ABUAD Journal of Social and Management Sciences (AJSMS),
Vol. 5, No. 2, 2024, pages 261-284 https://doi.org/10.53982/ajsms.2024.0502.03-j

Published by the College of Social and Management Sciences (SMS), Afe Babalola University, Ado-Ekiti (ABUAD), Nigeria.
E-mail: ajsms@abuad.edu.ng

e-ISSN: 3043-4173

Variations in the Adoption and Use of Different Family Planning Methods and Implications: Evidence from a Cross-Sectional Study in Nigeria

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Abstract

Despite concerted efforts by all stakeholders to increase acceptability and access to modern family planning (FP) methods, the adoption and usage of family planning methods have remained low, particularly in developing countries which place stringent conditions on achieving SDGs. Therefore, there is the need to understand variations in the adoption and use of FP and their implications to speed-up interventions in the right direction. The study used cross-sectional data collected between June and August 2022 in 2,817 households with 6,641 males and females of reproductive age successfully interviewed. Univariate, bivariate, and binary multivariate logistic regression model were used to model traditional and modern FP usage. Awareness was shown to be approximately two-thirds (62.8%) among respondents with main source of information being radio. Major methods of awareness are condom and pills. In terms of significant others' support enjoyed, 43.5%, 38.5% and 39.5% enjoyed their mother, mother-in-law, and community support, respectively. Religion, region and parent's parity were significant predictors of traditional method usage. Living in the North-Western region, increase in education, being gainfully employed, increase in years of marriage and exposure to media increase the use of modern methods of FP, whereas living in the rural areas (AOR = 0.76; CI = 0.58-1.00) and partner FP approval (AOR = 0.64; CI = 0.48-0.85) significantly reduce usage. Diverse variations have been identified in the adoption and usage of FP. To improve utilisation, appropriate education and accurate information through radio and mass media must be provided in rural areas and regions where FP usage is low.

Keywords: Family Planning, Modern Method, Nigeria, Traditional Method, Utilisation.

Introduction

Despite efforts by all agencies both local and international to increase acceptability, and access to modern family planning (FP) methods, and widespread knowledge of modern FP methods, the adoption and usage of FP have remained low, mainly in developing countries. In 2019, reproductive age women were estimated to be approximately 1.9 billion globally, out of which 1.1 billion had FP need. Of this, 842 million used at least one form of FP while 270 billion had FP unmet need (WHO, 2020). Furthermore, the percentage of reproductive age women who had their need for FP met hover around 77% globally (United Nations, 2022). This place strict restrictions on achieving Sustainable Development Goals (SDG) indicator 3.7.1.

Globally, variations in FP usage exist across countries and regions. In sub-Saharan African (SSA), modern contraceptive usage ranges from the lowest (4%) in South Sudan to highest (52%) in Eswatini and the increase in the use between year 2015 and 2018 ranges from 9.4 % to 14.6% in Mozambique and Malawi, respectively (United Nations, 2019). However, the major methods used are short-term methods which are less efficient, this explains why fertility continues to be relatively high in SSA region (United Nations, 2020). In Nigeria, trends in FP showed that in year 1990 less than half (41.2%) of married women knew about modern methods while by year 2013, the percentage increased to 82.8% and 95.7% of their partners. Whereas the use of

modern methods by currently married women only increased from 3.5% in year 1990 to 9.8% in year 2013 (NPC & ICF, 2014). Fast-forward to year 2018, the FP prevalence rate for any method used increased to 17% among currently married women while unmet need for FP was estimated to be 19% (NPC & ICF, 2019). Of the 17% prevalence rate, 12% use a modern method while 5% use a traditional method. The most popular methods of FP used were implants (3%), injectables (3%), and withdrawal (3%) (NPC & ICF, 2019). WHO recent report indicates that condoms are the most used FP method which has potential to prevent both pregnancy and sexually transmitted infections, including HIV (Rakhi and Sumathi, 2011; WHO, 2023). Arguably the types of methods used have an impact on the fertility level. For instance, in Burkina Faso, there is low use of highly effective methods such as sterilization or IUD, while Zimbabwe is a country that is known to have relatively high contraceptive use compared to other countries of sub-Saharan Africa (United Nations, 2019).

Furthermore, evidence from 2018 Nigeria Demographic and Health Survey (NDHS) report showed that modern FP methods usage varied by wealth, residence, and state. For instance, modern method usage was higher among urban women (18%) and increased with wealth. In addition, regional variations exist, with northern regions having the lowest percentage of modern FP methods usage compared to the southern regions (United Nations, 2020). Also, Adebayo et al., (2013) found huge regional variations in modern FP usage in Nigeria, with a noticeable north–south divide.

The fertility rate in Nigeria continues to be high with an estimate of 5.3 children per woman. Evidence shows that the decline in fertility rate has been slow (Adebola, et al., 2023) and whether or not the decline speeds up, it will certainly be influenced by contraceptive prevalence and method used (United Nations, 2020). By implication, If the usage of effective FP methods increases more rapidly there is prospect that total fertility would decline faster in Nigeria. Considering that Nigeria is a multi-ethnic and religious diverse country, with high fertility rate and low contraceptive usage, understanding the variations in the adoption and use of FP methods is important to promote uptake of FP, particularly in the regions, districts, and areas that are lagging. This is also imperative for achieving the Sustainable Development Goals target 3.7.1 in Nigeria. Against this backdrop, this study examined the variations in the adoption and use of FP methods and implications.

