

Prevalence and Knowledge of Family Planning among Women of Reproductive Age Group in Primary Healthcare Centers in Abuja, Nigeria

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Abstract

The contraceptive prevalence rate (CPR) is a key indicator for measuring improvements in access to reproductive health. In Nigeria, the average CPR remains low at 17%, with wide variability in the knowledge of family planning (FP) methods across the states and communities. Thus, this study set out to 1. Determine the Contraceptive prevalence rate among women of the reproductive age groups (WRAGs) in Primary Healthcare Centers (PHCs) in Abuja. 2. Assess the knowledge of family planning and its methods among WRAGs in PHCs in Abuja. This is a descriptive cross-sectional study conducted among WRAG in two PHCs in Abuja. A simple random method was used to select 400 WRAGs, and the information from participants was captured with a pre-tested structured questionnaire. SPSS version 21.0 was used for data analysis, the hypothesis was tested with chi-square, and the results were significant at $p\text{-value} < 0.05$. The study analyzed 375 valid and complete questionnaires; the mean age was 30 ± 6.29 years, and 90.7% of respondents had at-least secondary school education. The CPR was 36%, and the most common FP methods were male condoms (11.6%), injectable birth control (5.4%), female condoms (4.7%), and implants (4.0%). About 66% of participants had good knowledge of FP methods, and this was associated with increased uptake of contraceptives. The CPR found in this study is considerably higher than the Nigeria national average. The finding aligns with the reported good knowledge of family planning and high literacy level. Furthermore, good knowledge of FP methods was significantly associated with increased contraceptive uptake.

Keywords: Abuja, Contraceptive prevalence, Knowledge of family planning, Primary healthcare centers, Women of reproductive age group.

Introduction

Globally, Family planning has become an integral component of public health. It is also a right for every individual to decide on the number of children they want to have and the time interval for their children without discrimination, oppression, and violence.

Individuals should have access to facilities and necessary information to make an informed decision, with the availability and accessibility of the highest standard of sexual and reproductive health services [1]. It is a fact that the non-use or inappropriate use of family planning methods and behaviors and attitudes towards it has become a public health concern

as it has consequently led to many unplanned or unwanted pregnancies and a high rate of infant and maternal mortality in many countries. Increased knowledge and positive attitudinal change towards methods of family planning uptake can potentially improve the effort in building strong and healthy communities. Some studies have shown that about one-third of maternal mortality is preventable with the use of contraceptives among women who desires to delay or postpone pregnancies [2]. About 222 million women in 2012 were estimated to have an unmet need for family planning globally [3]. The majority of these were among sexually active populations, rural communities, populations with low socioeconomic status, and those managing disasters and conflicts [4]. Studies have documented the impacts of increased utilization of contraceptives in developing countries, which included a reduction of the annual percentage of maternal mortality by 40% over a period of two decades. Furthermore, following through with the strategy of meeting the needs of family planning in these developing countries promises to reduce maternal mortality by a further 30% [5]. This informed the initiative of Family Planning 2020, which was started in July 2012 at the London Family Planning Summit. The initiative was aimed at providing family planning information, services, and supplies for about 120 million women and girls by 2020 [6].

The importance of voluntary family planning service uptake can never be over-emphasized as providing access to contraceptive methods, and its utilization offers great improvement in the health, educational and economic sectors in addition to reproductive health benefits to families [2, 5, 7]. In the 2017 United Nations report, it was documented that 58% of women of reproductive age who are either married or were in a union were using a modern method of family planning globally. However, sub-Saharan Africa recorded only about 32% usage [8]. This implies that family planning

contraceptive method utilization varies in countries and regions [8]. Furthermore, according to an estimate in 2017, about 214 million women of childbearing age in developing countries who desire to avoid pregnancy do not use any modern contraceptive method. Notwithstanding, there was also a record of 308 million unintended pregnancies prevented as a result of modern contraceptive usage in 2017 [9]. Several studies conducted in most developing countries have shown that the prevalence of family planning contraceptive method uptake remains low compared to developed countries. For instance, a study conducted in Ghana [10] recorded that only 50 out of 280 (18%) respondents had ever used family planning services, while another study by Amadou recorded a general prevalence of 30.4% and 34.2% for married women or those who are in a union in Gambia [11]. In South Sudan, a study published by Geno Obwoya indicated a recent contraceptive use at 36% [12]. Moreover, a study conducted in Senegal which was published in 2017, examined trends in family planning among harder-to-reach women of reproductive age from 1992 to 2014 [13]. The study documented that modern contraceptive prevalence rose steadily from 4.8% to 11.9% at a rate of 0.8% per year between 1992 and 2011. Then at a rate of 2.1% per year, it increased to 20.2% in 2014 [13]. In Nigeria, knowledge of family planning is considerably high, but notwithstanding, family planning service uptake remains very low [14]. Much effort has been made to ensure the availability and accessibility of contraceptives to women in Nigeria [15]. Yet, there has not been a significant increase in its uptake as it is still low, with only 12% of women using modern family planning contraception in terms of the National average in 2017 [14]. Besides, studies among WRAGs in different parts of Nigeria reported variation in contraceptive uptakes, such as 26.4% recorded in a rural community in Southern Nigeria, with a 3rd of them using male condoms [16]. Another

