#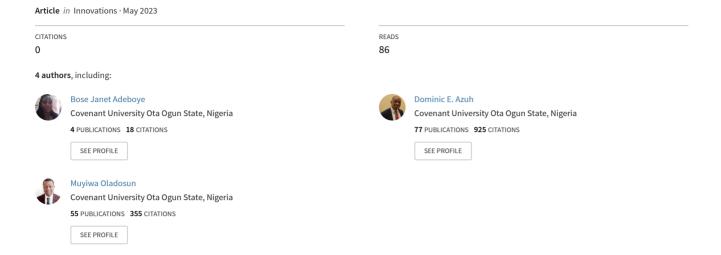 Predictors of Modern Contraceptives knowledge among Married Women of Reproductive Age in Nigeria: a Mixed Method Approach

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Innovations

Predictors of Modern Contraceptives knowledge among Married Women of Reproductive Age in Nigeria: a Mixed Method Approach

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Abstract

The study examined consistent determinants of knowledge of modern contraceptive among married women in Nigeria. This study used mixed method approach to examine consistent socio-demographic factors influencing knowledge of modern methods of contraceptives among married women in Nigeria. It employed the 2008 and 2018 Nigeria Demographic Health Survey (NDHS) data sets, which were analysed using univariate, bivariate, and multivariate (i.e. binary logistic regression) techniques. Qualitative data was gotten from Focus Group Discussion among pregnant women attending ante-natal clinic within a health facilities in three Local Government Area of Ogun State, Nigeria. Bivariate results show that knowledge of contraceptives is significantly and consistently associated with socio-demographic variables examined with p-value = 0.000 in both surveys. Multivariate results show that geographical region, women's education, women's wealth and work status is significantly consistent in determining the knowledge of modern contraceptives among married women in Nigeria. The qualitative result shows that FGD participants showed that educated women and urban women have more knowledge compared to uneducated and rural women. Policy and programmes geared towards improving knowledge of modern contraceptives method and it adoption among married women of reproductive age in Nigeria will need to consider these key socio-demographic factors.

Keywords: 1.Knowledge of Contraceptives, 2.Reproductive Age, 3.Modern Contraceptive methods, 3.married women, 4.Nigeria.

1 Introduction

Family planning helps a married women space or limit childbirth thereby avoiding unwanted or mistimed pregnancies and have the desired number of children. One way to achieve this, is the use of modern contraceptives(Conde-Agudelo & Balizán, 2000;Ali, Azimat & Hamza, 2018). Modern contraceptives work by distorting a woman's ovulation, fertilisation and implantation of the fertilised egg in the womb (Agyekum, Adde, Aboagye, Salihu, Seidu & Ahinkorah, 2022). Women's right to determine the number, spacing of children and when to stop given birth are crucial in equality, development and empowerment (Minkin& Wright, 2003;Odewale, 2016).According to the World Health Organization (WHO), ensuring access to preferred contraceptive methods for women is essential to supporting the health of mothers and children and the community's economic situation (World Health Organization, 2005). It is evident that use of effective contraceptive methods would potentially prevent 90 % of abortions, 20 % pregnancy-related morbidity and a third (32 %) of maternal deaths worldwide (Mahfouz, Elmahdy, Ryani, Abdelmola,Kariri, Alhazmi, et al, 2023).

The knowledge of contraceptive remains a significant problem in the society as many unplanned pregnancies have been reported every year. The Nigeria's National Demographic Health Survey classified modern contraceptive methods to include; oral pills, injectables, female condom, male condoms, implants, intra-uterine device (IUD), male sterilization, female sterilization, diaphragm, emergency contraceptive, lactation amenorrhoea and jelly/foam(NPC, Nigeria& ICF. 2019).

