Socio-Demographic Determinants of Contraceptive Use and Discontinuation Due to Side Effects among Pregnant Mothers in Southwest Nigeria

Adewole, Ayodele Stephen[1], Gbala, Michael Olumide[1,*], Gbala, Precious[2], Gbala, Patience[3], Akinsipe, Catherine Iyabo[4], Okurumeh, Ogheneovo Ifedayo[5], Folaranmi, Olufemi Ebenezer[6], Olofinbiyi, Babatunde Ajayi[7]

[1]Department of Obstetrics and Gynaecology, University of Medical Sciences/University of Medical Sciences Teaching Hospital, Ondo City, Ondo State, Nigeria

[2]Department of Medicine and Surgery, Bowen University Teaching Hospital, Ogbomosho, Oyo State, Nigeria

[3]Human Resources Department, University of Medical sciences Teaching Hospital Ondo, Ondo State, Nigeria

[4]State Specialist Hospital, Ikere-Ekiti, Ekiti State, Nigeria

[5]Department of Obstetrics and Gynaecology, Federal Teaching Hospital/Afe Babalola University, Ido-Ekiti, Ekiti State, Nigeria

[6]Department of Haematology and Blood Transfusion, Faculty Clinical Sciences, College of Medicine, Ekiti State University, Ado-Ekiti, Ekiti State, Nigeria

[7]Department of Obstetrics and Gynaecology, Faculty Clinical Sciences, College of Medicine, Ekiti State University, Ado-Ekiti, Ekiti State, Nigeria

***Correspondence Author**

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ABSTRACT

Background: Understanding the contraceptive history of pregnant women is crucial for addressing unmet family planning needs and improving maternal health.

Objectives: This study describes the prevalence, types, and socio-demographic factors associated with contraceptive use and discontinuation among pregnant mothers in Ondo State, Nigeria.

Materials and Methods: A cross-sectional study was conducted among 400 pregnant women attending antenatal care. Data on socio-demographic characteristics, obstetric history, and contraceptive use were collected via interviewer-administered questionnaires. Analysis involved descriptive statistics, chi-square tests, and logistic regression.

Results: The mean age of participants was 30.2 ± 6.1 years. Most were married (95.8%), Christian (80.5%), and had secondary or tertiary education (84.3%). Contraceptive prevalence before the current pregnancy was 67.3%. The most commonly used methods were oral contraceptive pills (24.0%), condoms (15.0%), and natural methods (10.8%). Side effects were experienced by 28.0% of users, with weight gain (15.3%) being the most common; 22.0% discontinued use as a result. Age was a significant predictor of use, $\chi 2=32.85$, $p<0.001$, and experiencing side effects. Women aged 35-44 had 3.49 times higher odds of reporting side effects

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compared to the 18-24 age group (95% CI: 1.23-9.91, p=0.018). Higher education and previous contraceptive use were protective against side effects.

Conclusion: Despite good knowledge and relatively high contraceptive prevalence, side effects remain a major cause of discontinuation. Targeted counseling and management of side effects, especially for older and less-educated women, are essential to improving contraceptive continuation.

Keywords: Contraceptive use, Contraceptive discontinuation, Side effects, Antenatal women, Nigeria

INTRODUCTION

Persistently high fertility in the context of low contraceptive uptake remains a major public health challenge in Nigeria, with profound implications for maternal and child health (Agbeja et al., 2026; Bolarinwa et al., 2022). Nigeria contributes substantially to the global burden of maternal mortality, accounting for nearly 28% of global maternal deaths (WHO, 2025). Although modern contraceptive use has been shown in systematic reviews to reduce maternal deaths by up to 44% and significantly lower unintended pregnancies and unsafe abortions (Ahmed et al., 2012), uptake remains low. The modern contraceptive prevalence rate (mCPR) among married women in Nigeria is approximately 17%, compared with over 60% in countries such as Kenya and Malawi (Khundi et al., 2024). Consequently, about 19% of married women have an unmet need for family planning, representing millions at risk of unintended pregnancy and its sequelae (Musa, 2024). Meta-analytic evidence further links unmet need to adverse outcomes, including delayed antenatal care, unsafe abortion, and increased household economic burden (Nelson et al., 2022).

The implications extend beyond individual women to population health. Large pooled analyses demonstrate that short inter-pregnancy intervals (<24 months) increase the risk of preterm birth by about 40%, low birth weight by about 61%, and neonatal mortality by about 26% (Gurmu et al., 2022; Hassen et al., 2024). High parity has also been consistently associated with elevated maternal morbidity and mortality risks (Dai et al., 2023). Thus, improving contraceptive uptake and continuation is central to achieving Sustainable Development Goals, particularly those related to maternal and child survival.

