
KNOWLEDGE, ATTITUDES AND PRACTICES TOWARDS MODERN CHILD SPACING AMONG WOMEN OF CHILDBEARING AGE IN SAMARU COMMUNITY

BY

¹Hadiza M. S, ¹Salihu, A K, ²Sani, M.S, ³Abdullahi M, ⁴Attahir, I, ¹Farooq, M.A, ¹Ahmad, Y, ⁵Audu, J.D & ⁶Auwalu, Y.

¹Department of Nursing Science, Ahmadu Bello University, Zaria- Nigeria

²Nursing Science Programme,, Ahmadu Bello University Distance Learning Center, Zaria- Nigeria

³Department of Art and Social Science, Faculty of Education, Ahmadu Bello University, Zaria- Nigeria

⁴Department of Nursing Science, Kaduna State University, Nigeria.

⁵College of Nursing Sciences, Bida-Niger State.

⁶College of Nursing Sciences, Birnin Kudu, Jigawa State –Nigeria.

Email: hadizasma@yahoo.com

Abstract

Modern child spacing is a conscious effort by couples to space or limit number of children and helps them achieve desirable number of children. The study was carried out to assess the knowledge, attitudes and practices towards modern child spacing among women of childbearing age in Samaru community. A descriptive cross sectional study design was employed, and systematic sampling technique was used to select 89 women of child bearing age attending the Primary Health Care Center Samaru community. A structured questionnaire was used for data collection, and data was analyzed using frequency and percentage tables. More than two-third of the women (79.8%) had good knowledge of modern child spacing and a good number (78.6%) of the women had positive attitude. Although, (66.3%) of the women reported poor practice of modern child spacing. The major factor influencing their decision regarding modern child spacing was fear of side effect. About the results of this study it is recommended that the government and donor agencies should embark on massive and aggressive enlightenment campaign on the benefits of utilizing birth control both on the childbearing mothers, their immediate family and the entire community and by extension the state and country at large.

Keywords: Knowledge, Attitudes, Practices, Child spacing.

Introducing

Modern child spacing, also known as inter-pregnancy interval (IPI), refers to the amount of time between the birth of one child and the conception of the next child. Modern child spacing plays a crucial role in preventing unintended pregnancies, which can lead to negative social, economic, and health outcomes (OlaOlorun et al., 2021). The World Health Organisation (WHO) recommends that women wait at least two years after a live birth before attempting another pregnancy to reduce the risk of adverse outcomes (WHO, 2020). The WHO's recommendation is based on research that shows an increased risk of adverse maternal and neonatal outcomes, such as preterm birth and low birth weight, when the inter-pregnancy interval is less than 18 months. Despite the importance of modern child spacing, there is still a lack of knowledge and awareness among women of childbearing age in many African countries. Attitudes towards family planning and modern child spacing can also be influenced by cultural and religious beliefs, as well as societal norms and gender roles (Adanikin et al., 2021).

Nigeria is already experiencing a population explosion that is resulting in a mismatch between food production and the growing number of people. As of August 2021, Nigeria's population is estimated to be 212,320,991 by the United Nations, accounting for 2.64% of the global population. Nigeria is the 7th most populous country in the world, with a population density of 226 people per square kilometer (586 people per square mile) (United Nations, Department of Economic and Social Affairs, Population Division. (2021). Recent interest in modern child spacing methods in Nigeria

has resulted in a gradual decline in fertility rates in the last decade, from 5.7 births per woman in the 2008 Nigeria demographic and health survey (NDHS) to 5.5 births per woman in the 2013 NDHS and 5.3 births per woman in the 2018 NDHS. In Kaduna state, the prevalence of modern child spacing among married women of reproductive age is 19%, while in Kano state, it is 4%. Factors such as education, wealth status, and age of women were found to be significantly associated with the use of modern contraceptives in Northern Nigeria.