Literature Review

Joshi et al., (2012) examined the variations in FP practice across India districts and established that there exist spatial variations. Also, for the areas FP usage ranges between 25% in the year 1998-99 and over 40% after some period. Also, Lakew et al., (2013) showed that wealth, employment, higher education, increased number of living

children, monogamous relationship, and experiencing child's death influenced FP usage negatively. Proximity to private health facility, husband's willingness/approval and positive support from sisters-in-law and mothers-in-law were shown to be significantly associated with contraceptive usage (Irani, et al., 2013). Harris et. al., (2022) found that a lack of awareness about virginally inserted FP methods constituted a major barrier for uptake and utilization of virginally inserted contraception. Meanwhile, a study in Egypt established that Female education, participation in labor market, Islamic religion and the role of partner were found to be strong predictors of contraceptive use (Giusti and Vignoli, 2006).

Kopp et al., (2017) found that abstinence/traditional methods decreased in women, and the use of long-lasting and permanent methods increased over time even though approximately half (47%) of them stopped using the FP method they had used before conception. In addition, Ajayi et al., (2018) revealed that the rates of ever-use and current usage of FP were 80% and 66.6% respectively among women in Nigeria. Nevertheless, only about 43.9% of them had ever used a modern FP method. The fear of side effects drove many women away from adopting modern FP method while they held on to traditional methods.

Findings from a study also indicated that being educated, urban residence, knowledge on family planning, being married and having access to mass medias (radio, television or reading newspapers) showed an increased pattern with contraceptive use (Hailu, 2015). Similarly, Angeles et al., (2003) concluded that educational attainment is strongly correlated with family planning programs and uptake. The estimated impact of education most likely includes the impact of many other unobserved factors as well as the true education effect. The empirical results provided key evidence that importance of female education would be overstated if one uses a naïve empirical model that does not control for endogeneity due to the self-selection of a woman's educational status. Malalu et al., (2014) found that over 80% of their respondents were aware of modern family planning methods; pills and injections were most commonly used methods. The significant predictors of usage were the respondents' age, marital status, knowledge about methods and side effects and method approval by self and partner. Low uptake on the other hand, was influenced by lack of knowledge of the various methods available and fear of harmful effects.

Amo-Adeji et al., (2019) found that of the 28,515 women who accessed FP services between 2013 and 2015, more than half (57%) reported using modern long-acting and permanent contraception, and around 46% wanted another child within and after two years. Women of high parity tended to use long-acting and permanent contraception more than those of low parity. On the other hand, Shah et al., (2021)

and Agha (2010) independently reported that women who were able to convince their husbands to approve FP, adopt and use FP more.

Theoretically, this study is anchored on Andersen's behavioural model of health care services utilization services (Andersen, 1995). The assumptions of the model highlight that predisposing, enabling and community factors were linked to healthcare services utilisation which includes FP services. Drawing from the principles of this model, the predisposing demographic factors in this study include age, parity, marital status, and years of marriage, while the enabling resources are factors such as employment, wealth status, educational attainment and family planning support and approval by partners or significant others. All these factors could influence people to use or not to use FP. On the other hand, community factors like religion, mass media and community family support, region, and place of residence (rural-urban) could also determine the adoption and usage of Family planning methods.

Methods

Sample Design

This study used data collected through multi-stage stratified sampling design with probability proportional to size (PPS) which is a nationally representative sample of men and women of reproductive age interviewed in all selected households across the six geo-political zones (regions) of Nigeria. The survey selects two states from each of the six (6) geo-political zones at first stage. At the second stage, data was collected from one urban and one rural community from each selected state. Households containing men and women of reproductive age were then randomly selected using systematic sampling scheme at the third stage while in all selected households every man/woman of reproductive age were interviewed till the estimated sample size of at least 250 men/women were reached. Consequently, a total 2,817 households were randomly selected with 6,641 men/women of reproductive age being interviewed to form a nationally representative sample.

Measures

Outcome variable: There are two outcome variables for this study, they are "use of traditional method of FP" and "use of modern method of FP".

Use of traditional method is a composite variable that combined several variables. A participant is said to use traditional method if he/she uses one or more of the following methods: Rhythm/standard day method, Lactational Amenorrhea Method (LAM), withdrawal or other traditional methods. The response categories are "0=No" (non-use of at least one method) or "1=Yes" (use of at least one method).

The use of modern method is also a composite variable that combined several variables. A participant is said to use modern method if he/she uses one or more of the following methods: Female sterilization, male sterilization, intrauterine device (IUD), injectables, implants, pills, male and female condoms, and emergence contraception. The response categories are "0=No" (non-use of at least one method) or "1=Yes" (use of at least one method).