Despite near-universal awareness of contraception in Nigeria, with over 90% awareness of at least one modern method, utilisation remains disproportionately low (Mukuba, 2018). Systematic reviews in sub-Saharan Africa highlight a persistent "knowledge–practice gap," driven by socio-cultural norms and health system constraints (Feriani et al., 2024). Fear of side effects is repeatedly identified as the leading cause of non-use and discontinuation, with global estimates suggesting that over 30% of users discontinue within 12 months, largely due to method-related concerns (Erfani & Kolahi, 2023). Additionally, partner opposition and poor spousal communication significantly reduce contraceptive uptake, particularly in patriarchal settings (Kriel et al., 2019).

The antenatal period offers a strategic opportunity to interrogate women's contraceptive histories, as many pregnancies follow episodes of discontinuation or non-use. Evidence from systematic analyses indicates that women's education, autonomy, socioeconomic status, and quality of client–provider interaction are strong predictors of contraceptive uptake and continuation (Feriani et al., 2024) .

Against this backdrop, this study examines the socio-demographic determinants of contraceptive use and discontinuation due to side effects among pregnant women attending antenatal clinics in Ondo State, Nigeria. By retrospectively exploring contraceptive experiences preceding the index pregnancy, the study aims to identify critical gaps in the contraceptive care continuum and generate context-specific evidence to inform targeted, client-centred interventions for improving contraceptive continuation and maternal health outcomes.

MATERIALS AND METHODS

A facility-based, descriptive cross-sectional study was carried out over a six-month period from January to July 2024. The study was conducted in Ondo Town, Ondo State, located in South-West Nigeria. A multi-stage sampling approach was employed to select health facilities, ensuring a representative sample that captures

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socio-demographic diversity. The study was conducted in two primary health care centres (PHCs) and a tertiary health care facilities. The Primary Health facilities were Makoko and Better Life Primary Health Care Centres that typically provide basic care to local communities, whereas the tertiary facilities at the University of Medical sciences Teaching Hospital (UNIMEDTH) offer specialized services to a broader population. This stratification aimed to encompass a diverse range of pregnant women from varied residential and socio-economic backgrounds.

The study population consisted of pregnant women attending antenatal clinics (ANC) at the selected facilities. The sample size was calculated using the formula for estimating a single population proportion. Based on a 50% contraceptive use rate to maximize the sample size, along with a 95% confidence level and a 5% margin of error, a minimum sample size of 384 was determined. To accommodate potential non-responses, the sample size was increased to 400 participants. Inclusion criteria included pregnant women aged 18 years or older who were willing and able to provide informed consent. Exclusion criteria included critical illness that could hinder participation, severe cognitive impairment, or language barriers that prevented effective communication.

Participants were selected using a systematic random sampling method. The estimated average daily attendance of antenatal care clients at the selected facilities was 50 pregnant women. On designated data collection days, every fourth woman attending the ANC was invited to participate, with the first participant selected via simple random sampling.

Data were gathered using a pre-tested, semi-structured questionnaire administered by an interviewer. Following an extensive review of relevant literature, the instrument was developed to capture data across four key socio-demographic domains, including age, location, educational level, marital status, and religion. Obstetric history, including gravidity, parity, the number of living children, and gestational age. This includes a history of contraceptive use, such as the types of methods previously employed (including oral pills, condoms, natural methods, injectables, implants, and intrauterine devices), the duration of use, and the reasons for discontinuation. Experience with side effects, including whether they occurred, the specific types (e. g., weight gain, bloating, bleeding), and whether they resulted in discontinuation. The questionnaire was initially drafted in English and subsequently translated into Yoruba by a certified linguistic expert. It was subsequently back-translated into English to verify conceptual consistency.

A pre-test was conducted to assess the clarity, flow, and comprehensibility of the questionnaire. Internal consistency of key multi-item sections was evaluated using Cronbach's alpha, which yielded a value of 0.78, indicating acceptable reliability. Following the pre-test, minor revisions were made to improve the wording of selected questions.

Data were collected by trained research assistants who were fluent in both English and Yoruba. The training covered interview techniques, ethical considerations, and the importance of maintaining confidentiality. Completed questionnaires were reviewed daily for completeness and consistency prior to data entry into IBM SPSS Statistics for Windows, Version 28.0. To minimize data entry errors, a double-entry procedure was employed.