Concerning knowledge of methods, it was discovered that information transfer was extremely inadequate for both traditional and modern forms of contraceptives and, more limited among men than women(Adebowale & Palamuleni, 2014; Merki-Feld, Caetano, Porz& Bitzer,2018). Especially in settings where contraceptives use is stigmatised, sharing family planning knowledge among women is limited (Harzif, Maidarti, Handayaning & Andyra, 2022). In some studies, for example, women were denying having ever used birth control. However, when questioned in a more private situation, respondents acknowledged using modern contraceptives to some extent (Hall, Stephenson & Juvekar, 2008;Ali, & Okud, 2013). These women justified their actions by citing the stigma associated with expressing and learning about family planning tactics (Mosha, Ruben & Kakoko, 2013). The majority of current contraceptive methods were mostly unknown to men, and it is believed that family planning initiatives tend to focus primarily on women (Kaida, Kippi, Hessel & Konde-Lule, 2005; Odewale, 2016; Koffi, et al, 2018).

Nigeria has an estimated population of about 218.5 million, making it the seventh most populous country in the world(Population Reference Bureau, 2022). The country's population is projected to increase to 295 million in 2030 and 401.3 million in 2050 when it will become the third most populous country in the world (Population Reference Bureau, 2022). The Nigeria's population growth rate is 2.6 per cent and current fertility rate is 5.3 per cent, that is, an average Nigerian woman would give birth to more than five children during her reproductive years (NPC, Nigeria& ICF. 2019).

The high fertility rate in Nigeria is mainly as a result of low contraceptive usage. Evidence showed that contraceptive use has been very low in Nigeria, with a prevalence rate of 4 per cent in 1990. For 30 years, modern contraceptive use increased from 4 per cent in 1990 to 17 per cent in 2018 (NPC, Nigeria& ICF. 2019). This shows that modern contraceptives have not been widely adopted in Nigeria, thereby, contributing to rapid population growth.

In Nigeria, for the past decade, knowledge of modern contraceptives among married women increase with 26% or there is an increase in knowledge of modern contraceptive from 68% in 2008 to 94% in 2018 while contraceptive prevalent rate is 17%. Twelve percent of married women used modern method while 15% used a traditional method. The most common method among married women is implant (3%) and injectable (3%) (NPC, Nigeria& ICF. 2019).The question to ask is despite an increase in knowledge of modern contraceptive among married women, why it that the contraceptive use is low in Nigeria. This study examine consistent determinants of knowledge of modern contraceptives among married women in Nigeria using mixed method approach. Findings from this study will help the government and policy makers to make an appropriate policy that will encourage in-depth knowledge of contraceptives able to lead to increase in contraceptive use in Nigeria.

2   Methodology

The study used mixed method approach. The quantitative aspect used the Nigeria Demographic Health Survey (NDHS) dataset of 2008 and 2018. The total sample size for 2008 and 2018 data set is 36,800 and 42,000 respectively out of which 23,954 and 28,888 married women were extracted respectively. In this study, only selected variables in the 2008 and 2018 data files were extracted and analysed. The dependent variable is the knowledge of modern contraceptives methods. NDHS asked questions on the knowledge of modern contraceptives methods in both surveys.

The responses were recoded into '1' which means 'Yes' if there is knowledge of modern contraceptives methods, all other responses were recoded into '0' meaning 'No knowledge of modern contraceptives methods. The socio demographic predictors of knowledge examined in this study were women's aged 15-49, recoded as 15-24, 25-34, 35-44 and 45 and above, residence (urban and rural), region (North Central, North East, North West, South East, South-South and South West), and women's education (no education, primary, secondary and higher). Other predictors are; wealth index categorized as poor, middle and rich, number of living children 0, 1-2, 3-4, 5+, work status (not working and working), husband's age (25-34, 35-44, 45-55 and 55 and above), husband's education (no education, primary, secondary and higher), and husband's work status recoded as not working and working. A collinearity test was performed on the variable and variables with high collinearity scores were removed from the analyses.

The analyses involved descriptive and inferential statistics. The inferential analysis involved the use of binary logistic regression explore whether background factors are independently influence knowledge of modern contraceptives methods among married women in Nigeria. Also, it helps to check for significantly consistent predictors of knowledge of modern method of contraceptives among married women. The general model of the logistic regression equation used in the analysis is of the form

$$Ln\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_n X_n \qquad (1)$$

Where $X_1, X_2 \ldots X_n$ are sets of independent variables such as age, residence and others. β_0 is a constant and β's are regression coefficients. P is the probability that married women of reproductive age have knowledge of modern contraceptives methods.