Predictor variables: The variables used in predicting use of traditional and modern family planning among the people include age, gender, religion, place of residence, region, level of education, employment status, wealth index, marital status, marriage type, years of marriage, number of living children, parity, parents' parity, partner FP approval and exposure to media. These variables are measured as categorical variables. Age was measured as "1 = 15-24 years", "2 = 25-34 years", and "3 = 35years and above"; gender measured as "1 = male" and "2 = female"; religion measured as "1 = Christianity", "2 = Islam" and "3 = others"; place of residence measure as "1 = urban", and "2 = rural"; region measured as "1 = North Central", "2 = North East", "3 = North West", "4 = South East", "5 = South-South" and "6 = South West"; education measured as "1 = no education", "2 = primary", "3 = secondary", and "4 = higher education"; employment status measured as "1 = employed", and "2 = unemployed"; wealth index measured as "1 = poorer", "2 = middle", and "3 = richer"; marital status measured as "1 = never married", and "2 = ever married"; marriage type measured as "1 = monogamy", and "2 = polygamy"; years of marriage as "1 = ≤ 5years", "2 = 6-15years" and "3 = 16years and above"; number of living children measured as "1 = ≤ 2 children", "2 = 3-4 children" and "3 = 5 or more children"; parity measure as "1 = 1-2 children", "2 = 3-4 children" and "3 = 5 or more children"; parents' parity measure as "1 = ≤ 3 children", "2 = 4-5 children", "3 = 6-7 children" and "4 = 8 or more children"; partner FP approval measured as "0 = No" and "1 = Yes"; and exposure to media measured as "0 = No" and "1 = Yes".

Statistical Analysis

The data for this study were analyzed using univariate, bivariate and multivariate analyses. The univariate analysis was employed largely to describe the sociodemographic characteristics of the participants through frequencies, percentages, and chart. The association between methods of family planning and the participants characteristics were measured by Pearson Chi-square test using p-value < 0.05 as the criterion for significance. Lastly, significant factors at the bivariate analysis in agreement with existing literature were then used in predicting traditional and modern methods of family planning at the multivariate level using adjusted odds ratios. A factor is identified as a significant contributor to the traditional or modern methods of family

planning if the Odds Ratio (OR) has a p-value < 0.05. All statistical analyses were completed using SPSS 27 and Microsoft excel.

Results

Background Characteristics

The distribution of identified socio-demographic characteristics of the sample is presented in table 1. Age distribution shows that emerging adults aged 15 – 24 years constitute highest respondents (37.8%), adult category (25-34 years) represents 31.9% of the respondents, while 30.4% are older adults aged 35 years and above. Female respondents constitute the greater part (70.8%) of the sample as compared to males (29.2%). A greater part (48.7%) of the respondents identifies as Christians, 30.6% practice Islam, while 20.7% practice other religions. More than half (52.5%) lives in the urban areas while 47.5% lives in the rural areas. The geo-political zone distribution shows that North-Western region has the highest (20.8%) representation while the South-South region has the lowest representation of 15.4%. Many (45.4%) of the respondents have secondary education with only a few (8.9%) having tertiary education.

More than half of the respondents (53.4%) are employed compared to those who are unemployed (46.6%). More than two-out-of-every-three (67.9%) of the respondents lives in the middle wealth index households, whilst 9.7% lives in rich wealth index households. Slightly more than half of the respondents (53.6%) are ever married while 46.4% are never married. Two-third (66.2%) of the respondents engage in monogamy marriage while 33.8% are in polygamous marriage. Slightly more than one-third (34.3%) of the respondents are five years or less in marriage, 42.3% are between 6 and 15 years in marriage while 23.4% are 16years and above in marriage. More respondents (38.2%) have 3-4 living children, 31.3% have at most 2 living children while 30.5% have 5 or more living children. More than two-in-every-three (67.7%) of the respondents have given birth to at most 4 children whereas 81% of their parents gave birth to at least 4 children. More than half of the respondents (55.5%) gain family planning approval from their spouse while there is 50% exposure to media.

Table 1: *Socio-demographic distribution of respondents*

	Frequency	Percent
Age		
15 - 24yrs	2507	37.8
25 - 34yrs	2116	31.9
35yrs and above	2018	30.4
Gender		
Male	1938	29.2
Female	4703	70.8
Religion		

Christianity	3231	48.7
Islam	2033	30.6
Others	1377	20.7
Place of Residence		
Urban	3488	52.5
Rural	3153	47.5
Geo Political Zone		
North Central	1119	16.8
North East	1055	15.9
North West	1383	20.8
South East	1030	15.5
South South	1021	15.4
South West	1033	15.6
Education		
No Education	780	11.7
Primary	2280	34.3
Secondary	3012	45.4
Tertiary	569	8.6
Emploment Status		
Employed	3548	53.4
Unemployed	3093	46.6
Wealth Index		
Poorer	1482	22.3
Middle	4512	67.9
Richer	647	9.7
Marital Status		
Never married	3081	46.4
Ever married	3560	53.6
MarriageType		
Monogamy	1753	66.2
Polygamy	894	33.8
Years of Marriage		
≤ 5yrs	1033	34.3
6 - 15yrs	1274	42.3
16yrs and above	705	23.4
Number of living children		
≤ 2 Children	793	31.3
3 - 4 Children	968	38.2
5+ Children	771	30.5
Parity		
1 - 2 Children	773	30.5
3 - 4 Children	942	37.2
5+ Children	817	32.3
Parents' parity		
≤ 3 Children	1261	19.0
4 - 5 Children	2311	34.8
6 - 7 Children	1629	24.5
8+ Children	1440	21.7
Partner FP Approval		
No	1156	44.5
Yes	1444	55.5
Exposure to media		
No	3322	50.0
Yes	3319	50.0