Despite the availability of modern contraceptive methods and the potential benefits of modern child spacing, there is still a low prevalence of child spacing in Zaria where the study was carried out. This highlights the need for further research on the knowledge, attitudes, and practices of modern child spacing among women in Zaria, as well as targeted efforts to improve access to family planning services and promote safe and effective birth spacing practices (Iliyasu et al., 2020). Most couples have the desire to have a fulfilling sexual life, without the burden of unintended pregnancies or apprehensions regarding contraception methods and potential side effects.

Modern child spacing methods have been shown to be effective in preventing unintended pregnancies and reducing maternal and child mortality rates. According to Oginni et al. (2021), the utilization of modern child spacing methods among women of childbearing age in Nigeria is low, despite the effectiveness of such methods in preventing unintended pregnancies and reducing maternal and child mortality rates. This low utilization is influenced by various factors such as cultural beliefs, lack of knowledge, limited access to services, and inadequate support from partners and healthcare providers. Women within the age range of 15-49, regardless of their marital status, tend to have limited or inaccurate knowledge about modern child spacing methods and many of them have negative attitudes towards family planning. The fear of infertility and the potential for harmful side effects, as well as the risk of forgetting to take contraceptive pills, have been identified as reasons for the reluctance to use modern family planning methods (Okigbo et al., 2018). The effectiveness of past interventions aimed at increasing the utilization of modern child spacing methods in Nigeria has varied. While some initiatives show positive outcomes, some factors have influenced its overall impact. Thus, it is essential to identify the factors contributing to the low utilization of these methods among women of childbearing age in Nigeria. Additionally, understanding women's perceptions of the benefits and drawbacks of modern child spacing methods is crucial in developing interventions that can improve access to and use of these methods (Ochako et al., 2018).

Research Objectives

1. To assess the knowledge of women of childbearing age towards modern child spacing methods in Samaru community.
2. To identify the perceived attitude of women of childbearing age towards different modern child spacing methods.
3. To establish the reported practices of women of childbearing towards modern child spacing in Samaru community.
4. To identify the factors that influence women's decision-making regarding modern child spacing in Samaru community

Methodology

The study was conducted in Primary Health Care Center Samaru in Sabon Gari local Government Area of Kaduna state, Northern Nigeria. It situated under the samaru district of sabon Gari local Government Area of Kaduna state which lies between the zaria-funtua road opposite the famous Ahmadu Bello University, Zaria. Samaru has an area of 300km with an estimated population of 45,897 from 2006 national census (National Population commission 2019). It has a total of 10,097 women of reproductive age group. Samaru is a heterogenous society of diverse ethnic, cultural, religious and social belief. The dominant ethnic group is Hausa while the dominant religion is Islam and Christianity. The primary Health care center consists of both ante-natal, post-natal units and immunization units. A cross-sectional descriptive study was employed. The study population were women of childbearing age (15-49) attending Primary Health Care, which is 157 going by the average monthly attendance. Any woman not married was excluded from the study. The sample size was calculated using Taro Yamani's formula. The formula was formulated by a statistician Taro Yamane in 1967 to determine the sample size from a given population.

$$n = \frac{N}{1 + N(0.05)^2}$$

Where n= sample size

While N= study population.

e= margin of error (0.07)

The population size used in the present study were (157) women. So the sample size was calculated as follow

$$n = \frac{N}{1 + N(0.07)^2}$$
$$n = \frac{157}{1 + 157(0.0049)} = \frac{157}{1 + 0.7693} = \frac{157}{1.7693}$$
$$= 88.7$$

Sample size (n) =89

A systematic sampling was used based on the attendance of the Primary Health Care Centre Samaru and the eligibility criterion. Until the required number of respondents was obtained.