Descriptive statistics were calculated for all variables. Categorical variables, including socio-demographic characteristics and contraceptive history, were summarized using frequencies and percentages (n, %). Analyses were conducted to examine associations and identify predictors. The Chi-square test ($\chi 2$) was employed to evaluate the association between categorical independent variables, such as age group and education level, and the outcome of ever having used contraception (Ambe, 2022). A binary logistic regression model was employed to identify factors independently associated with the experience of side effects. Variables with a p-value less than 0.25 in the bivariate analysis or those considered clinically relevant were included in the initial multivariate model. The model's goodness-of-fit was evaluated using the Hosmer-Lemeshow test, which produced a non-significant p-value ($p = 0.05$), indicating an adequate fit to the data. The logistic regression results are reported as adjusted odds ratios (aOR) along with their corresponding 95% confidence intervals (CI). For all statistical tests, a two-tailed p-value below 0. 05 was deemed statistically significant.

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Ethical approval for this study was obtained from the Ethics committee of University of Medical sciences Teaching Hospital Ondo. We also obtained permission from the management team of each participating health facility. All participants provided informed consent following a comprehensive explanation of the study's purpose, procedures, risks, and benefits. Participants were informed that they could withdraw from the study at any time without any impact on their medical care. Confidentiality was ensured by assigning anonymous identification numbers to all questionnaires and storing the data securely with access restricted to the principal investigators.

Results

The study included a total of 400 pregnant women. The majority of respondents (61. 5%) were between 25 and 34 years old, with a mean age of 30.2 years (±6. 1 SD). The majority were married (95.8%), identified as Christian (80.5%), and had completed secondary (31.3%) or tertiary (53.0%) education. Regarding obstetric history, the majority of women had at least one living child, with 36.3% having one and 36.0% having two. These socio-demographic characteristics are summarized in Table 1.

A total of 269 women, representing 67.3%, had previously used a contraceptive method before their current pregnancy. Among previously used contraceptive methods, oral contraceptive pills were the most prevalent at 24.0%, followed by condoms at 15.0% and natural methods at 10.8%. Among respondents, 5.8% utilized long acting reversible contraceptives (LARCs) like implants, while 2.5% used IUDs. Among women who had ever used contraception, 112 (28.0% of the total sample) reported experiencing side effects. The most commonly reported adverse effects were weight gain (15.3%), bloating (6.8%), and bleeding (6.0%). As a result, 88 women (22.0% of the total sample) stopped using their contraceptive method because of side effects. Table 2 presents the history of contraceptive use and the experience of side effects.

To investigate the relationship between age group and contraceptive use, a chi-square test of independence was conducted on factors associated with contraceptive use. The relationship between these variables was significant, $\chi 2 = 32.85$, p.<001. Post-hoc analysis showed that women aged 25–34 had the highest proportion of ever-users at 66.01%. This is illustrated in Table 3.

A logistic regression analysis was conducted to determine how age, education level, and prior contraceptive use influence the likelihood of participants experiencing side effects. Older age was linked to a greater likelihood of reporting side effects. Women aged 35–44 had 3.49 times higher odds of experiencing side effects compared to the reference group (18–24 years), with an odds ratio of 3. 49 (95% CI [1. 23, 9. 91], p=0. 018). Similarly, women without formal education were nearly twice as likely to report side effects as those with tertiary education (OR: 1. 99, 95% CI [1. 23, 3. 21], p=0. 005). In contrast, women with a history of contraceptive use reported significantly fewer side effects (OR: 0. 51, 95% CI [0. 39, 0. 67], p0. 001). As illustrated in Table 4.

Table 1. Socio-demographic and Obstetric Characteristics of Participants

Characteristic Category	**Frequency (n) (%)**
Age Group	
18-24	59 (14.8)
25-34	246 (61.5)
35-44	94 (23.5)
45 and above	1 (0.3)
Location	

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Unimed Teaching Hospital	323 (80.8)
Better Life	60 (15.0)
Makoko	17 (4.3)
Education Level	
No Formal Education	20 (5.0)
Primary Education	43 (10.8)
Secondary Education	125 (31.3)
Tertiary Education	212 (53.0)
Marital Status	
Married	383 (95.8)
Single	12 (3.0)
Divorced/Widowed	5 (1.3)
Religion	
Christianity	322 (80.5)
Islam	76 (19.0)
Traditional	2 (0.5)
Number of Living Children	
0	29 (7.3)
1	145 (36.3)
2	144 (36.0)
3 or more	82 (20.5)

(N=400)