Source: Authors' Fieldwork, 2022

Distribution of Awareness, Knowledge, and Utilization of Family Planning

Table 2 shows that approximately two-thirds (62.8%) of the respondents are aware of family planning with their main source of information being radio (51%), Television (39.7%), social media (35.6%) and health facilities (35.4%). Their major methods of awareness are condom (74%), pills (65.7%), implants (52.3%) and injectables (49.6%). Most (65.2%) of those who are aware of the FP, know how to use the method. Also, 83.4% of them know where to obtain the method. Of these, 67.2% says it can be obtained at government hospitals, 57.1% says health centres, 26.3% says pharmacy, 21.8% says private hospital/clinics, etc. However, less than half (42.5%) of those who are aware of FP utilize it. And the main methods used are condom (42.9%), pills (26.9%), implants (21.9%) and withdrawal (20.5%).

On a general note, 26.7% of the respondents use family planning to prevent childbearing. Also, one-in-every-four (24.6%) of the respondents use modern family planning methods while only 6.4% use traditional methods of family planning (see Figure 1).

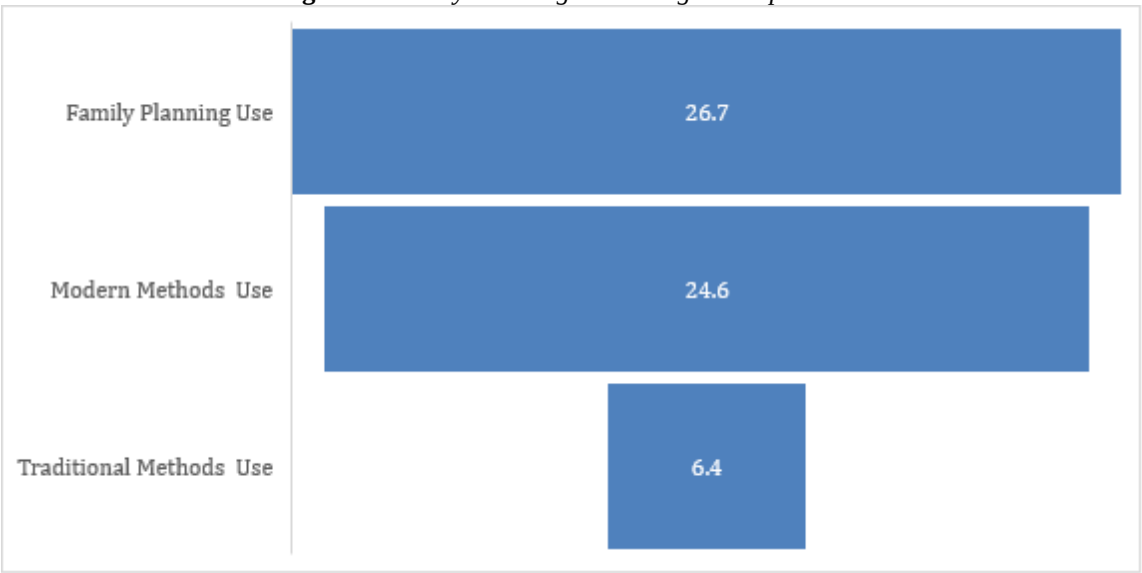
Table 2: *Frequencies of family planning awareness, knowledge, and utilization*

	Frequency	Percent
Awareness of FP (n=6641)		
No	2469	37.2
Yes	4172	62.8
Source of Information for FP (n=4172)		
Radio	2129	51.0
Television	1655	39.7
Newspaper or Magazine	517	12.4
Mobile Phone	513	12.3
Social Media	1484	35.6
Poster	541	13.0
Leaflet or Brochure	398	9.5
Town crier	175	4.2
At Health Facility	1478	35.4
Mobile Public Announcement	229	5.5
Awareness of Individual method (n=4172)		
Female Sterilization	1240	29.7
Male Sterilization	927	22.2
Intrauterine Device (IUD)	1008	24.2
Injectables	2068	49.6
Implants	2180	52.3
Pill	2739	65.7
Condom	3088	74.0
Female Condom	1777	42.6
Emergency Contraception	852	20.4
Standard Days Method	611	14.6
Lactational Amenorrhea Method (LAM)	432	10.4
Rhythm Method	452	10.8

Withdrawal	1678	40.2
Knowledge of use the method (n=4172)		
No	1450	34.8
Yes	2722	65.2
knowledge of where to obtain FP (n=4172)		
No	691	16.6
Yes	3481	83.4
FP Point of Sale (n=3481)		
Government hospital	2338	67.2
Health centre	1988	57.1
Health post	556	16.0
NGO health facility	476	13.7
CBD/CBRHA government	85	2.4
Private medical sector	380	10.9
Private hospital/clinic	759	21.8
Pharmacy	915	26.3
Shop	169	4.9
Friend/Relative	79	2.3
Any other place?	14	0.4
Utilization of FP (n=4172)		
No	2397	57.5
Yes	1775	42.5
Method used (n=1775)		
Female Sterilization	87	4.9
Male Sterilization	41	2.3
Intrauterine Device (IUD)	82	4.6
Injectables	299	16.8
Implants	389	21.9
Pill	478	26.9
Condom	762	42.9
Female Condom	137	7.7
Emergency Contraception	38	2.1
Standard Days Method	59	3.3
Lactational Amenorrhea Method (LAM)	30	1.7
Rhythm Method	31	1.7
Withdrawal	363	20.5
Other Modern Method	28	1.6
Other Traditional Method	44	2.5

