83 (0.77-0.90) ***	1.28 (1.16-1.41) ***
North-west	0.80 (0.70-0.91) **	0.76 (0.70-0.82) ***	0.85 (0.77-0.94) **
South-east	2.80 (2.47-3.16) ***	1.86 (1.62-2.13) ***	1.73 (1.55-1.94) ***
South-south	2.81 (2.48-3.19) ***	0.46 (0.41-0.52) ***	1.09 (0.97-1.24)
South-west	7.50 (6.65-8.45) ***	1.44 (1.26-1.63) ***	1.79 (1.60-2.00) ***

Note: Ref.= reference category; * $p < 0.05$; ** $p < 0.01$; ***$p < 0.001$

postnatal health check (aOR: 1.25, CI: 1.15-1.36). Rural women were 0.87 times less likely to receive a postnatal health check after hospital discharge/home delivery compared to urban residents, with regional variations observed.

Discussion

This study investigated the impact of occupational status and health insurance coverage on reproductive health services utilisation among Nigerian women, leveraging data from the 2018 and 2024 NDHS. Our findings revealed that only 18.3% of women achieved the WHO's recommended eight ANC visits, highlighting Nigeria's persistent healthcare challenges, including infrastructural deficits, personnel shortages, and socioeconomic inequities.[21-22] Conversely, 64.9% of women received skilled delivery assistance,[23] yet less than one-fifth received a postnatal health check after hospital discharge/home delivery, contrasting with a previous study.[24] This disparity suggests skilled providers may inadvertently downplay postnatal care (PNC) importance. The low adherence to WHO-recommended ANC and postnatal health check has significant policy implications for achieving SDG 3 targets, emphasizing the need for improved healthcare access and quality to promote maternal and child health.

Regarding the influence of women's occupational status and health insurance coverage on reproductive health services utilisation, our findings indicated that women across all work categories exhibited higher odds of having at least 8 ANC visits during pregnancy and receiving a postnatal health check. This finding aligned with earlier studies conducted in Indonesia and SSA, which suggested that women's employment is a predictor of ANC and PNC utilisation.[25-26] A plausible explanation is that employment empowers women, yielding improved healthcare outcomes. The interplay between financial autonomy, health literacy, and decision-making capacity within households, coupled with facilitated access to healthcare, likely contributed to this phenomenon. Employed women tend to have greater control over decision-making regarding household issues and their own healthcare.[27] Our findings further showed that women in professional, technical, managerial, and clerical positions had higher odds of receiving skilled delivery assistance compared with unemployed women and those in other work categories, as shown in Model 2. This could be attributed to enabling factors such as health insurance coverage, as reported in a previous study.[28] In contrast, the odds of receiving skilled delivery assistance were significantly lower among women in professional, technical, managerial, and clerical positions compared with unemployed women. This finding may be attributable to selection effects, whereby unemployed women benefit from a spouse's income or health benefits, while women in professional, technical, managerial, and clerical occupations face work-related constraints, including inflexible schedules, migration-related separation from family support, and limited coverage under employer-based health schemes.

The study revealed that women enjoying health insurance coverage significantly increased the odds of having at least 8 ANC visits during pregnancy and receiving skilled delivery assistance. This supports previous observations that insurance coverage enhanced access to maternal healthcare services,[29-30] as they utilise more reproductive health services due to better health knowledge, reduced financial stress, encouragement from healthcare providers, and a greater perceived value in their coverage. Conversely, the findings revealed significantly lower odds of receiving a postnatal health check among women with health insurance. This aligned with a prior study reporting that women with health insurance did not receive adequate postnatal care, although the association was not statistically significant.[31] However, this finding contrasts with other evidence suggesting that health insurance coverage increases the likelihood of utilising maternal health services.[32] Plausibly, women may not attend a postnatal check due to persistent non-financial barriers, including limited awareness of the postnatal schedule, cultural beliefs, and perceived low need for care after an uncomplicated delivery. Health system factors such as inadequate discharge counselling, fragmented continuity of care, and lack of structured postnatal appointment systems could further limit uptake.

This study identified several key predictors of reproductive health services utilisation among Nigerian women. Women's age was found to be a

significant predictor, with women aged 25-34 and, 35 and above having higher odds of achieving at least 8 ANC visits and receiving skilled delivery assistance, compared to those aged 15-24.[19] Education also played a crucial role, with women having primary and secondary or tertiary education more likely to utilise reproductive health services.[33] Partner's education was equally important, as women with less educated partners were less likely to access maternal healthcare services.[34] The study showed an inverse relationship between household wealth index and reproductive health services utilisation, with women from higher wealth index households more likely to achieve at least 8 ANC visits and receive skilled delivery assistance.[16] However, women from the highest wealth index households were less likely to receive a postnatal health check after hospital discharge/home delivery.[35] Empowered women, particularly those involved in decision-making, were more likely to utilise reproductive health services.[22] Mass media exposure also increased the likelihood of reproductive health services utilization.[36] Conversely, women who experienced healthcare barriers and rural residents had reduced access to reproductive health services.[17] Regional disparities were evident, with women from Northern regions less likely to utilise reproductive health services compared to those from Southern regions.[37]

This study highlighted Nigeria's maternal healthcare challenges, including gaps in ANC uptake, skilled care utilisation, and PNC awareness. Women's occupational status and health insurance coverage are pivotal determinants of attending adequate ANC visits and receiving assistance from skilled birth attendants. Employed women, especially in professional roles, exhibited enhanced reproductive healthcare-seeking behaviours, underscoring economic independence's empowering role. Health insurance coverage mitigates financial barriers, thereby increasing the uptake of antenatal care, skilled birth attendance, and postnatal health checks. Conversely, health insurance coverage was associated with significantly lower odds of receiving a postnatal health check, indicating that insurance alone does not ensure uptake of postpartum care. Also, women's factors like age, education, partner's education, household wealth, empowerment in decision-making, mass media exposure, place of residence and region significantly influenced the utilisation of reproductive health services. There is a need for pragmatic policies that promote women's employment, economic empowerment, and universal health insurance coverage, while reinforcing facility-level systems for postpartum counselling, scheduled appointments, and client follow-up to address discontinuities in the maternal continuum of care. Such measures are essential for improving reproductive health outcomes and achieving SDG 3 targets in Nigeria.

Strength and limitations

The strengths of this study include the use of nationally representative data from two surveys and rigorous weighted analyses. However, the cross-sectional design limits causal inference, and self-reported utilisation of maternal health services might be subject to recall or social desirability bias. Notwithstanding these limitations, the findings have important implications for improving reproductive health outcomes in Nigeria.

Conflicts of interest

The authors declare no conflict of interest.

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Authors' contributions

CKI and CHN conceptualised the study; CKI acquired and analysed the data; CKI and CHN wrote the initial draft, performed the literature review and critically revised the manuscript for intellectual content. All authors reviewed and approved the final version.

Data availability

This study used merged data from the 2018 and 2024 Nigeria Demographic and Health Surveys, which are available from the DHS Program upon registration and approval. Access can be requested at https://www.dhsprogram.com/data/dataset

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