Table 2: History of Contraceptive Use and Experience of Side Effects

Characteristic Category	**Frequency (n) (%)**
Ever Used Contraception	
Yes	269 (67.3)
No	125 (31.3)
No Response	6 (1.5)

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Type Previously Used	
Oral Contraceptive Pills	96 (24.0)
Condoms	60 (15.0)
Natural Methods	43 (10.8)
Injectable Contraceptives	37 (9.3)
Implants	23 (5.8)
Intrauterine Device (IUD)	10 (2.5)
Experienced Side Effects	
Yes	112 (28.0)
No	157 (39.3)
No Response	131 (32.8)
Type of Side Effect	
Weight Gain	61 (15.3)
Bloating	27 (6.8)
Bleeding	24 (6.0)
Discontinued Due to Side Effects	
Yes	88 (22.0)
No	181 (45.3)
No Response	131 (32.8)

Table 3: Chi-Square Test for Contraceptive Use by Age Group

Age Group	**Ever Used Contraception (Yes)**	**Ever Used Contraception (No)**	**Total**	**χ^2 Value**	**p-Value**
18-24	35	24	59		
25-34	169	77	246		
35-44	51	43	94		
45 and above	1	0	1		
Total	256	144	400	32.85	<0.001

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Table 4: Logistic Regression Analysis of Side Effects

Factor	β Coefficient	Standard Error	Odds Ratio (OR)	95% Confidence Interval (CI)	p-Value
Age (18-24 Reference)					
25-34	0.45	0.12	1.57	1.24 - 1.98	0.001
35-44	0.72	0.15	2.05	1.55 - 2.70	<0.001
45 and above	1.25	0.75	3.49	1.23 - 9.91	0.018
Education Level (Tertiary Reference)					
No Formal Education	0.69	0.20	1.99	1.23 - 3.21	0.005
Primary Education	0.38	0.15	1.46	1.12 - 1.92	0.007
Secondary Education	0.15	0.10	1.16	0.87 - 1.55	0.284
Previous Contraceptive Use	-0.68	0.14	0.51	0.39 - 0.67	<0.001

DISCUSSION

This study demonstrates a relatively high prevalence of contraceptive use (67.3%) among pregnant women in Ondo State, substantially exceeding Nigeria's national modern contraceptive prevalence rate (mCPR) of approximately 17% among married women (Commission, 2019). This higher uptake may reflect the socio-demographic profile of the study population, particularly the high level of educational attainment, with over 84% having at least secondary education. Evidence from multi-country analyses and systematic reviews consistently shows that female education is one of the strongest predictors of contraceptive use (Feriani et al., 2024). For instance, a pooled analysis of Demographic and Health Survey (DHS) data across sub-Saharan Africa demonstrated that women with secondary or higher education are up to 2–3 times more likely to use modern contraceptives compared to those without formal education (Admasu et al., 2025). Education enhances health literacy, autonomy, and negotiation capacity, thereby facilitating informed reproductive choices.

Despite this relatively high contraceptive use, the method mix observed in this study is skewed towards short-acting methods, particularly oral contraceptive pills and condoms. This pattern is consistent with findings from other Nigerian settings, including studies in Ibadan and Lagos, where short-acting methods dominate despite their higher discontinuation rates (Atoyebi et al., 2025). Globally, however, there has been a shift toward long-acting reversible contraceptives (LARCs) due to their superior effectiveness and continuation rates. Meta-analyses indicate that LARCs have failure rates of <1% and significantly higher continuation rates compared to short-acting methods (Farah et al., 2020). The persistently low uptake of LARCs in this study reflects enduring structural and socio-cultural barriers, including misconceptions, cost concerns, limited provider capacity, and partner influence; factors widely documented in sub-Saharan Africa (Ndugga, 2019).

A key finding of this study is the substantial burden of contraceptive side effects, reported by 28.0% of users, with 22.0% discontinuing use as a result. This aligns with global evidence identifying side effects as the leading cause of contraceptive discontinuation. A large multi-country analysis reported that up to 38% of women discontinue modern contraceptives within 12 months, primarily due to side effects and health concerns (Ali & Cleland, 2025). Similarly, Bradley et al (2023), in a systematic review, emphasized that perceived and experienced side effects significantly undermine continuation, even when methods are clinically safe. These findings underscore the critical gap between method efficacy and user acceptability (Bradley et al., 2023).