Source: Authors' Fieldwork, 2022

Figure 1: *Family Planning use among the respondents*



Source: Authors' Fieldwork, 2022

In table 3, the level of support for or against family planning by respondents and significant others are measured. Among those who are aware of family planning, 61.3% are in support of women using FP method in preventing pregnancy. Also, 62.6% are in support of couples using FP method in preventing pregnancy. In terms of significant others, 43.5% says that their mothers support couples using FP, 38.5% enjoys their mother-in-law support, 39.5% enjoys community support while 55.6% enjoys their spouse support for use of FP.

Table 3: *Level of support for family planning*

Are you for or against a woman using family planning method in order to avoid pregnancy? (n=4172)		
Totally for	1668	40.0
Mostly for	888	21.3
Not for or against	1062	25.5
Mostly against	282	6.8
Totally against	272	6.5
Are you for or against a couple using family planning methods in order to avoid pregnancy? (n=4172)		
Totally for	1662	39.8
Mostly for	950	22.8
Not for or against	1029	24.7
Mostly against	260	6.2
Totally against	271	6.5
Is your mother for or against a couple using family planning methods in order to avoid pregnancy? (n=2600)		
Totally for	586	22.5
Mostly for	546	21.0
Not for or against	895	34.4
Mostly against	320	12.3
Totally against	253	9.7

Is your mother-in-law for or against a couple using family planning methods in order to avoid pregnancy? (n=2600)		
Totally for	498	19.2
Mostly for	503	19.3
Not for or against	938	36.1
Mostly against	375	14.4
Totally against	286	11.0
Is your community for or against a couple using family planning methods in order to avoid pregnancy? (n=4172)		
Totally for	771	18.5
Mostly for	875	21.0
Not for or against	1794	43.0
Mostly against	455	10.9
Totally against	277	6.6
Is your spouse for/against using family planning? (n=2600)		
Totally for	836	32.2
Mostly for	608	23.4
Not for or against	708	27.2
Mostly against	245	9.4
Totally against	203	7.8

Source: Authors' Fieldwork, 2022

Bivariate Analysis Results

Tables 4 shows the results of the bivariate analysis using Pearson Chi-square tests in examining association between socio-demographic factors and the different family planning indicators separately. Age, religion, place of residence, region, level of education, employment status, wealth index, marital status, years of marriage, number of living children, parity, parent's parity, partner FP approval and exposure to media are all significantly associated with family planning usage regardless of type used. However, gender is not significantly associated with family planning usage among the respondents irrespective of type used. Marriage type is significantly associated with use of family planning on a general level, but it is not significantly associated with use of neither modern method nor traditional method of family planning.

Table 4: *Bivariate Analysis on the use of traditional and modern methods of family planning*

	Modern Method			Traditional Method		
	No	**Yes**	**p-value**	**No**	**Yes**	**p-value**
Age			<.001			<.001
15 - 24yrs	2235 (89.2%)	272 (10.8%)		2416 (96.4%)	91 (3.6%)	
25 - 34yrs	1494 (70.6%)	622 (29.4%)		1941 (91.7%)	175 (8.3%)	
35yrs and above	1278 (63.3%)	740 (36.7%)		1856 (92.0%)	162 (8.0%)	
Gender			0.125			0.061
Male	47 (9.5%)	446 (90.5%)		359 (72.8%)	134 (27.2%)	

Female	94 (7.3%)	1188 (92.7%)		988 (77.1%)	294 (22.9%)	
Religion			<.001			<.001
Christianity	2354 (72.9%)	877 (27.1%)		3019 (93.4%)	212 (6.6%)	
Islam	1654 (81.4%)	379 (18.6%)		1933 (95.1%)	100 (4.9%)	
Others	999 (72.5%)	378 (27.5%)		1261 (91.6%)	116 (8.4%)	
Place of Residence			0.002			<.001
Urban	2575 (73.8%)	913 (26.2%)		3225 (92.5%)	263 (7.5%)	
Rural	2432 (77.1%)	721 (22.9%)		2988 (94.8%)	165 (5.2%)	
Region			<.001			<.001
North Central	926 (82.8%)	193 (17.2%)		1089 (97.3%)	30 (2.7%)	
North East	881 (83.5%)	174 (16.5%)		1022 (96.1%)	33 (3.1%)	
North West	989 (71.5%)	394 (28.5%)		1310 (94.7%)	73 (5.3%)	
South East	744 (72.2%)	286 (27.5%)		939 (91.2%)	91 (8.8%)	
South South	689 (67.5%)	332 (32.5%)		881 (86.3%)	140 (13.7%)	
South West	778 (75.3%)	255 (24.7%)		972 (94.1%)	61 (5.9%)	
Education			<.001			<.001
No Education	696 (89.2%)	84 (10.8%)		764 (97.9%)	16 (2.1%)	
Primary	1925 (84.4%)	355 (15.6%)		2206 (96.8%)	74 (3.2%)	
Secondary	2045 (67.9%)	967 (32.1%)		2733 (90.7%)	279 (9.3%)	
Tertiary	341 (59.9%)	228 (40.1%)		510 (89.6%)	59 (10.4%)	
Employment Status			<.001			<.001
Employed	2257 (63.6%)	1291 (63.4%)		3235 (91.8%)	313 (8.8%)	
Unemployed	2750 (88.9%)	343 (11.1%)		2978 (96.3%)	115 (3.7%)	
Wealth Index			<.001			0.001
Poor	1218 (82.2%)	264 (17.8%)		1410 (95.1%)	72 (4.9%)	
Middle	3313 (73.4%)	1199 (26.6%)		4216 (93.4%)	296 (6.6%)	
Rich	476 (73.6%)	171 (26.4%)		587 (90.7%)	60 (9.3%)	
Marital Status			<.001			
Never married	2682 (87.0%)	399 (13.0%		2942 (95.5%)	139 (4.5%)	
Ever married	2325 (65.3%)	1235 (34.7%)		3271 (91.9%)	289 (8.1%)	
Marriage Type			0.175			0.099
Monogamy	1118 (63.8%)	635 (36.2%)		1612 (92.0%)	141 (8.0%)	