The instrument used for collecting data was a structured questionnaire. The questionnaire was self-explanatory and structured into five (5) sections, containing information on socio-demographic variables, on knowledge, attitude, practices and factors affecting the attitudes of women of childbearing age towards modern child spacing methods in Samaru community. Data was obtained manually and assembled, the responses on the completed questionnaire and observations was analysed by descriptive statistics of frequency and simple percentage, tables used for interpreting of data collected. Ethical approval was obtained from the coordinator Primary Health Care Centre Samaru. A letter of introduction from Department of Nursing Science ABU Zaria was attached. Similarly, informed consent was sought for from each respondent prior to participation. Participation was on voluntary basis. Confidentiality and anonymity assured.

Results

Table 1:
Socio-Demographic Variable

Variable	Frequency	Percentage%
1. Age		
a. 15-25	21	18.6
b. 26-35	40	46.0
c. 36-45	24	29.2
d. 45 above	4	6.2
Total	89	100
2. Marital status		
a. Married	74	82.3
b. Divorced	12	13.3
c. Widowed	3	4.4
Total	89	100
3. Religion		
a. Muslim	56	60.2
b. Christian	33	39.8
Total	89	100
4. Educational status		
a. No formal education	18	12.4
b. Primary	34	26.5
c. Secondary	28	41.6
d. Tertiary	9	19.5
Total	89	100
5. Tribe		
a. Yoruba	11	11.5
b. Igbo	6	4.4
c. Hausa	54	51.3
d. Others	18	32.8
Total	89	100
6. No of children		
a. 1	19	13.3
b. 2	9	6.2
c. 3	14	24.8
d. 4 & above	47	55.7
Total	89	100
7. Occupation		
a. House wife	33	37.2
b. Trader	17	25.7
c. Civil servant	10	9.7
d. Farmer	4	3.5
e. Others	25	23.9
Total	89	100

On assessing the knowledge of the women on modern child spacing, majority (79.8%) of the women had heard of modern child spacing (62.0%) learnt of modern child spacing from health workers. Majority 48.3% are aware of less than 2years child spacing interval and 31.5% know of the recommended 2years child spacing interval. Regarding the

benefits of child spacing 55% are that it reduces the risk of maternal and infant mortality and more than half of the women understand that closely spaced pregnancy increase risk of infant and maternal mortality (Table 2)

Table 2:

Distribution of women of childbearing age knowledge on modern child spacing

Question	Frequency	Percentage%
1. Have you heard of modern child spacing before now?		
a. Yes	71	79.8
b. No	18	21.2
Total	89	100
2. How did you learn about modern child spacing?		
a. Health care provider	44	62.0
b. family or friend	13	18.3
c. media source (eg. Radio, Tv, Social media)	9	12.7
d. others	5	7.0
Total	71	100
3. What are the different types of modern child spacing methods available		
a. Hormonal method		
b. IUDs	39	43.8
c. Barrier method	30	33.7
d. Natural family planning method	7	7.9
Total	13	14.6
	89	100
4. What is the recommended spacing between children according to health care providers?		
a. Less than 2 years	43	48.3
b. 2 years	28	31.5
c. 3 years	11	12.4
d. 4 years	6	7.8
Total	89	100
5. What are the benefits of child spacing?		
a. Reduced risk of maternal and infant mortality	49	55.0
b. Improved maternal and child health outcome	25	28.1
c. Improved economic opportunities for families	11	12.4
d. others	4	4.5
Total	89	100
6. What are the risks associated with closely spaced pregnancies?		
a. Increased risk of maternal and infant mortality	53	59.6
b. Increased risk of preterm birth and low birth weight	19	21.3
c. Increased risk of maternal anemia and other health complications	11	12.4
d. others	6	6.7
Total	89	100

To assess the knowledge of women of childbearing age toward modern child spacing methods in primary health care center samaru, 6 questions with multiple options about modern child spacing were asked from which a marking scheme was drawn. One mark was allocated to the correct option and 0 mark to the remaining incorrect options. Using the scores obtained, a range of 0 to 2 marks was used to indicate that the women are not knowledgeable about modern child spacing while a score of 3 to 6 marks earned by the women which means they are knowledgeable about modern child spacing. The summary of the results is presented in table 3 below;