The qualitative data was gotten from focus group discussion done among pregnant women attending ante-natal in three local government of Ogun State. Eight (8) pregnant women per FGD were interviewed separately as groups in Ifo, Ota and Abeokuta at Primary health Centre, State Hospital and Federal Medical Centre health facility respectively. The FGD was conducted in English and Yoruba language to ensure that the participants were carried along throughout the period of the discussion while key informant interview was conducted in English language. During the course of the interview, note taking was involved. Each FGD lasted between 40 minutes and 60 minutes. Qualitative data analysis was accomplished using contextual analytical techniques.

3 Results

3.1 Background Characteristics of Married Women in both surveys

Majority of women were between the ages 25-44 years in both surveys. Majority of women were from rural areas in both surveys. There is an increase in urban women from 27.5% in 2008 surveys to 36.0% in 2018 surveys. More than half of respondents were from Northern regions in both surveys (67.5% in 2008 and 65.9% in 2018 survey). There is an increase in respondents with secondary and higher education from 2008 to 2018 survey (Secondary: 21.1% to 30.0%, Higher: 6.3% to 9.0%). More than half of more than of women were affiliated to Islam religion (56.1% in 2008 and 56.8% in 2018 survey). The proportion of middle wealth status women increased from 18.85to 39.9% in 2018 survey while the proportion of rich women decreased from 32.1% to 19.7% in 2018 survey. Working women increased from 65.8% to 70.1% in 2018 survey.

Furthermore, the proportion of women with 5 or more living children increased from 28.6% to 30.9% in 2018 survey. Majority of respondents husbands belong to 35 to 54 age group in both surveys. Their proportion increased from 69.0% in 2008 survey to 71.8% in 2018 survey. The proportion of husband with secondary and higher education increased in both survey (Secondary: 25.0% to 33.8%, Higher: 11.9% to 15.5% in the 2018 survey). The proportion of working husband decrease from 69.0% in 2008 survey to 53.7% in the 2018 survey. Knowledge of modern contraceptives increases from 65.1% in 2008 to 94.1% in 2018 survey.

Table 1: Description of Background Characteristics of Married Women in 2008 and 2018 Survey

Background Factors	Year 2008		Year 2018	
Age in 10 Years Group	**Frequency**	**%**	**Frequency**	**%**
15-24	5773	24.1	6138	21.2
25-34	9348	39.0	11273	39.0
35-44	6316	26.4	8343	28.9
45+	2517	10.5	3134	10.8
Residence				
Urban	6586	27.5	10403	36.0
Rural	17368	72.5	18485	64.0
Region				
North Central	4441	18.5	5268	18.2
North East	5147	21.5	5668	19.6
North West	6596	27.5	8115	28.1
South East	1911	8.0	3207	11.1
South-South	2661	11.1	2962	10.3
South West	3198	13.4	3668	12.7
Educational Level				
No education	12288	51.3	12725	44.0
Primary	5110	21.3	4810	16.7
Secondary	5053	21.1	8757	30.3
Higher	1503	6.3	2596	9.0
Religion				
Christian	9949	41.8	12262	42.4
Islam	13361	56.1	16396	56.8
Others	498	2.1	230	0.8
Wealth Index				
Poor	11754	49.1	11743	40.7
Middle	4506	18.8	11448	39.6
Rich	7694	32.1	5697	19.7
Work Status				
Not working	8147	34.2	8624	29.9
Working	15647	65.8	20264	70.1
Number of Living Children				
0	2455	10.2	2234	7.7
1-2	7441	31.1	9027	31.2
3-4	7201	30.1	8698	30.1
5+	6857	28.6	8929	30.9
Husband's Age				
25-34	770	15.5	691	12.0
35-44	1833	36.8	2076	36.0
45-54	1603	32.2	2063	35.8
55+	769	15.5	932	16.2
Husband's Educational Level				
No education	10117	42.6	10196	35.3
Primary	4858	20.5	4436	15.4
Secondary	5937	25.0	9769	33.8
Higher	2830	11.9	4487	15.5
Husband's Work Status				
Not working	7248	31.0	2806	46.3
Working	16167	69.0	3256	53.7