research done in Southeast Nigeria documented a 26.2% contraceptive prevalence rate, with the most common method being natural methods (57%) and condoms (32.7%) [17]. Additionally, in Oyo State, Southwest Nigeria, a study published in 2015 reported 100% awareness of FP but 50% in lifetime use and 25.4% in the current usage of a contraceptive method [18]. From these studies highlighted and many more, it is obvious that the prevalence of family planning service uptake is considerably low as more effort is needed to increase uptake.

The importance of acquiring knowledge on family planning services cannot be over-emphasized as it is one of the vital steps to accessing contraceptive methods as well as using an appropriate method effectively and timely. Globally, knowledge of family planning and its methods has been significantly high, as documented by some studies. A study in Ghana revealed that about 89% of the study participants were aware of family planning services [10]. And in Uganda, two different studies documented that almost all the respondents had good knowledge of Family Planning contraceptive methods (98.1%), and the other documented 99.7% [19,20]. Also, in Nepal, a study showed that 97.61% of respondents recognized at least one family planning method [21]. Notwithstanding, there are few other countries where knowledge of family planning is very poor. The study conducted in Suva, Fiji, showed that 45.5 % of respondents had good knowledge of family planning, while 53.5% had moderate knowledge [22]. The knowledge of family planning contraceptives varies by state and location in Nigeria. For instance, in a rural community of Ebonyi State, Southeast, about 65.5% of the respondents had good knowledge of family planning [23]. At the same time, another study in a rural community in the Southwest recorded 11.7% knowledge of family planning among women of reproductive age [24]. Furthermore, a study in the Northern states of Nigeria comprising Jigawa, Katsina,

Yobe, and Zamfara States discovered that about 43.0% of the participants are aware of any method of family planning contraception, while 36.6% are aware of any modern method. In Osun state Southwest Nigeria, 25.8% of women of reproductive age surveyed had good knowledge of family planning [25]. Whereas in a rural community of Lagos State Southwest, a study demonstrated that 83.2% of the respondents were aware of family planning [26]. Studies have shown that women of the reproductive age group who have good knowledge of family planning are twice more likely to take up family planning contraceptives compared to those with poor knowledge [24]. This is because women with good knowledge of FP are well informed about the various options of available family planning methods as well as their importance and benefits, also in the prevention of sexually transmitted infections and not just for delaying or avoiding pregnancy [25]. Therefore, there is a need to inculcate knowledge and awareness creation in every family planning intervention program in Nigeria. The objective of the study is to determine the Contraceptive prevalence rate among women of the reproductive age groups (WRAGs) in Primary Healthcare Centers (PHCs) in Abuja. The study also aims to assess the knowledge of family planning and its methods among WRAGs in PHCs in Abuja.

Hypothesis

Ho1: There is no significant relationship between knowledge of family planning methods and uptake of family planning (contraceptives) among women of the reproductive age group in PHCs in Abuja.

Justification

In 1994, The International Conference on Population Development (ICPD) stated that providing family planning in a rights-based framework should be inculcated into a comprehensive set of services to meet the reproductive health needs of individuals as well

as tackle larger developmental concerns [27]. Promoting family planning service uptake in countries with high birth rates, such as Nigeria, has the potential to reduce the rate of poverty and hunger, reducing maternal mortality by about 32% and child mortality by up to 10% [27].

