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Knowledge, Attitude and Modern Contraceptive Use among Women Aged 15–49 in Jigawa State, Nigeria: A Cross-Sectional Study

Ibrahim Shuaibu Jibrin[1*], Mukhtar Saidu Muhammad[2], Umar Muhammad Bawa[3], Zahraddeen Bala[1], Sirajo Aminu[3]

[1]*Department of Public Health, College of Health Sciences, Jigawa State Polytechnic, Dutse, Nigeria;*
[2]*Department of Public Health, Faculty of Allied Health Sciences, Abubakar Tafawa Balewa University, Bauchi State, Nigeria;*
[3]*Department of Public Health, Faculty of Basic Medical Sciences, Sa'adu Zungur University, Bauchi State, Nigeria*

[*]*Corresponding author: Ibrahimsj@jigpoly.edu.ng ORCID: 0009-0005-3788-6428*

Abstract

Background: Modern contraception is a critical component of reproductive health, yet utilization rates remain persistently low in northern Nigeria, contributing to high fertility rates and increased maternal mortality. Jigawa State reflects this challenge, with contraceptive prevalence among the lowest in the country.
Objective: To assess the knowledge, attitude, and utilization of modern contraceptives, and to identify predictors of utilization among women of childbearing age (15–49 years) in Jigawa State, Nigeria.
Methods: A community-based, descriptive cross-sectional study was conducted, and a multistage sampling procedure was used to select 325 eligible women across three local government areas. A total of 310 questionnaires were completed and analyzed (response rate: 95.4%). Knowledge, attitude, and utilization were each scored using a 10-item scale (1 point per item; ≥50% = good/positive). Chi-square tests were used to examine associations with sociodemographic variables.
Results: The mean age of respondents was 32.9 $\pm$ 10.03 years ($n = 310$). Most respondents had good knowledge of modern contraceptives (83.6%) and positive attitudes toward their use (77.4%). However, only 8.1% ($n = 25$) reported current utilization.
Conclusion: Despite high awareness and positive attitudes, the utilization of modern contraceptives remains low. Barriers such as difficulty in accessing contraceptives and fear of side effects significantly hinder utilization. It is recommended that the government should implement culturally tailored awareness campaigns involving religious and traditional leaders to address myths and cultural barriers.

Keywords: Contraceptives; Family Planning; Knowledge; Attitude; Utilization; Nigeria.

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Introduction

Contraception refers to methods or devices used to prevent pregnancy, and modern contraceptive methods encompass a broad range of options including oral contraceptive pills, injectables, intrauterine devices (IUDs), implants, male and female condoms, and emergency contraception World Health Organization, 2018. Beyond preventing unintended pregnancies, modern contraception is a cornerstone of reproductive health with broad implications for maternal and child survival, women's empowerment, and national development. High fertility rates have been consistently linked to increased maternal and infant mortality, reduced educational attainment for women, and slower economic growth Gore & Katkuri, 2016.

Nigeria endures a disproportionately heavy burden of this challenge. Although the country accounts for only approximately 2.5% of the global population, it contributes to approximately 14% of worldwide maternal deaths annually Shehu, 2023.

National Demographic and Health Survey (NDHS) data show that the maternal mortality ratio (MMR) has declined only slightly from 545 per 100,000 live births in 2008 to 512 in 2018, falling short of the Sustainable Development Goal 3.1 target of fewer than 70 deaths per 100,000 live births. Despite high awareness of contraceptive methods among Nigerian women of reproductive age, the 2018 NDHS recorded a modern contraceptive prevalence rate (mCPR) of just 12% nationally, representing a modest gain of only 6 percentage points over a 24-year period Adegboyega, 2019; National Population Commission & ICF, 2019.

Jigawa State, located in north-western Nigeria, also characterizes this challenge in its most acute form. The state has one of the country's highest total fertility rates and among the lowest contraceptive prevalence rates, with the 2020 National Bureau of Statistics report estimating mCPR at approximately 7% National Bureau of Statistics, 2022. Much of the existing evidence on contraceptive behavior in Nigeria is aggregated at the zonal or national level, obscuring the specific socio-cultural, geographic, and health system factors that shape women's reproductive decisions in Jigawa. A localized, state-level study is therefore necessary to generate actionable evidence for program design.