3.2   Socio-demographic determinants of Knowledge of Modern Contraceptives

This model was set up to test for significant relationship between each of the underlying factors and intervening variables. Their association had been tested above during the bivariate analysis using chi-square statistics.The analysis for the 2008 survey on socioeconomic factors and knowledge of modernmethod indicates that the Nagelkerke R-square of 0.264 implies that sociodemographic factors explain 26% variation in knowledge of modern method in the model. In Table 2, Nagelkerke R square of 0.286 obtained for the 2018 survey implies that 29% variations in the dependent variables are explained by the selected independent factors.

In the 2008 survey, rural women were 1.268 times more likely to have knowledge of modern methods than urban women, while in the 2018 survey, rural women were 0.664 (CI=0.461-0.958; p=0.05) times less likely to have knowledge of modern methods than urban women. Only the South West regions in the 2008 survey was significant while North West and South-South regions were significant in the 2018 survey. However, in the 2008 survey, North East, North West, south East, South-South and South West were 3.09, 2.69, 2.89, 1.71 and 4.25 (CI = 0.776-23.26; p=0.05) times, respectively, more likely that women have knowledge of modern method compared to North Central. In the 2018 survey, North East, South East and South-South were 0.718, 0.569 and 0.343 (CI = 0.195-0.605; p=0.001), times respectively less likely to know modern methods compared to North Central women while North West and South West were 1.781 (CI = 1.129-2.809; p=0.05) and 2.400 times, respectively, more likely to have knowledge of modern methods compared to North Central women.

All categories of women's education are significant in determining knowledge of modern methods in the 2018 survey whereas, only secondary education is significant in the 2008 survey. Also, in the 2008 survey, primary, secondary and higher education were 1.69, 11.12 (CI = 2.49-49.61; p=0.001) and 6.23 times, respectively, more likely to know modern method compared to uneducated women. In the 2018 survey, primary, secondary and higher education were 3.416 (CI = 2.059-5.667; p=0.001), 7.199 (CI = 4.240-12.224; p=0.001) and 6.198 (CI = 2.722-14.112; p=0.001) times, respectively, more likely to know of modern methods compared to uneducated women. The wealth index was significant in both surveys across all categories. In the 2008 survey, women in the middle and rich categories were 1.26 (CI = 0.310-5.15; p=0.05) and 2.16 (CI =0.351-13.30; p=0.01) times more likely to know modern methods compared to poor women respectively. In the 2018 survey, women in the middle and rich categories were 1.943 (CI = 1.354-2.789; p=0.001) and 3.662 (CI = 1.746-7.681; p=0.001) more likely to know modern methods compared to poor women respectively.

Furthermore, in the 2008 survey, working women were 2.01 (CI = 0.758-5.31; p=0.01) times more likely to know modern methods compared to not working women while in the 2018 survey, working women were 2.841 (CI = 2.062-3.915; p=0.001) times more likely to know modern method compared to women that are not working. The number of living children was significant in the 2018 survey only. In the 2008 survey, women with 1-2 children, 3-4 children and 5+ were 1.66, 1.10 and 1.66 times more likely to know modern methods compared to women with no children respectively whereas, in the 2018 survey, women with 1-2 children, 3-4 children and 5+ were 2.640 (CI = 1.709-4.077; p=0.001), 3.262 (CI = 2.081-5.113; p=0.001) and 3.166 (CI = 2.043-4.907; p=0.001) times more likely to know modern method compared to women with no children. In the 2008 survey, women whose husbands work were 0.765 less likely to know modern methods compared to women whose husbands are not working, while in the 2018 survey, women whose husbands work were 2.075 (CI = 1.476-2.919; p=0.001) times more likely to know modern method compared to women whose husbands are not working.