Data has shown that unintended pregnancy is a major reproductive health challenge for more than three decades. For instance, studies published between 2004 and 2008 showed that about 210 million women around the world became pregnant, of which 36% were unplanned or unwanted [28, 29]. The prevalence rate for any form of contraceptive among Nigerian women in 2018 was 17%, just a 2% increase from 2013 [14]. Furthermore, the population of Nigeria is on the increase, presently representing 2.35% of the world's total population which implies that for every 43 people on the planet, 1 is a resident of Nigeria [30]. In 1960, Nigeria's population was 45.2 million, and in 2016 was estimated to have over 178.5, and based on projections of the latest United Nations data, the 2022 population of Nigeria is 212.5 million. According to the United Nations projection, by the end of 2050, it will get to about 401.3 million, and if there is no intervention to this, by 2100, the Nigerian population will reach 728 million [30]. The high growth in Nigeria's population results from high birth rates, which are about 37 births per 1000 people, also early marriages, and lack of family planning uptake [30]. Despite the relative availability and accessibility of free family planning services at the primary health centers in Nigeria, the country still maintains a high fertility rate.

Moreover, with the level of awareness creation concerning contraceptive uptake in Nigeria, there is no commensurate increase in the utilization of contraception measures. This situation suggests that there could be other determinant variables to contraception uptake in Nigeria. Hence this study seeks to assess the

prevalence of family planning uptake among women of reproductive age in Abuja, Nigeria.

Further, it seeks to appraise the knowledge of family planning among this group and evaluate the relationship between the FP knowledge and uptake of family planning. It is anticipated that the findings from this study will provide baseline data for family planning programming and further research in the field in Nigeria.

Materials and Methods

Study Design

This study is a two-center hospital-based descriptive cross-sectional study focused on evaluating the contraceptive prevalence and knowledge of family planning methods at Byazhin Primary Health Center, Kubwa ward, Bwari area council, and Lugbe Primary Health Center, Kabusa ward, AMAC, both in the FCT, Abuja.

Study Area

The study area is Byazhin, a semi-urban community located in Kubwa ward, Bwari area council, and Lugbe, a semi-urban community in AMAC, both in Abuja, the Federal Capital Territory (FCT), of Nigeria. The Federal Capital Territory (FCT), Abuja, is situated in the North Central geo-political zone of Nigeria and is the administrative capital of Nigeria. The Byazhin PHC serves the Byazhin community and Kubwa within the Kubwa ward, Bwari Area Council of FCT. It has a total catchment population of 38,812 and 8,539 WRAG. The Lugbe PHC serves the Lugbe community within the Kabusa ward in Abuja Municipal Area Council, FCT. It has a total catchment population of 31,930 and 7,025 WRAG.

Study Population

The study population comprised women of the reproductive age groups (age 15 – 49 years) who were either out-patient or in-patient, irrespective of their primary service request in

Byazhin Primary Health Center and Lugbe primary health center, FCT Abuja.

Sample Size

The sample size for this study was calculated using the formula below:

$$n = \frac{z^2 pq}{e^2}$$

n = Sample size.

z = Standard normal deviate at 95% confidence interval = 1.96.

p = Best guess about the value of the proportion of interest = 0.5.

q = 1-p

e = Margin of error set at $p \leq 0.05$.

$$n = \frac{1.96^2 \times 0.5 \times (1 - 0.5)}{0.05^2} = 384.16$$

$n = 384$.

To make room for improperly filled questionnaires, attrition, non-responses and generalization of findings, the sample size (N) was adjusted to the minimum sample size of 400 respondents.

Sampling Technique

Simple random sampling was used to select 400 WRAG, 200 from each of the two participating PHCs: Byazhin Primary Health Center Kubwa and Lugbe Primary Health Center, AMAC, FCT, Abuja. These were interviewed during the period of data collection.

Data Collection Method

Data was collected between November-December 2021 using a pre-tested structured questionnaire that was self-administered to literate respondents and interviewer-administered to non-literate respondents. The questionnaire was drafted in English and consisted of three sections. Section one gave information on the socio-demographic profile of the respondents, and section two provided information on the prevalence of family planning uptake among women of reproductive age. Furthermore, section three provided

information about respondents' knowledge of family planning and its methods.

Validity of Questionnaire

To ensure the validity of the questionnaire, face validation by the research team and peers was employed, and all necessary corrections were effected. Moreover, the instrument was pre-tested in a non-project primary health center with similar characteristics to the study PHCs. This helped check the appropriateness of the variables as well as easy comprehension of the questions.

Reliability of the Instruments

The reliability coefficient of the questionnaire was determined from the pre-test using the Alpha-Cronbach test, with a correlation coefficient of 0.8 regarded as a good reliability index.

Data Collection Process

The validated semi-structured questionnaires were administered with the help of two trained research assistants who are familiar with the local language for easy translation where needed.