Table 3:
Summary of women of childbearing age knowledge of modern child spacing

Variables	Frequency	Percentage%
Poor knowledge (0-2)	18	21.2
Good Knowledge (3-6)	71	79.8
Total	89	100

The respondents' attitudes towards modern child spacing was found to be that majority of the women (78.6%) of the women with a mean score of 3.0 which is greater than 2.5 which serves as cut-off mark (indicating positive attitude) are of the belief that modern child spacing is important. More than half of the respondents (58.6%) with a mean score of 2.6 (positive attitude) are comfortable using modern methods of child spacing. But (61.8%) of the women with a mean score of 2.1(negative attitude) below 2.5 cut-off are not comfortable discussing modern child spacing with their partners .

Table 4:
Attitude of women of child bearing age towards modern child spacing

SN	Variables	SA (%)	A (%)	D (%)	SD (%)	Mean
1	Modern child spacing is important	27(30.3)	43(48.3)	12(13.5)	7(7.9)	3.0
2	I am comfortable with using modern methods of child spacing.	23(26.0)	29(32.6)	16(18.0)	21(23.4)	2.6
3	I am comfortable discussing modern child spacing methods with my partner	14(15.7)	20(22.5)	17(19.1)	38(42.7)	2.1
4	Modern child spacing is a family decision not a personal decision	31(34.9)	40(45.0)	13(14.5)	5(5.6)	3.1
5	Modern child spacing methods can improve the quality of life for women and their families	22(24.7)	47(52.8)	11(12.4)	9(10.1)	2.9
6	Modern child spacing allows women to pursue education and career goals?	39(43.8)	41(46.1)	7(7.9)	2(2.2)	3.3

7	More education and awareness can increase use of modern child spacing methods	26(29.2)	32(35.9)	19(21.4)	12(13.5)	2.8
---	---	----------	----------	----------	----------	-----

Table 5 shows the reported practices of women towards modern child spacing. Majority of the women 59(66.3%) have never used modern child spacing methods, which shows poor practices. 23(76.7%) used modern child spacing methods while 7(23.3%) used traditional methods. Half of the women 8(50.0%) chose method with little or no side effect, 5(31.3%) used a method because it affordable and available.

Overall poor practices of modern child spacing was discovered among them.

Table 5:
Reported Practices of modern child spacing

Statements	frequency	Percentage
1. Used any family planning method		
a. Yes	30	33.7
b. No	59	66.3
Total	89	100
2. Method used		
a. Modern child spacing methods(hormonal method, IUDs, barrier methods)	23	76.7
b. Traditional methods (breast feeding, abstinence, calendar)	7	23.3
Total	30	100
3. Currently using any family planning method		
a. Yes	16	18.0
b. No	73	82.0
Total	89	100
4. Decision on use		
a. Advice from a healthcare provider	12	75.0
b. Based on personal research and preferences	3	18.8
c. Recommendations from family and friends	1	6.2
Total	16	100
5. Reasons for using a modern child spacing methods		
a. To prevent pregnancy	4	25.0
b. To space out births	10	62.5
c. To improve overall health	2	12.5
Total	16	100
6. Main reason for choice of child spacing methods.		
a. Affordable and available	5	31.3
b. little or no side effect	8	50.0
c. suitable effective/ reliable	2	12.4
d. no reason	1	6.3
Total	16	100

7. Satisfaction		
a. Very satisfied		
b. Satisfied	1	6.2
c. Neutral	7	43.8
d. Dissatisfied	4	25.0
e. Very dissatisfied	3	18.8
Total	1	6.2
	16	100

Table 6:

Factors that influence women’s decision making regarding modern child spacing

Factors	Frequency	Percentage (%)
a. Lack of access to modern child spacing methods	9	6.8
b. Cost or financial barriers	23	17.3
c. Religious or cultural beliefs	26	19.5
d. Personal health concerns	7	5.3
e. Partner's opinion or beliefs	29	21.8
f. Fear of side effects	37	27.8
g. Other	2	1.5
Total	133	100

Table 6 shows that 37(27.8%) indicated fear of side effects such as bleeding, fatness and damage of other body organs as a major factor for not using modern child spacing methods. 29(21.8%) of the respondents attributed partner’s opinion or belief as a major barrier against their attitudes towards modern child spacing methods. 26(19.5%) indicated religious and cultural beliefs as a reason for not using modern child spacing methods.