Table 2: Relationship between Knowledge of Modern Methods and Background Factors

	2008	2018
	OR (95% CI)	OR (95% CI)
Residence		
Urban	1.00	1.00
Rural	1.268 (.425, 3.785)	.664 (.461, .958)*
Region		
North Central	1.00	1.00
North East	3.09 (.700, 13.62)	.718 (.450, 1.146)
North West	2.69 (.671, 10.80)	1.781 (1,129, 2.809)*
South East	2.89 (.323, 25.94)	.569 (.290, 1.115)
South-South	1.71 (.323, 9.10)	.343 (.195, .605)***
South West	4.25 (.776, 23.26)*	2.400 (.817, 7.050)
Educational Level		
No education	1.00	1.00
Primary	1.69 (.492, 5.79)	3.416 (2.059, 5.667)***
Secondary	11.12 (2.49, 49.61)***	7.199 (4.240, 12.224)***
Higher	6.23 (1.12, 34.72)	6.198 (2.722, 14.112)***
Wealth Index		
Poor	1.00	1.00
Middle	1.26 (.310, 5.15)*	1.943 (1.354, 2.789)***
Rich	2.16 (.351, 13.30)**	3.662 (1.746, 7.681)***
Work Status		
Not working	1.00	1.00
Working	2.01 (.758, 5.31)**	2.841 (2.062, 3.915)***
Number of Living Children		
0	1.00	1.00
1-2	1.66 (.345, 8.01)	2.640 (1.709, 4.077)***
3-4	1.10 (.248, 4.89)	3.262 (2.081, 5.113)***
5+	1.66 (.360, 7.63)	3.166 (2.043, 4.907)***
Husband's Work Status		
Not working	1.00	1.00
Working	.765 (.262, 2.33)	2.075 (1.476, 2.919)***

Note: Level of Significance; *p ≤ .05, **p ≤ .01, ***p ≤.001; 2008 survey: Chi-square = 30.697, -2 Log likelihood = 139.016[a], Nagelkerke R Square = .264. 2018 survey: Chi-square = 530.200, -2 Log likelihood = 1572.352[a], Nagelkerke R Square = .286.

Qualitative Result

The participants were asked whether they had knowledge of modern sources of contraceptives, methods and side effects. The frequency of participants with knowledge was 24 while the frequency of those without knowledge was 18. The participants also had provided other responses like, 'I do hear', 'I have knowledge', and 'I used to know'. In terms of the specific contraceptive method(s) they know, the injectable method was mentioned 13 times, implant 10 times, JUD 9 times, Oral pills 7 times, Condom 4 times, and Postinor 2 occurred 4 times. This finding show that the participants know more about the injectable and implant methods compared to postinor 2. Also, side effects as a concept were mentioned 6 times in the discussion, method failure occurred 9 times, bleeding occurred 7 times, irregular/No menses occurred 6 times, excess fat occurred 6 times, inconvenience occurred 3 times, womb damage occurred 2 times, eating too much and severe headache occurred once each. Most of the side effects mentioned were probable as a result of misinformation. The finding shows that although many women have heard about modern contraceptives, but they do not have sufficient knowledge. As a result, many could not mention

the names of modern contraceptives and their respective side effects. Some of participants' responses are listed below:

"I know about tablet alone and then I know there are various type of modern contraceptives. I know the one they call insertion and they put it in the vagina. There is one they put under armpit and not injection. I have not done it before o. The one they put in arm is like rubber and half inch. You can do the one of two or three month dose. It is good but I cannot do it. I don't like it. I used to hear people say it causes menstruation to stop or they menstruate for days because of contraceptive issues".
25 years old woman, Abeokuta South LGA

"I do hear about family planning very well. If you want to plan how you give birth, you use modern contraceptives. You go to hospital and there are various methods. There is one of insertion. There is one they put under the armpit and there is another one that is drug. They will do test for the person and give the one suitable for the person. I don't know about any side effects they experience. I also know the one of 1 or 5 years, and if it's time the person want to give birth, she will remove it from her body."
39 years old woman, Abeokuta South LGA

"…………as they have said, they used to say they do the one of three months, one year and five years. They said the three month, they use drug and they also take injection and there is another one called 'Ifupa'."
25 years old woman, Ifo LGA.