Data Analysis

The completed questionnaires were manually sorted out, coded, and analyzed using Statistical Package for Social Science (SPSS, version 21.0). During the sorting, 25 improperly filled questionnaires were discarded, and 375 were analyzed. Data were summarized using frequency tables, simple percentages, and charts. The chi-square test was used to test the hypothesis, and the results were significant at a p-value of less than or equal to 0.05.

Knowledge Analysis

Respondents' prevailing knowledge of family planning and its methods were analyzed using a knowledge scale. The 10 knowledge questions asked were allotted points, of which the correct answer was given 1 point, and the wrong answer had 0 points. The total

knowledge score and the maximum obtainable score for each respondent were calculated. The maximum obtainable score was 10, and the minimum obtainable score was 0.

The grading of the knowledge score is described below:

1. Poor knowledge (code 1) = 0 - 3.
2. Fair knowledge (code 2) = 4 - 6.
3. Good knowledge (code 3) = 7- 10.
4. The maximum obtainable knowledge score = is 10, while the minimum obtainable score = 0.

Result

Ethical Approval

The research team obtained ethical approval from the FCT Health Research and Ethics Committee, Health and Human Services Secretariat of the Federal Capital Territory Administration, Abuja, Nigeria. Moreover, informed consent was obtained from all the participants. The team also maintained the anonymity and confidentiality of the collected data throughout the duration of the study and afterward.

Table 1. Socio-demographic characteristics of respondents (N = 375)

Variable	Frequency	Percentage
Age (years)		
15 – 19	15	4.0
20 – 29	146	38.9
30 – 39	176	46.9
40 – 49	38	10.1
Level of Education		
No formal education	19	5.1
Primary education	16	4.2
Secondary education	112	28.9
Tertiary education	194	51.7
Post Graduate education	34	9.1
Marital Status		
Single	67	17.9
Married	280	74.7
Separated	15	4.0
Divorced	7	1.9
Widow	6	1.6
Occupation		
Unemployed	96	25.6
Artisan	121	32.3
Privately employed	74	19.7
Civil servant	50	13.3
Business	12	3.2
Student	4	1.1
Self employed	16	4.3
Housewife	2	0.5
Ethnicity		
Hausa	108	28.8
Igbo	123	32.8
Yoruba	65	17.3
Others	79	21.1

The study analyzed 375 valid and complete questionnaires (25 questionnaires were discarded due to incomplete information). The mean age was 30 years, with standard deviation of ± 6.29 .

Table 1 presented the socio-demographic characteristics and revealed that the majority of

respondents were from the 30 - 39 years age group (47%). Most of the respondents were literate, postgraduate level (9.1%), tertiary level of education (51.7%), and secondary level (29.9%), bringing a combined total of 90.7% with at least a secondary (high school) level of education (Table 1).

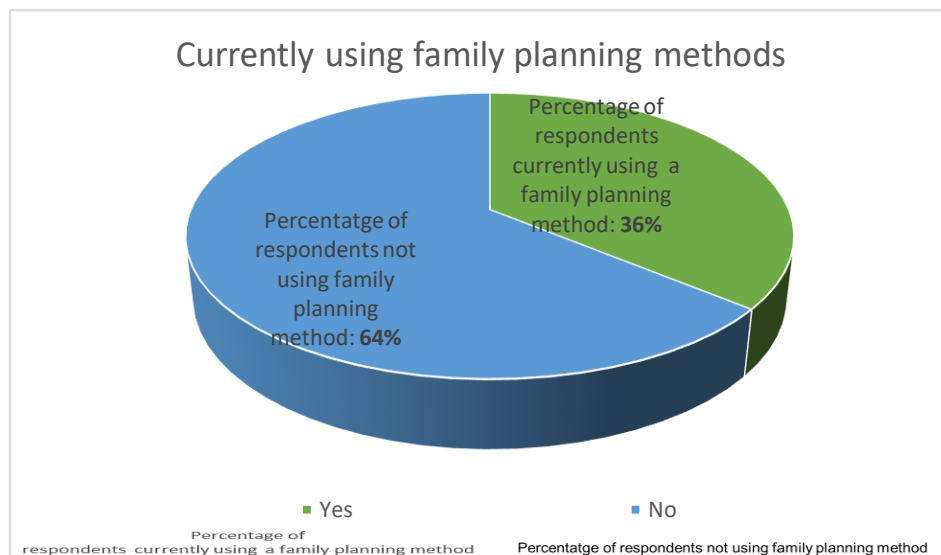


Figure 1. Percentage of respondents currently using family planning (N = 375)

The contraceptive prevalence rate found in this study was 36% (Figure 1), reporting that at

least one in three WRAGs surveyed was currently using a family planning method.