Polygamy	594 (66.4%)	300 (33.6%)		838 (93.7%)	56 (6.3%)	
Years of Marriage			<.001			0.033
≤ 5yrs	729 (70.6%)	304 (29.4%)		956 (92.5%)	77 (7.5%)	
6 - 15yrs	680 (53.4%)	594 (46.6%)		1142 (89.6%)	132 (10.4%)	
16yrs and above	435 (61.7%)	270 (38.3%)		649 (92.1%)	56 (7.9%)	
Number of Living Children			<.001			0.033
≤ 2 Children	465 (58.6%)	328 (41.4%)		728 (91.8%)	65 (8.2%)	
3 - 4 Children	474 (49.0%)	494 (51.0%)		858 (88.6%)	110 (11.4%)	
5+ Children	516 (66.9%)	255 (33.1%)		707 (91.7%)	64 (8.3%)	
Parity			<.001			<.001
1 - 2 Children	453 (58.6%)	320 (41.4%)		710 (91.8%)	63 (8.2%)	
3 - 4 Children	468 (49.7%)	474 (50.3%)		835 (88.6%)	107 (11.4%)	
5+ Children	534 (65.4%)	283 (34.6%)		748 (91.6%)	69 (8.4%)	
Parents' Parity			<.001			0.042
≤ 3 Children	1018 (80.7%)	243 (19.3%)		1189 (94.3%)	72 (5.7%)	
4 - 5 Children	1753 (75.9%)	558 (24.1%)		2171 (93.9%)	140 (6.1%)	
6 - 7 Children	1161 (71.3%)	468 (28.7%)		1500 (92.1%)	129 (7.9%)	
8+ Children	1075 (74.7%)	365 (25.3%)		1353 (94.0%)	87 (6.0%)	
Partner FP Approval			<.001			0.038
No	774 (67.0%)	382 (33.0%)		1044 (90.3%)	112 (9.7%)	
Yes	591 (40.9%)	853 (59.1%)		1267 (87.7%)	177 (12.3%)	
Exposure to Media			<.001			<.001
No	2944 (88.6%)	378 (11.4%)		3241 (97.6%)	81 (2.4%)	
Yes	2063 (62.2%)	1256 (37.8%)		2972 (89.5%)	347 (10.5%)	

Source: Authors' Computation, 2022

Multivariate Analysis

Table 5 shows the results of the binary logistic regression model predicting factors associated with use of family planning (traditional and modern methods) among the people. The results show that religion, region and parents' parity are significant predictors of traditional method of family planning. The findings further reveal that those who practice Islam are significantly three times more likely (AOR = 2.94; CI = 1.59-5.43) to use traditional methods of FP than their Christian counterparts. Those

who lives in other regions of Nigeria except North-East are significantly more likely to use traditional method of FP than their counterparts who lives in the North-Centre region of Nigeria. However, those whose parents gave birth to 4-5 children are significantly less likely (AOR = 0.53; CI = 0.29-0.96) to use traditional methods of FP compared to those whose parents gave birth to 3 or less children.

Furthermore, the results show that place of residence, region, education, employment status, years of marriage, partner FP approval and exposure to media are significant predictors of modern methods of FP among the people. Living in the North-Western region, increase in education, gainfully employed, increase in years of marriage and exposure to media increase the use of modern methods of FP among the people, whereas, living in the rural areas (AOR = 0.76; CI = 0.58-1.00) and partner FP approval (AOR = 0.64; CI = 0.48-0.85) significantly reduce use of modern methods of FP among the respondents.