The responses from participants who do not have any knowledge of modern contraceptives are also noted below.

"I don't know anything about modern contraceptives. Although, I used to hear that people do family planning".
19 years old woman, Ado-odo Ota LGA

"I don't know anything about family planning. I don't have an idea. This is my first time here that I came to register for ante-natal".
26 years old woman, Ifo LGA.

Discussion
The study found increase in knowledge of modern contraceptives from 2008 and 2018 surveys. The recent prevalent level shows there is a high level of knowledge of modern contraceptives in the country. However, there is a wide gap between the general awareness about modern contraceptive and the adequacy of knowledge required to make an informed decision about its usage. The qualitative study revealed that majority of discussants have heard about modern contraceptive but does not know different methods, how it works and likely side effects attached to each methods. The response below sport the findings…………

"…………as they have said, they used to say they do the one of three months, one year and five years. They said the three month, they use drug and they also take injection and there is another one called 'Ifupa'."
25 years old woman, Ifo LGA.

"I do hear about family planning very well. If you want to plan how you give birth, you use modern contraceptives. You go to hospital and there are various methods. There is one of insertion. There is one they put under the armpit and there is another one that is drug. They will do test for the person and give the one suitable for the person. I don't know about any side effects they experience. I also know the one of 1 or 5 years, and if it's time the person want to give birth, she will remove it from her body."
39 years old woman, Abeokuta South LGA.

These response and others suggests that there is wide gap between the awareness and in-depth knowledge of modern contraceptives among married women in Nigeria. The reasons may be that the family planning messages given by health professional were not understood. Another reason may be due to inadequate information or mode of delivering the messages is faulty. Also, it could be that the messages are not repeated enough to allow women understand the information. This study postulate that the knowledge of family planning portray in NDHS is mere awareness and does not connote knowledge of modern contraceptives because an in-depth knowledge of methods should translate to contraceptives use in the country.

Also, a study done in Oshogbo, Nigeria found high level of knowledge of modern contraceptives among women but only 13.1% are using contraceptives(Asekun-Olarinmoye, Adebimpe, Bamidele, Odu, Asekunolarinmoye & Ojofeitimi, 2013). There are other studies with the same pattern in which few women adopt a method despite the high level of knowledge reported in the areas (Arowojolu, Ilesanmi, Roberts & Okunola, 2002; Oladosun Akanbi Fasina & Samuel, 2019). This study found that educated women are more likely to have knowledge of modern contraceptive compared to uneducated women and it is consistently significant across the two surveys. The reasons may be that educated women (at least have secondary education) may be more exposed, have better access to media facilities, and may have visited nearby health facilities to obtain information on modern contraception and other reproductive health services. They also tend to have better awareness and understanding about types of contraceptive, benefits of using them, and access to get contraception services from health care facilities as a way of family planning.However, evidence has shown these are not sufficient to engender uptake of contraceptive(Longwe, Huisman & Smits, 2012).

Rich women are more likely to have knowledge of modern contraceptive method compared to poor women. They may be exposed to the modern contraceptives information during interaction with health personnel when visiting health facilities for check-up. Also, they are able to afford standard education that expose them to unlimited information(Arowojolu, Ilesanmi, Roberts & Okunola, 2002). Working women are exposed to information on family planning by interacting with the colleagues at work. Working women are likely to seek medical help when they have health issue thereby interact with health personnel. By interaction, they have more understanding about unintended and unplanned pregnancies, and other issues related to their reproductive health. Knowing such important information, women are more likely to use contraceptive for their own safety and health.

5. Conclusion

This study concluded that three factors significantly consistent in influencing knowledge of modern contraceptives among married women of reproductive age in Nigeria. They are women's education, wealth and work status. That is educated women, rich and working women are exposed to knowledge of modern contraceptives. This study suggests an intervention arranged to educate women with right and adequate information on family planning and empowerment programs for the women in Nigeria. The programme should target uneducated, poor and women that are not working in the country. This will encourage the increase in prevalence of contraceptive use in the country.

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