This study aimed to assess the knowledge, attitudes, and utilization of modern contraceptives among women aged 15–49 years in Jigawa State; to examine associations between sociodemographic factors and each outcome; and to identify independent predictors of modern contraceptive utilization. It was hypothesized that there would be no significant association between knowledge and utilization, and no significant association between attitude and utilization, among study participants.

Methods

Study Design and Setting

A community-based, descriptive cross-sectional study was conducted in Jigawa State, north-western Nigeria. Jigawa State comprises 27 Local Government Areas (LGAs) and had an estimated female population of approximately 1.6 million women of reproductive age as of 2023 Jigawa State Government, 2023. The state healthcare system follows Nigeria's three-tier structure and presents a particularly important context for contraceptive research given its high fertility rate, low contraceptive prevalence, and limited availability of locally specific evidence.

Study Population, Inclusion and Exclusion Criteria

The study population involved women of childbearing age (15–49 years) residing across the 27 LGAs of Jigawa State. Women were eligible for inclusion if they were aged 15–49 years regardless of parity; had resided in Jigawa State for at least one year; were able to understand and communicate in Hausa or other primary languages of the state; and provided voluntary informed consent. Women were excluded if they declined consent, had severe mental or physical conditions impairing participation, or could not communicate in the local language in the absence of a translator.

Sample Size Determination

The sample size was calculated using Fisher's formula for cross-sectional studies Fisher et al., 1998, with a population prevalence of 74.1% for knowledge of modern contraceptives, drawn from a recent study in Jigawa State Shehu, 2023:

$$n = \frac{Z^2 pq}{d^2}$$

$$n = \frac{(1.96)^2 \times 0.74 \times (1 - 0.74)}{(0.05)^2}$$

$$n = \frac{3.841 \times 0.192}{0.0025} = 295.6$$

Adding a 10% non-response rate Charan & Biswas, 2016:

$$n = 295.6 + 29.6 \approx 325$$

Of the 325 questionnaires administered, 310 were fully completed (response rate: 95.4%), and all 310 were included in the analysis.

Sampling Technique

A multi-stage sampling procedure was employed. In Stage I, three LGAs were selected from the 27 LGAs of Jigawa State by simple random sampling (balloting), with one LGA drawn from each

senatorial zone: Auyo LGA (Jigawa North), Sule-Tankarkar LGA (Jigawa Central), and Jahun LGA (Jigawa South).

In Stage II, three wards were randomly selected from each of the selected LGAs by balloting.

In Stage III, eligible participants were selected from households in each ward using systematic random sampling at an interval of every fourth household. The total sample ($n = 325$) was proportionally allocated across wards using the formula:

$$n_i = \frac{N_i}{N} \times n$$

This yielded 137 participants for Danzomo ward, 115 for Harbo Sabuwa ward, and 73 for Gamafoi ward.

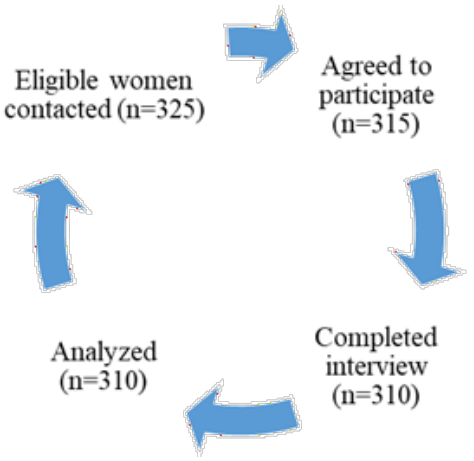

Figure 1: Flow diagram of the multistage sampling procedure.

Data Collection Instrument

A semi-structured, interviewer-administered questionnaire was developed based on validated items from the literature Akamike et al., 2022; Shehu, 2023 and adapted to the local Jigawa State context. The questionnaire comprised four sections: (i) sociodemographic and economic characteristics (10 items); (ii) knowledge of modern contraceptives (10 items, Q11–Q20); (iii) attitude toward modern contraceptives (10 items, Q21–Q30, on a modified Likert scale); and (iv) utilization of modern contraceptives (10 items, Q31–Q40).

The questionnaire was translated into Hausa and back-translated into English to ensure consistency. A pilot study was conducted on 33 women (10% of the sample) in a non-selected ward. Internal consistency was assessed using the split-half method, yielding a Spearman–Brown coefficient of 0.78, indicating acceptable reliability. Data from the pilot study were excluded from the main analysis.