Discussion

The findings from this study indicated that two-third of the women (79.8%) have heard of modern child spacing which is similar to a study carried out by Adefalu et al., 2018 on awareness and opinions regarding contraception by women of reproductive age in North-West Nigeria where 82.4% had knowledge on modern contraceptives and health personnel were the main source of information on contraceptives for 66.4% of women in his study which is also in line with the 62.0% who learnt about modern child spacing from health care providers. This is because whenever prospective and nursing mothers visit health facilities for prenatal and postnatal services; health care providers always avail them with information on birth control for birth spacing. Hormonal methods has the highest prevalence, 43.8% of the women know of the hormonal methods of child spacing and the least subscribed to by the women who visit PHC centre was barrier method 7.9%. Majority 48.3% are not aware of the 2years child spacing interval as recommended by the (WHO, 2020). Regarding the benefits of child spacing 55% of the women who attend PHC centre understand that it reduces the risk of maternal and infant mortality, 28.1% are aware that it improves maternal and child health outcome which agrees with a report from (WHO, 2017) stating that the benefits of family planning have become increasingly recognized worldwide, including improved health, economic, and social outcomes for women and families, 12.4% understands that child spacing improves economic opportunities for families. More than half 59.6% of the women understand that closely spaced pregnancy increase risk of infant and maternal mortality

Knowledge regarding the concept of modern child spacing reflects the effectiveness of the educational sessions offered by health care providers in the area in general and in the study group in particular. One of the greatest obstacles to modern child spacing in developing countries is knowledge. An individual can only accept to take contraceptives and space pregnancies only if she has an in depth knowledge of what modern child spacing is, different methods and its benefits. The study populations of women of child bearing age have generally fair knowledge regarding modern child spacing. The study shows that majority of the women (78.6%) of the women with a mean score of 3.0 (indicating positive attitude) are of the belief that modern child spacing is important which is similar to a study by Gajida et al (2019) Knowledge, attitude and practice of modern contraception among women of reproductive age in urban area of Kano, north-western Nigeria where majority of the respondents (63.4%) had a positive attitude toward modern contraception. More than half of the respondents (58.6%) with a mean score of 2.6 (positive attitude) are comfortable using modern methods of child spacing. Most (61.8%) of the women with a mean score of 2.1(negative attitude) are not comfortable discussing modern child spacing with their partners. This is in contrast with a study by Mbambu et al, (2023) Evaluation of the knowledge, attitude and practice among women attending family planning at Bwera general Hospital where 72% of the women have never discussed modern family planning with their husbands indicating negative attitude. This situation may hinder uptake of modern contraceptives by women in that population. Majority of the respondents (79.9%) with mean score (3.1%) agree modern child spacing is a family decision not a personal decision (positive attitude). A good number of the women (77.5%) with mean score 2.9 attending the PHC center agree that modern child spacing can improve the quality of life for them and their families (positive attitude). Majority (89.9%) with mean score 3.3 believe that modern child spacing allows women to pursue their educational and career goals (positive attitude). Most of the women (65.1) with mean score (2.8) agreed that more education and awareness can increase us of modern child spacing methods.