Table 5: *Multivariate Analysis on predictors of traditional and modern methods of family planning usage*

	Modern Method		Traditional Method	
	AOR	**95% C.I.**	**AOR**	**95% C.I.**
Age				
15 - 24yrs	1.000		1.000	
25 - 34yrs	0.693	0.429 - 1.120	1.086	0.533 - 2.212
35yrs and above	0.642	0.376 - 1.095	0.644	0.291 - 1.426
Religion				
Christianity	1.000		1.000	
Islam	1.108	0.739 - 1.660	2.937**	1.589 - 5.429
Others	1.037	0.712 - 1.510	0.963	0.552 - 1.682
Place of Residence				
Urban	1.000		1.000	
Rural	0.760*	0.579 - 0.997	0.699	0.472 - 1.036
Region				
North Central	1.000		1.000	
North East	0.763	0.447 - 1.302	1.886	0.672 - 5.292
North West	2.715***	1.800 - 4.095	3.034**	1.513 - 6.084
South East	1.325	0.770 - 2.279	8.904***	3.631 - 21.833
South South	1.458	0.880 - 2.415	6.746***	2.857 - 15.928
South West	1.219	0.750 - 1.980	3.295**	1.393 - 7.790
Education				
No Education	1.000		1.000	
Primary	2.185**	1.328 - 3.595	0.738	0.326 - 1.669
Secondary	2.723***	1.671 - 4.439	1.195	0.567 - 2.520
Tertiary	2.128*	1.151 - 3.934	1.404	0.561 - 3.516
Employment Status				
Employed	2.179***	1.544 - 3.076	1.064	0.629 - 1.801
Unemployed	1.000		1.000	
Wealth Index				
Poor	1.000		1.000	
Middle	1.163	0.825 - 1.640	1.407	0.812 - 2.438
Rich	0.949	0.572 - 1.574	1.881	0.905 - 3.910
Years of Marriage				
≤ 5yrs	1.000		1.000	
6 - 15yrs	1.463*	1.036 - 2065	1.555	0.930 - 2.599

16yrs and above	1.147	0.733 - 1.794	1.270	0.640 - 2.522
Number of Living Children				
≤ 2 Children	1.000		1.000	
3 - 4 Children	1.303	0.497 - 3.419	0.860	0.215 - 3.434
5+ Children	1.026	0.356 - 2.955	0.556	0.125 - 2.468
Parity				
1 - 2 Children	1.000		1.000	
3 - 4 Children	1.141	0.433 - 3.008	1.638	0.401 - 6.690
5+ Children	1.186	0.416 - 3.385	1.905	0.434 - 8.352
Parents' Parity				
≤ 3 Children	1.000		1.000	
4 - 5 Children	1.057	0.688 - 1.624	0.531*	0.294 - 0.960
6 - 7 Children	1.129	0.729 - 1.748	0.891	0.500 - 1.589
8+ Children	0.924	0.590 - 1.449	0.801	0.434 - 1.479
Partner FP Approval				
No	1.000		1.000	
Yes	0.639**	0.478 - 0.854	0.992	0.646 - 1.522
Exposure to Media				
No	1.000		1.000	
Yes	3.340***	2.558 - 4.360	1.063	0.717 - 1.577

Source: Authors' Computation, 2022

Discussion

The aim of this paper was to examine the variations in the adoption and use of different family planning methods and implications. As indicated by the findings, a large proportion of the respondents exhibited a high level of knowledge of family planning and places where it can be obtained. The major source of family planning information was through the radio (51%), social media and health facilities (35%). These findings highlight the importance of radio and other social media handles in creating awareness about family planning in Nigeria. In addition, social media creates high-level social networks across different geopolitical zones and communities in Nigeria, and thus supports increased information sharing about family planning. The common point of the sale of FP services is Government hospitals which are more accessible and affordable, particularly for those residing in the rural areas.

Furthermore, the findings indicated low use of modern family planning method (24.6%) and traditional FP method (6.4%) which confirms the relatively low usage of FP in Nigeria. This finding is in tandem with previous studies (Umoh and Abah, 2011; Ejembi, et al., 2015; Ononokpono, et al., 2020). The results also showed increasing variations in the adoption and use of modern and traditional family planning methods. While the most common modern method used was condom (48%), followed by pills and implant; withdrawal was the most common traditional FP method adopted. The high proportion of condom use found in this study could be because condoms are the only type of contraception that can both prevent pregnancy and protect against sexually transmitted infections (STIs), particularly HIV/AIDS (Ismael and Sabir

Zangana, 2012). Furthermore, they are cost-effective, easily available and without side effects.

The varying support for adoption and FP usage ranged from a total support for the purpose of avoiding pregnancy to neutral disposition of significant others such as mothers and mothers-in-law. This finding contrasts a study in India that reported significant influence of mothers-in-law in terms of young couples' adoption of contraception (Char, et al., 2010). This implies that support for the use or adoption of family planning is context specific. Char and colleagues also noted that in many cultural settings where extended kinship relations and lineage structures are strong, couples are not solely decision-makers regarding family planning. The neutral position of significant others on the adoption of family planning could suggest the protective role of mothers and mothers-in-law in marriage and family stability. More so, in a typical Nigerian cultural context, the involvement of mothers and mothers-in-law in FP decision-making may generate family conflict and is often misunderstood as interference.

Interestingly, religion, region and parents' parity were significantly associated with the use of traditional methods of family planning. The increased likelihood of adoption and use of traditional FP methods by adherents of Islamic religion is in line with a study by (Habib, et al., 2020). This result could be attributed to the Islamic belief and practice of 'ummah' (practice of family planning by using the withdrawal method). Many references in the Quran point to the Prophet's approval of coitus interruptus, which was the only family planning method known at the time, but also commonly practiced among Muslims in contemporary societies (Abdullah, 2004). Similarly, Abdi et. al., (2020) noted that Al Azl (withdrawal method) was used during the time of the prophet and modern FP methods are also allowed in many Muslim communities in Kenya. It is important to note that in Islam, the use of modern FP method is permissible in an emergency for health considerations and to prevent pregnancy but should be correctly used within the scope of the Islamic perspective (Suherman, et al., 2022; Wani and Anjum, 2019). This could partly explain the higher likelihood of modern FP usage found in Northwest with a predominant Muslim population when compared with North central with a mix of Christian and Muslim populations.