Table 2. Methods of Family Planning Currently Being Used among the Respondents

Variable	Percentage
Male condom	11.6
female condom	4.7
Contraceptive sponge	0.0
Spermicides	0.3
Diaphragms	0.8
Cervical caps	0.0
Copper IUD	2.7
Emergency contraceptive pills (ECPs)	1.1
Combined oral contraceptive pills (COCs “the pill”)	1.1
Contraceptive patch	0.0
Vaginal ring	0.0
Injectable birth control	5.4
Progestin-only pills (POPs)	0.8
Implants	4.0
Hormonal IUD	0.3
Male sterilization (vasectomy)	0.0
Female sterilization (tubal ligation)	0.3
Natural methods	2.9
Total	36%

Table 2 presented the breakdown of the types of FP being used by this 36% of respondents: the most common methods being male condoms (11.6%), injectable birth control

(5.4%), female condoms (4.7%) and implants (4.0%), Natural methods (2.9%), and Copper IUD (2.7%). The other 12 methods surveyed made up the remaining 4.7%.

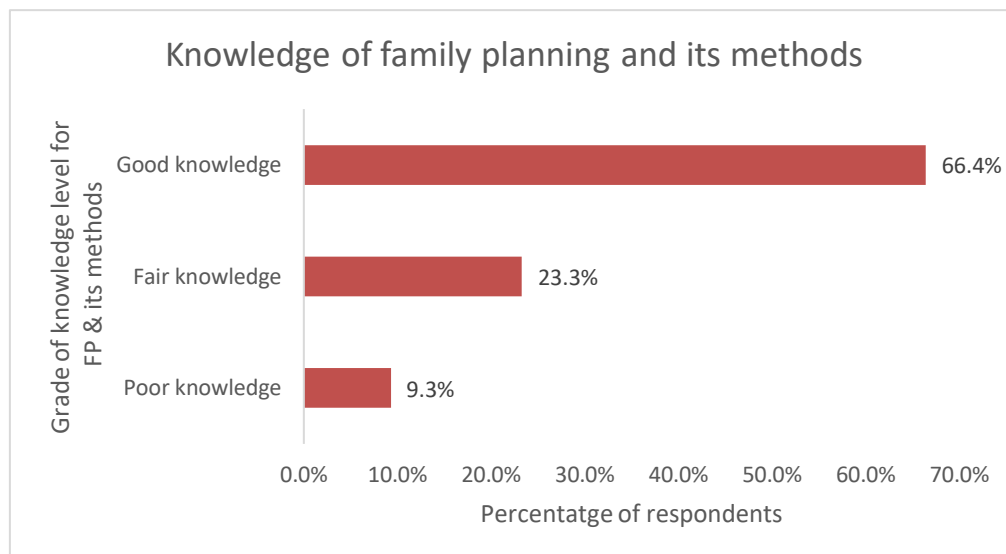


Figure 2. Respondents Grades for Knowledge of Family Planning & Its Methods

The knowledge of family planning and its methods was exceptional among the WRAG (figure 2). The majority had good knowledge (66.4%), while 24.3% had fair knowledge, with less than 10% demonstrating poor knowledge.

Ho1: There is no significant relationship between knowledge of family planning methods and uptake of family planning methods among women of the reproductive age group in PHCs in Abuja.

Hypothesis

Table 3 presented the hypothesis testing done with chi-square, which revealed that good knowledge of Family Planning was associated with increased uptake of contraceptives. The result was also statistically significant ($p = 0.012$).

Table 3. Cross-tab of FP Knowledge Level Versus Currently Using FP Method

FP knowledge level	Currently using any FP method		Total	X ² Value	DF	P-value
	Yes	No				
Poor knowledge	6 (17.1%)	29 (82.9%)	35 (100.0%)	7.947	2	0.019
Fair knowledge	29 (31.9%)	62 (68.1%)	91 (100.0%)			
Good knowledge	100 (40.2%)	149 (59.8%)	249(100.0%)			
Total	135 (36.0%)	240 (64.0%)	375 (100.0%)			

Discussion

The study analyzed 375 completed valid questionnaires from women of the reproductive age group in Lugbe and Byazhin primary healthcare centers who participated in the study. The mean age was 30 ± 6.29 years, with 47% of the respondents in the age group of 30-39 years.