The findings from this study show the practices of women towards modern child spacing with reference to women attending the PHC centre. Majority of the women 59(66.3%) have never used modern child spacing methods, which is similar to a study of Obinna (2017), in which he found that only 15 percent of Nigerian women are utilizing any form of family planning which is at variance with the 2012 London Summit targets. Only 30(33.7%) have ever used modern child spacing methods which shows poor practices of the women in Samaru community. 23(76.7%) used modern child spacing methods while 7(23.3%) used traditional methods which is in contrast from a study in two south western Nigerian states where of the current users of any contraceptive methods, about half (44.3%) were using a traditional contraceptive method. 12(75.0%) were advised by health care providers. It is the highest because when women come for antenatal and postnatal clinics, the clinicians avail them with useful information's so as to help them provide adequate care for the delivered and unborn babies which contradicts the study by Obalase and Joseph (2017) on knowledge, Attitude and Acceptance of modern family planning method among women attending post-natal clinic in Ayeka Health Center in Okitipupa LGA Ondo state. Where a small percentage (27.5%) heard of information from government hospitals/ health care. 10(62.5%) used modern child spacing methods to space pregnancies, 4(25%) to prevent pregnancy and 2(12.5%) to improve overall health. Half of the women 8(50.0%) chose method with little or no side effect which supports a study by Ajayi et al, (2018) Use of traditional and modern contraceptives among childbearing women: findings from a mixed methods study in two southwestern Nigerian states where fear of side effects of modern contraception was the most reported reason for non-use of contraception and modern contraception in particular. Some women believe that modern contraceptives are harmful to the body and as such fails to use contraceptives or rely on less effective traditional family planning methods.

Regarding satisfaction, only 1(6.2%) was very satisfied with the method of child spacing she used, 7(43.8%) were satisfied with their choice of method, 4(25%) of the women were indifferent about choice of method (neutral), 3(18.8%) did not seem satisfied with the child spacing method they chose and 1(6.2%) of the women attending the PHC centre stated she was very dissatisfied and even concluded never to use any contraceptive again, hence will not

practice modern child spacing even in the future. Despite knowledge on modern child spacing in Samaru is on the average with reference to the study area, but the actual level of utilization and practices is very low. This revealed that despite the level of awareness in the society, married women in Samaru still find it difficult to use birth spacing. Findings of the study shows that 37(27.8%) indicated fear of side effects such as bleeding, fatness and damage of other body organs as a major factor for not using modern child spacing methods. Women face opposition to contraceptive use from their husbands and their families. In the northern Nigeria setting, this presents a significant barrier to modern contraceptive use and child spacing practice, because men are the decision makers in the family, and women often cannot obtain health services without their husband's explicit approval. This custom is deeply ingrained in local culture and evident in our findings that shows 29(21.8%) of the respondents attributed partner's opinion or belief as a major barrier influencing their decision regarding modern child spacing methods. 26(19.5%) indicated religious and cultural beliefs as a factor influencing their decision regarding modern child spacing methods. Previous studies have shown that many couples in Kaduna do not feel empowered to decide how many children they want to have, when to have them, and whether or not to use contraception, because only God can decide how many children a couple has and when (Sinai, Nyenwa, and Oguntunde 2018) Demand for Women's Health Services in Northern Nigeria. This implies that despite their knowledge on modern child spacing, fear of side effects, partner's opinion or beliefs and religious or cultural beliefs are the highest factors influencing women's decision making regarding of modern child spacing methods among women of child bearing age in Primary Health Care Center Samaru.

Implication to Nursing Practice

Modern child spacing activities and services are the instruments through which a people or nation use to achieve objectives of reducing poverty, maternal and infant mortality, check population explosion, improve income of its citizens all for a better life. Information is power, because it is the basis of making right decision whether as an individual or as a Government. Modern child spacing forms an important aspect of healthcare as its one of the component of Primary Health Care (Maternal Child Health including family planning). Therefore, nurses have a pivotal role in providing information to clients/couples on modern child spacing, its importance/ benefits. Nurses also encourage couples on adopting modern child spacing and guide them to make an inform decision on they the type of modern child spacing methods they wish to adopt.