The final questionnaire was administered electronically via Google Forms by six trained female research assistants, each with a minimum of a Diploma qualification, who received two days of standardized training on interview techniques and data entry.

Measurement of Variables

Each correct response on the knowledge, attitude, and utilization scales was awarded 1 point (maximum score: 10 per scale). Respondents scoring ≥50% (i.e., ≥5 out of 10) were classified as having "good knowledge," "positive attitude," or "adequate utilization," respectively, while those scoring $< 50\%$ were classified as "poor."

This binary cut-off is consistent with approaches used in comparable Nigerian studies Akamike et al., 2022; Shehu, 2023 and with the median-split approach recommended for ordinal health knowledge scales. For the utilization outcome, adequate utilization specifically referred to current or recent use of at least one modern contraceptive method.

Data Analysis

Data were analyzed using IBM SPSS Statistics version 26. Descriptive statistics (frequencies, percentages, means, and standard deviations) were used to summarize sociodemographic characteristics and outcome variables. Chi-square tests (χ^2) were used to examine associations between categorical sociodemographic variables and outcome measures (attitude and utilization), at a significance level of $\alpha = 0.05$.

Results

A total of 381 nursing mothers attending Zainab Bulkachuwa Women and Children Hospital, Gombe, participated in the study, yielding a response rate of 100%.

The ages of the respondents ranged from 18 to 45 years, with a mean age of 31.2 ± 6.8 years.

Table 1: Sociodemographic and Economic Characteristics of Respondents ($n = 310$)

Variables	Frequency (n)	Percentage (%)
Age (years)		
15–21	63	20.3
22–28	48	15.5
29–35	49	15.8
36–42	86	27.7
43–49	64	20.6
Mean ± SD	32.9 ± 10.03	
Educational Level		
Non-formal	65	21.0
Primary	57	18.4
Secondary	112	36.1
Tertiary	76	24.5
Marital Status		
Divorced/Separated	44	14.2
Single	75	24.2
Married	191	61.6
Employment Status		
Full-time	21	6.8
Part-time	26	8.4
Self-employed	131	42.3
Unemployed	132	42.6
Ethnicity		
Others	10	3.3
Mangawa	28	9.0
Fulani	112	36.1
Hausa	160	51.6
Number of Children		
0–1	96	30.9
2–4	139	44.9
>4	75	24.2
Age of Last Child (years)		
No child	67	21.6
<1	75	24.2
1–3	108	34.8
4–5	35	11.3
>5	25	8.1
Type of Family		
Nuclear	236	76.1
Joint	74	23.9
Distance to Health Facility		
<5 km	219	70.6
5–10 km	66	21.3
>10 km	25	8.1
Monthly Income		
< ₦30,000	48	15.5
₦30,000–50,000	37	11.9
₦50,001–100,000	125	40.3
> ₦100,000	100	32.3

SD = Standard Deviation

The socio-demographic characteristics of the respondents are presented in Table 1.

A composite knowledge score showed that 285 (74.8%) of the mothers had good knowledge of childhood immunization, while 96 (25.2%) had poor knowledge. Similarly, the majority of respondents, 292 (76.6%), demonstrated a positive attitude towards immunization (Table 2).

Bivariate analysis revealed significant associations between selected socio-demographic characteristics and knowledge levels. Good knowledge was significantly higher among mothers aged ≥ 25 years, those with secondary and tertiary education, and those residing in urban areas (Table 3).

With respect to attitudes, higher educational attainment, urban residence, lower parity, and higher household income were significantly associated with positive attitudes towards childhood immunization (Table 3). Variables with $p < 0.05$ at the bivariate level were included in the logistic regression models. For knowledge, age ≥ 25 years, secondary and tertiary education, and urban residence were independently associated with good knowledge. For attitude, tertiary education and urban residence remained significant predictors of a positive attitude (Table 3).