This finding is like the study conducted in Southwest Nigeria, which reported a mean age of 29.94 ± 5.14 years [24]. The prevalence of family planning uptake among WRAG in this study was found to be 36.0%. This contraceptive prevalence rate (CPR) is more than double Nigeria's national average of 17%, thus, a remarkable improvement [31]. This may

relate to the high literacy rate (Table 1), and good knowledge of Family Planning (Figure 2) found among this cohort. This result is of vital public health significance because contraceptive prevalence remains a key indicator for measuring improvements in access to reproductive health, as declared in the 2030 Agenda for Sustainable Development [32]. This study agrees with studies conducted in different states in Nigeria, which reported similar CPR findings [33-35].

The types of family planning currently in use by the respondents, as reported on table 2 revealed male condoms as the most common Family Planning method in use. About One out of every three WRAGs using the Family Planning method reported male condoms as their method of choice (11.6/36). This finding is similar to some other studies carried out in Nigeria [36, 37]. Other methods were injectable birth control (5.4/36), female condom (4.7/36) and implants (4.0/36), Natural methods (2.9/36), and Copper IUD (2.7/36). The other 12 methods surveyed made up the remaining 4.7/36.

The above further highlights that barrier methods enjoy good patronage as almost half of the respondents were using the methods (male condom, female condom, and diaphragm). Moreover, the knowledge of family planning methods was high among the respondents with 66.4% reporting good knowledge of family planning methods, and still 24.3% showed fair knowledge with only 9.3% demonstrating poor knowledge (Figure 2). This may be linked to the ongoing family planning intervention projects which create contraceptive methods awareness, among other interventions. This is being sponsored by some Non-Governmental Organizations (NGOs) in selected communities and PHCs in the Federal capital territory, which includes the two PHCs used for the index study. The finding is in agreement with a similar study in Southeast Nigeria which reported a significant increase in awareness and uptake of

contraceptives after community Family Planning sensitization activities [38].

Furthermore, the findings revealed a statistically significant association between good knowledge of family planning and increased utilization of family planning commodities (P-Value = 0.012), showing that the respondents with good knowledge of family planning had higher uptake of family planning methods. This finding agrees with the report of the Nigeria National Demographic and Health Survey (NDHS) 2018 [39].

Conclusion

The contraceptive prevalence rate found in this study is considerably higher than the Nigeria national average. The finding is in agreement with the high literacy level and good knowledge of family planning reported among the cohort of women of the reproductive age group surveyed in the index study. Furthermore, good knowledge of Family Planning was a significant predictive factor for increased family planning uptake.

Recommendation

The study recommends that the PHC management develop programs aimed at sensitizing the members of the communities on Family Planning methods and its benefits to increase uptake at the PHCs.

Further Research

Further research is needed to understand the factors influencing family planning uptake in the communities. Understanding the barriers and facilitators of FP uptake will inform the development of a strategic FP intervention program.

Conflict of Interest

The authors declare that they have no conflict of interest.