Conclusion

Based on the findings from the analysis and interpretation, a conclusion was arrived that, although knowledge of modern child spacing is average among women in the study population, reported level of current practices of modern child spacing methods is low. This suggested that knowledge about child spacing methods has not yet fully translated into practice in the study area based on the data obtained from Primary Health Care centre Samaru community. Fear of infertility later in life and side effect are the major factors influencing their decision. Hence there is need for an aggressive target oriented information dissemination using all the available means especially the mass media, opinion leaders in the community, religious leader, husbands, mothers, relatives, doctors, nurses and all those involved in modern child spacing promotion practices. This should be aimed at disabusing the minds of the women and in so doing improve on the practice level. Ultimately, this will bring about the gains of modern child spacing and reduce the complication arising from closely spaced births both in the mother and baby.

References

- Ajayi, A.I., Adeniyi, O.V. & Akpan, W. Use of traditional and modern contraceptives among childbearing women: findings from a mixed methods study in two southwestern Nigerian states. *BMC Public Health* **18**, 604 (2018). <https://doi.org/10.1186/s12889-018-5522-6>
- Gajida , Takai , Haruna , Bako . Knowledge, attitude and practice of modern contraception among women of reproductive age in urban area of kano, north-western nigeria. *J Med Trop* 2019;21:67-72
- Mbambu, M & Jannet, & Extension One, Kiu. (2023). Evaluation of the knowledge, attitude and practice among women attending family planning at Bwera general Hospital. 11. 1-16.
- Obalase, S. B., & Evelyn, J. U. (2017). Knowledge, Attitude and Perception of Modern Family Planning Methods among Women of Reproductive Age in a Nigerian Community. *Journal of Community Medicine and Primary Health Care*, 29(1), 32-40.
- Oginni, A. B., Oyediran, O., & Adeyemi, A. S. (2021). Knowledge, Attitude, and Practice of Modern Child Spacing among Women of Reproductive Age in Nigeria: A Systematic Review and Meta-analysis. *Open Access Macedonian Journal of Medical Sciences*, 9(E), 240-247. doi: 10.3889/oamjms.2021.6789
- Okigbo, C. C., Speizer, I. S., Domino, M. E., Curtis, S. L., & Halpern, C. T. (2018). Couple communication, contraceptive use, and unintended pregnancy in sub-Saharan Africa. *Demographic Research*, 39, 1225-1254. doi: 10.4054/DemRes.2018.39.41
- Olaolorun, F. M., Obajimi, G. O., & Adewole, A. A. (2021). Women's attitude to modern contraceptive use in Nigeria: A multilevel analysis. *Sexual and Reproductive Healthcare*, 28, 100592. doi: 10.1016/j.srhc.2021.100592
- Rosenstock, I. M. (1974). Historical origins of the health belief model. *Health Education Monographs*, 2(4), 328-335.
- Sinai, I., J. Anyanti, M. Khan, R. Daroda, and O. Oguntunde. 2017. "Demand for Women's Health Services in Northern Nigeria: A Review of the Literature." *African Journal of Reproductive Health* 21 (2): 96-108. doi:10.29063/ajrh2017/v21i2.11
- United Nations Department of Economic and Social Affairs, Population Division. (2019). *World contraceptive use 2019 (POP/DB/CP/Rev2019)*.
- United Nations Population Fund. (2021). *Family Planning*. Retrieved from <https://www.unfpa.org/family-planning>
- World Health Organization. (2017). *WHO recommendations on antenatal care for a positive pregnancy experience*. Retrieved from <https://www.who.int/publications/i/item/9789241549912>
- World Health Organization. (2019). *Family planning/Contraception*. Retrieved from <https://www.who.int/news-room/q-a-detail/family-planning-contraception>
- World Health Organization. (2020). *The WHO Reproductive Health Library: Interpregnancy interval*. Retrieved from <https://apps.who.int/rhl/guidelines/interpregnancy-interval/en/>
- World Health Organization. (2021). *Report of the WHO technical consultation on birth spacing*. Retrieve from https://apps.who.int/iris/bitstream/handle/10665/97673/9789241506832_eng.pdf.