Table 2: Aggregate Scores of Knowledge, Attitude, and Utilization of Modern Contraceptives ($n = 310$)

Variable / Category	Frequency (n)	Percentage (%)
Knowledge of Modern Contraceptives		
Good	259	83.6
Poor	51	16.4
Total	310	100
Attitude towards Modern Contraceptives		
Good	240	77.4
Poor	70	22.6
Total	310	100
Utilization of Modern Contraceptives		
Good	25	8.1
Poor	285	91.9
Total	310	100

Table 3: Association between Sociodemographic Variables and Attitude toward Modern Contraceptives ($n = 310$)

Variable / Category	Good	Poor	χ^2	p-value
Age (years)				
15–22	42	21		
23–29	34	14		
30–36	30	19	24.99	0.001*
37–43	76	10		
44–49	58	6		
Educational Level				
Non-formal	51	14		
Primary	44	13	0.382	0.944
Secondary	88	24		
Tertiary	57	19		
Marital Status				
Divorced/Separated	39	5		
Single	48	75	11.68	0.003*
Married	153	38		
Employment Status				
Full-time	19	2		
Part-time	22	4	8.08	0.044*
Self-employed	110	21		
Unemployed	93	39		
Ethnicity				
Others	7	3		
Mangawa	22	5	4.29	0.509
Fulani	88	23		
Hausa	123	37		
Number of Children				
0	34	19		
1	30	14	37.83	0.001*
2–4	120	19		
>4	56	19		
Age of Last Child (years)				
No child	46	21		
<1	62	13		
1–3	94	14	16.66	0.002*
4–5	22	13		
>5	16	9		
Type of Family				
Nuclear	185	51	0.533	0.466
Joint	55	19		
Distance to Health Facility				
<5 km	189	30		
5–10 km	39	27	34.94	0.001*
>10 km	12	13		
Monthly Income				
< ₦30,000	37	11		
₦30,000–50,000	18	19	20.82	0.001*
₦50,001–100,000	101	24		
> ₦100,000	84	16		

*Statistically significant ($p < 0.05$)

Table 4: Association between Sociodemographic Variables and Utilization of Modern Contraceptives ($n = 310$)

Variable / Category	No	Yes	χ^2	p-value
Age (years)				
15–22	54	9		
23–29	40	8		
30–36	44	5	16.01	0.030*
37–43	85	1		
44–49	62	2		
Educational Level				
Non-formal	63	1		
Primary	54	5	23.13	0.001*
Secondary	108	5		
Tertiary	60	14		
Marital Status				
Divorced/Separated	42	2		
Single	68	7	20.23	0.021*
Married	175	16		
Employment Status				
Full-time	20	8		
Part-time	25	6	5.171	0.160
Self-employed	124	7		
Unemployed	116	4		
Ethnicity				
Others	7	1		
Mangawa	29	1	3.64	0.303
Fulani	106	6		
Hausa	143	17		
Number of Children				
0	20	4		
1	35	6	6.143	0.189
2–4	134	8		
>4	70	5		
Age of Last Child (years)				
No child	26	2		
<1	79	7		
1–3	112	5	3.125	0.537
4–5	42	5		
>5	26	6		
Type of Family				
Nuclear	216	20	0.224	0.636
Joint	69	5		
Distance to Health Facility				
<5 km	202	17		
5–10 km	62	7	2.508	0.285
>10 km	21	1		
Monthly Income				
< ₦30,000	43	3		
₦30,000–50,000	30	6	11.29	0.010*
₦50,001–100,000	114	11		
> ₦100,000	98	5		

*Statistically significant ($p < 0.05$); MC = Modern Contraceptives

Overall, 109 (28.6%) of the children had missed scheduled immunization appointments. The most

commonly reported reasons for missed appointments included vaccine stock-outs, lack of time, and concerns about side effects. Key service-related barriers identified were long waiting times and inconsistent vaccine availability.

Discussion

This study examined knowledge, attitudes, and utilization of modern contraceptives among 310 women aged 15–49 years in Jigawa State, northern Nigeria. The central finding revealed a clinically significant KAP gap: despite 83.6% of women demonstrating good knowledge and 77.4% expressing positive attitudes toward modern contraceptives, actual utilization stood at just 8.1%. While this gap is not unique to Jigawa State, it remains particularly concerning. The finding is consistent with the 7% modern contraceptive prevalence rate (mCPR) reported for the state by the National Bureau of Statistics National Bureau of Statistics, 2022 and comparable to similarly low rates documented in Sokoto (6.8%) and Kano (12.3%) Ibrahim et al., 2021; Usman et al., 2023.