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References

- [1] Akgun S, Bakar C. Üreme. sağlığı epidemiyolojisi: Türkiye’de doğurganlık ve aile planlaması. *Turkish Journal of Obstetrics and Gynecology*. 2006; 3:9-18.
- [2] Ahmed S, Li Q, Liu L, Tsui AO. Maternal deaths averted by contraceptive use: An analysis of 172 countries. *Lancet*. 2012; 380:111-125. DOI: 10.1016/S0140-6736(12)60478-4. PMID: 22784531 A.
- [3] Susheela S, Jacqueline D. Adding It Up: Costs and Benefits of Family Planning Services. Guttmacher Institute: New York; 2012.
- [4] Moazzam A, Armando S, Asma R, Mario F, Marleen T. A global research agenda for family planning: Results of an exercise for the setting of research priorities. Bulletin of the World Health Organization. 2014; 92:93-98. DOI: 10.2471/BLT.13.122242.
- [5] Cleland J, Conde-Agudelo A, Peterson H, Tsui A. Contraception, and health. *Lancet*. 2012; 380:149-156. DOI: 10.1016/S0140-6736(12)60609-6. PMID: 22784533.
- [6] Family Planning 2020. Washington, DC: Family Planning 2020; 2012. Available at: <http://www.familyplanning2020.org>.
- [7] Canning D, Schultz TP. The economic consequences of reproductive health and family planning. *Lancet*. 2012; 380:165-171. DOI: 10.1016/S0140-6736(12)60827-7. PMID: 22784535.
- [8] United Nations, Department of Economic and Social Affairs, and Population Division. 2017b. World population/publications/pdf/family/WFP2017_Highlights.pdf.
- [9] UNDESA. World Family Planning. United Nations. 2017;43. Available at: https://www.un.org/en/development/desa/population/publications/pdf/family/WFP2017_Highlights.pdf PMID:28327096.
- [10] Paschal Awingura Apanga and Matthew Ayamba Adam Factors influencing the uptake of family planning services in the Talensi District, Ghana. *Pan Afr Med J*. 2015 Jan 5; 20:10. doi: 10.11604/pamj.2015.20.10.5301. eCollection 2015.
- [11] Amadou Barrow. A Survey on Prevalence and Knowledge of Family Planning among Women of Childbearing Age in the Provincial Settings of the Gambia: A Descriptive Cross-Sectional Study. *Hindawi Advances in Preventive Medicine*. 2020; 2020, Article ID 8862290, 12 pages <https://doi.org/10.1155/2020/886229>.
- [12] Geno Obwoya, Justin & Wulifan, Joseph & Kalolo, Albino. Factors Influencing Contraceptives Use among Women in the Juba City of South Sudan. *International Journal of Population Research*. 2018. 1-7. 10.1155/2018/6381842.
- [13] Cavallaro FL, Benova L, Macleod D, Faye A, Lynch CA. Examining trends in family planning among harder-to-reach women in Senegal 1992-2014. *Sci Rep*. 2017 Jan 20; 7:41006. doi: 10.1038/srep41006. PMID: 28106100; PMCID: PMC5247687.
- [14] National Population Commission. Nigerian Demographic and Health Survey 2018. Available at: <https://nationalpopulation.gov.ng/ndhs-2018-key-finding>.
- [15] Muhammad AP. Family Planning 2020 Commitment. 2017. Available at: http://ec2-54-210-230-186.compute-1.amazonaws.com/wp-content/uploads/2016/10/Govt.-of-Nigeria_FP2020-Commitment-2012.pdf.
- [16] Ogboghodo EO, Adam VY, Wagbatsoma VA. Prevalence and Determinants of Contraceptive Use among Women of Child-Bearing Age in a Rural Community in Southern Nigeria. *Journal of Community Medicine and Primary Health Care*. 2017;29 (2).
- [17] Akamike IC, Madubueze UC, Okedo-Alex IN, Anyigor CJ, Azuogu BN, Umeokonkwo CD, & Mbachu CO. Perception, pattern of use, partner

support and determinants of uptake of family planning methods among women in rural communities in Southeast Nigeria. *Contraception and Reproductive Medicine*. 2020;5:14. <https://doi.org/10.1186/s40834-020-00120-x>.

[18] Adeyemi A, Olugbenga-Bello AI, Adeoye O, Salawu M, Aderinoye A, Agbaje MA, et al. Contraceptive prevalence and determinants among women of reproductive age group in Ogbomoso, Oyo State, Nigeria. *Open Access Journal of Contraception*. 2016;2016(7) pp33-41b. <https://doi.org/10.2147/OAJC.S94826>.

[19] Alege SG, Matovu JK, Ssensalire S, Nabweya E. Knowledge, sources, and use of family planning methods among women aged 15-49 years in Uganda: a cross-sectional study. *Pan Afr Med J*. 2016 May 10;24:39. doi: 10.11604/pamj.2016.24.39.5836. PMID: 27583102; PMCID: PMC4992376.

[20] Birabwa C, Chemonges D, Tetui M, Baroudi M, Namatovu F, Akuze J. et al. Knowledge and Information Exposure About Family Planning Among Women of Reproductive Age in Informal Settlements of Kira Municipality, Wakiso District, Uganda. *Front. Glob. Womens Health*, 25 May 2021. <https://doi.org/10.3389/fgwh.2021.650538>.

[21] Upadhyay A, Shah SK, Thapa DK, T.S. S, Ghimire R, Dahal HR. Knowledge, Attitude and Practice of Family Planning Method Among Married Women of Reproductive Age Group in Earth Quake Displaced Population of Sindupalchok District, Nepal. *American Journal of Public Health Research*, 2017;5(1), pp1-5. doi: 10.12691/ajphr-5-1-1.

[22] Lincoln J, Mohammadnezhad M, Khan S. Knowledge, Attitudes, and Practices of Family Planning Among Women of Reproductive Age in Suva, Fiji in 2017. *J Women's Health Care*. 2018; 7: 431. doi:10.4172/2167-0420.1000431.