The variations and higher odds in the use of traditional method of FP found across regions of the country contrasts a study by Adebayo et. al., (2013) which established a North-South divide in the use of modern FP. This finding could explain the persistent poor usage of modern FP method in Nigeria. Surprisingly the use of traditional method was 8 times and 6 times higher in South West and South East respectively. This finding could be due to unobserved neighbourhood characteristics

such as norms, cultural and religious practices and beliefs regarding FP which were not included in this study. It is worthy to note that the southern part of Nigeria is predominantly Christian, and evidence showed that in the first century of Christianity, contraception was regarded as wrong and associated with paganism (Jones and Dreweke, 2011). This notion, however, has persisted in contemporary Christianity. Furthermore, the general belief that children are from God and the use of modern contraceptives to control childbirth is a sin was indicated in a study by Ononokpono et. al., (2023). The Christian beliefs about birth control and natural FP (especially among Catholics) may have contributed to the increased odds in the adoption and use of traditional FP in the South-west and South-east of Nigeria. The increase in the likelihood of adoption and use of modern method of FP found among educated people in this study is not surprising and could be due to greater knowledge and awareness of available and safe FP methods. Similarly, being gainfully employed enhances the opportunity for higher socio-economic status which in turn could lead to accessibility and use of modern family planning methods.

The findings also indicated lower odds in the adoption and use of modern FP methods among rural residents, and those who reported partner's approval for FP. In contrast, the lower likelihood in the use of traditional FP method was found among those who reported high parental parity. These contrasting findings could reflect the diverse socio-cultural backgrounds of the respondents which may have influenced their decisions on the adoption and use of the different FP methods. Meanwhile the higher likelihood of modern FP method usage associated with mass media exposure and increase in years of marriage corroborates a study by Ajaero, et. al., (2016). This finding could be attributed to an increase in information sharing occasioned by media technology and long marriage duration which make communication easier and more effective among social networks and married couples.

Limitations of the Study

Notably this study relied on cross sectional data and therefore cannot be used to establish cause and effect relationships. Community contextual variables such as norms, religious beliefs and cultural practices which would have elucidated more information on the effect of cultural contexts on the use of FP were not included in this study. These limitations notwithstanding, the study provides empirical evidence on the use of different FP methods and their associated factors which is important for a better understanding of FP adoption and usage in Nigeria.

Conclusion and Policy Implications

This study examined variations in the adoption and use of different family planning methods. The findings demonstrated a high level of knowledge of family planning methods and low usage. Radio was the major source of family planning information. Whereas condoms and pills were the most common modern method of FP used, withdrawal was the main traditional method utilized. The utilization of FP methods was significantly associated with place of residence, region, education, employment status, years of marriage, partner FP approval and exposure to mass media. Interestingly there was a North-South divide in the use of traditional FP method, with a higher likelihood of utilization in the South compared to the North. However, further research is needed for a better understanding of the unobserved factors. These findings have far-reaching policy implications. Considering that modern FP methods are more reliable, there is a need for education and accurate information about modern FP through radio and mass media platforms in rural areas and regions of the country where there is low usage of modern FP methods and dominant practices of traditional method of family planning. More importantly, there is a need for region-specific family planning programmes and intervention across the country.

Ethical Clearance

All participants gave their written informed consent for inclusion in this survey and where minors or underage are involved, written consent was obtained from their parents or guidance as they were interviewed in their respective households. In accordance with approved protocol by the committee in-charge of ethical issues at the Centre for Research and Development (CERAD) of Federal University of Technology, Akure, Nigeria data were collected. The approved ethical number assigned to this project is FUTA/ETH/22/94. Participation in this survey was done voluntary and participants were given a chance to withdraw or exist the interview at any time they wish to.

Statement on Patient Identifiers

We confirm that all respondents and personal identifiers have been removed, so that the respondents described are not identifiable and cannot be identified through the details of this manuscript.

Data statement

All data that support the study's results and findings are available from the corresponding author upon acceptable request.

Funding

This work was supported by a grant from TETFUND National Research Fund (NRF/TETFUND) research grant (No: TETF/ES/DR&D-CE/NRF2020/HSS/42)

CRediT authorship contribution statement

Conceptualization: AFB, JD, EOS, ODN. Data collection: AFB, JD, EOS, ODN AOG, AAA, OG, MS. Methodology and Data Analysis: AFB, EOS, AAA. Writing – original draft: JD, EOS, ODN. Writing – review & editing: AFB, JD, EOS, ODN AOG, AAA, OG, MS. All authors approved the manuscript for publication.

Declaration of Competing Interest

We declare that the authors have no competing interests in the completion and submission of this research.

Acknowledgments

The authors are grateful to the Tertiary Education Trust Fund (TETFUND) unit of the Federal Republic of Nigeria for funding this research as part of the 2020 TETFUND National Research Fund (NRF/TETFUND) research grant.

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