The mean age of 32.9 ± 10.03 years and the predominance of married respondents (61.6%) closely reflect the profiles reported in Nigerian and West African contexts Adedini et al., 2023; Olamijuwon et al., 2021, supporting the generalizability of the sociodemographic profile. The proportion of respondents with no formal education (21.0%) is particularly notable. Education is a well-established determinant of access to health information and autonomous decision-making Gakidou et al., 2023. When more than one in five women cannot access written health materials, conventional pamphlet- or poster-based campaigns are likely to be ineffective. This finding aligns with previous studies Adeloye et al., 2023 and highlights the importance of oral, community-based, and radio-delivered health education in Hausa.

The high prevalence of good knowledge (83.6%) is encouraging and compares favorably with findings from Bauchi State Yakubu et al., 2023. However, the depth of knowledge appears limited. Most women familiar with contraception mentioned short-term methods such as oral pills and emergency contraception, while few demonstrated awareness of long-acting reversible contraceptives (LARCs), such as implants or intrauterine devices (IUDs). LARCs are generally more effective and require less frequent user action, yet they remain underutilized in this population. This suggests a need for targeted counselling on LARCs at the primary healthcare level. Importantly, most women reported first hearing about contraception from healthcare workers Musa et al., 2023, identifying trained providers as a pivotal and trusted channel for delivering more detailed, method-specific education.

The prevalence of positive attitudes (77.4%) was also high and exceeds the northern Nigerian range of 65–75% reported in the literature Ogunleye et al., 2022. Nonetheless, positive attitudes did not translate into actual use. Chi-square analysis revealed no statistically significant association between knowledge and utilization ($p = 0.080$) or between attitude and utilization ($p = 0.412$), supporting the null hypotheses. These findings suggest that psychosocial and structural barriers, rather than deficiencies in knowledge or attitudes, are the primary determinants of contraceptive utilization in this context.

This study has several limitations that should be acknowledged. First, the cross-sectional design precludes causal inference; therefore, all associations should be interpreted with caution. Second, social desirability bias may have influenced reporting of attitudes and utilization, particularly in a context where contraceptive use may be socially sensitive. Third, the split-half reliability coefficient (Spearman–Brown = 0.78) indicates acceptable but not high reliability. Future studies should aim for Cronbach's alpha ≥ 0.80 and consider the use of fully validated measurement scales.

Conclusions

This study confirms a considerable knowledge–attitude–practice (KAP) gap in modern contraceptive utilization among women of childbearing age in Jigawa State. While most women are aware of and express positive attitudes toward modern contraceptives, only about one in twelve currently uses a method. Structural barriers—including male partner opposition, fear of side effects, gaps in method-specific knowledge, and economic constraints—appear to be the primary drivers of this gap rather

than deficiencies in knowledge or attitudes.

Actionable recommendations emerging from these findings include: (i) integrating male partner counselling and community dialogues involving religious and traditional leaders into existing family planning programmes to address partner opposition; (ii) strengthening the capacity of primary healthcare workers to provide comprehensive counselling on long-acting reversible contraceptives (LARCs), dispel myths about side effects, and engage couples rather than women alone; and (iii) ensuring free or subsidized contraceptive services for low-income households to reduce financial barriers. Future research should employ larger, adequately powered study designs with validated instruments to more precisely estimate determinants of utilization and evaluate the effectiveness of multi-component interventions.

What is Known about this Topic

- Jigawa State has persistently high fertility rates and low modern contraceptive prevalence.
- Women in northern Nigeria exhibit a knowledge–attitude–practice gap in contraceptive behaviour.
- Partner opposition and fear of side effects are commonly cited barriers to contraceptive use in the region.

Authors' Contributions

Ibrahim Shuaibu Jibrin designed the study and conducted the statistical analyses. Mukhtar Saidu Muhammad developed and managed the research instruments. Umar Muhammad Bawa conducted the literature searches. Zahraddeen Bala supervised the data collection process. Sirajo Aminu contributed to study coordination and manuscript preparation. All authors reviewed and approved the final manuscript.

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This research received no external funding.

Conflict of Interest

The authors declare no conflict of interest.

Ethics Statement

Ethical clearance was obtained from the Faculty of Basic Medical Sciences, Sa'adu Zungur University, Bauchi State (Ref No. BASUG/FBMS/REC/VOL. 4/0049). Written informed consent was obtained from all respondents, with assurances of confidentiality. All participants provided informed consent prior to enrolment; for participants aged 15–17 years, assent was obtained in addition to parental or guardian consent. Participation was entirely voluntary, and participants were informed of their right to withdraw at any time without consequence. No personally identifying information was retained in the analysis dataset.

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