[23] Azuogu B, Akamike I, Okedo-Alex I, Adeke A, Agu A, Akpa C. et al. Knowledge, Attitude and Perceived Partner and Socio-cultural Support for Family Planning among Women of Reproductive Age in a Rural Community in Ebonyi State, Nigeria. *Journal of Epidemiological Society of Nigeria*.

2020;3(2), 17 - 28. <https://doi.org/10.46912/jeson.28>.

[24] Anate BC, Balogun MR, Olubodun T, Adejimi AA. Knowledge and utilization of family planning among rural postpartum women in Southwest Nigeria. *J Family Med Prim Care*. 2021; 10:730-7.

[25] Akinwale DO, Okafor AN, Akinbade OM, Ojo CI. Determinants of Modern Contraceptives Utilization among Women of Reproductive Age in Rural Community, Osun State, Nigeria. *International Journal of Caring Sciences*. May-August 2020;13(2) Page 1173.

[26] Oluwale EO, Kuyinu YA, Goodman OO, Odugbemi BA, Akinyinka MR. Factors Influencing the Uptake of Modern Family Planning Methods among Women of Reproductive Age in A Rural Community in Lagos State. *International Journal of Tropical Disease & Health*. 2015;11(3). pp1-11. <https://doi.org/10.9734/IJTDH/2016/20373>.

[27] Okech TC, Wawire NW, Mburu TK. Contraceptive use among women of reproductive age in Kenya's city slums. *Int J Bus Soc Sci*. 2011;2:22-43.

[28] World Health Organization. Unsafe Abortion: Global and Regional Estimates of the Incidence of Unsafe Abortion and Associated Mortality in 2004. WHO, Geneva: 2004.

[29] Akani C, Enyindah C, Babatunde S. Emergency contraception: knowledge and perception of female undergraduates in the Niger Delta of Nigeria. *Ghana Med J*. 2008;42:68-70.

[30] UN World Population Prospects (2019 Revision) - United Nations population estimates and projections; 2021 World Population Review Nigeria Population. 2021. Available at: <https://worldpopulationreview.com/countries/nigeria-population>.

[31] Fadeyibi O, Alade M, Adebayo S, Erinfolami T, Mustapha F, Yaradua S. Household Structure and Contraceptive Use in Nigeria. *Front Glob Womens Health*. 2022;3:821178. doi:10.3389/fgwh.2022.821178.

[32] United Nations. World Contraceptive Use 2022. Available at: <https://www.un.org/development/desa/pd/data/world-contraceptive-use>.

- [33]Afolabi BM, Ezedinachi ENU, Arikpo I, Ogunwale A, Ganiyu DF, Abu RA, et al. Knowledge, non-use, use and source of information on contraceptive methods among women in various stages of reproductive age in rural Lagos, Southwest Nigeria. *Open Access J Contracept*. 2015;6:65–75.
- [34]Osaro BO, Tobin-West CI, Mezie-Okoye MM. Knowledge of modern contraceptives and their use among rural women of childbearing age in Rivers State Nigeria. *Ann Trop Med Public Health*. 2017;10:1043-8.
- [35]Durowade KA, Omokanye LO, Elegbede OE, Adetokunbo S, Olomofe CO, Ajiboye AD, et al. Barriers to contraceptive uptake among women of reproductive age in a semi-urban community of Ekiti State, Southwest Nigeria. *Ethiop J Health Sci*. 2017;27:121-8.
- [36]Usman S, Olabisi K, Ibiwumi I, Oluwole O, Adewale O, Ayooluwa A. Family planning practices among rural community women in Nigeria. *Journal of Experimental and Integrative Medicine*. 2016;6. 88. 10.5455/jeim.120716.or.155.
- [37]Aninyei L, Onyesom I, Ukuhor H, Uzuegbu UE, Ofili M, Anyanwu EB. Knowledge attitude to modern family planning methods in Abraka communities, Delta State, Nigeria. *East African journal of public health*. 2008;5. 10-2. 10.4314/eajph.v5i1.38970.
- [38]Akamike IC, Okedo-Alex IN, Madubueze UC, Umeokonkwo CD. Does community mobilisation improve awareness, approval, and uptake of family planning methods among women of reproductive age in Ebonyi State? Experience from a quasi-experimental study. *Pan African Medical Journal*. 2019; 33:17. doi:10.11604/pamj.2019.33.17.17401.
- [39]National Population Commission ICF. Nigeria Demographic and Health Survey. (2018). Abuja: Nigeria and Rockville, Maryland.