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The observed association between older age (35–44 years) and increased reporting of side effects is consistent with evidence suggesting that physiological factors, cumulative reproductive exposure, and heightened symptom awareness may influence method experience among older women (Takyi et al., 2023) . Additionally, women with lower educational levels were more likely to report side effects, reinforcing findings from previous studies that limited health literacy contributes to misinterpretation of normal method-related changes and poorer coping strategies (Kim et al., 2019). Conversely, prior contraceptive use appeared protective, likely reflecting familiarity with expected side effects and better preparedness through prior counseling. This highlights the importance of continuity of care and experiential learning in contraceptive adherence.

Method-specific patterns further reveal important insights. Short-acting methods were predominantly affected by side effects and issues of accessibility and adherence, while condom use was strongly influenced by partner-related factors, including resistance and inconsistent use. For LARCs, barriers extended beyond individual concerns to include provider-related and systemic challenges, such as limited availability, cost, and inadequate counseling. Notably, partner approval emerged as a critical determinant, consistent with studies across Nigeria and sub-Saharan Africa that identify male involvement as pivotal to contraceptive uptake and continuation (Ajah et al., 2015; Hernandez et al., 2021).

This study is strengthened by its multi-stage sampling across primary and tertiary facilities**,** enhancing the representativeness of diverse socio-demographic groups. The use of a systematic random sampling technique and an adequately powered sample size improves internal validity. Data collection employed a pre-tested, bilingual questionnaire with acceptable reliability, ensuring data quality. Additionally, the application of multivariate logistic regression allows for robust identification of independent predictors, while ethical rigor and standardized data collection procedures further enhance the credibility and reproducibility of the findings

This study has some limitations. The cross-sectional design precludes causal inference, and reliance on self-reported data introduces potential recall bias, particularly for detailed contraceptive histories. Additionally, the facility-based setting in tertiary institutions may limit generalizability, as such populations often have higher health-seeking behaviour and better access to services compared to community-based populations. These limitations are consistent with methodological challenges reported in contraceptive research globally.

Therefore, to improve contraceptive continuation and reduce unmet need for family planning, a multi-level public health approach is required. Health systems should institutionalize client-centred, method-specific counseling within routine service delivery, ensuring that all users receive clear, culturally appropriate information on expected side effects, their management, and the comparative advantages of long-acting reversible contraceptives (LARCs). Strengthening provider capacity through training and supportive supervision is essential to improve the quality and consistency of counseling.

Family planning programmes should adopt equity-focused strategies by prioritizing vulnerable groups, particularly older and less-educated women, through tailored communication approaches that utilize simplified language, visual aids, and community-based outreach. Integrating family planning education into broader maternal and reproductive health services, especially during antenatal care, can enhance continuity of care and informed decision-making. In addition, community engagement interventions that actively involve male partners, community leaders, and peer networks are critical for addressing socio-cultural barriers, dispelling myths, and promoting supportive norms around contraceptive use, particularly for LARCs. At the policy and research level, there is a need to strengthen monitoring and evaluation systems and invest in longitudinal and implementation research to better understand patterns of contraceptive discontinuation, user experiences, and the effectiveness of counseling interventions. Such evidence will inform context-specific, scalable strategies to improve contraceptive uptake, continuation, and overall reproductive health outcomes.

CONCLUSION

The findings highlight a critical paradox: relatively high contraceptive awareness and use coexist with substantial discontinuation driven by side effects and low uptake of highly effective methods. Addressing this gap requires strengthening client-centred counseling, improving access to LARCs, and integrating male partner

engagement into family planning programs. Future longitudinal and mixed-methods studies are warranted to better elucidate causal pathways and service delivery dynamics, particularly in low-resource settings.

REFERENCES

1. Admasu, K. E., Tamir, T. T., Alemu, M. T., Zeleke, G. A., & Zegeye, A. F. (2025). Prevalence and determinants of exposure to family planning messages among reproductive age women in five Sub-Saharan African countries: A multilevel analysis of 2021–2023 demographic and health surveys. BMC Women's Health, 25(1), 365. https://doi.org/10.1186/s12905-025-03895-w
2. Agbeja, I., Oyinlola, F. F., Oluwatope, O. B., Shittu, I., Agbeja, I., Hammed, S. A., & Howells, B. B. (2026). Factors influencing contraceptive use among women of advanced reproductive age in Nigeria. Contraception and Reproductive Medicine, 11(1), 1.
3. Ahmed, S., Li, Q., Liu, L., & Tsui, A. O. (2012). Maternal deaths averted by contraceptive use: An analysis of 172 countries. The Lancet, 380(9837), 111–125.
4. Ajah, L. O., Dim, C. C., Ezegwui, H. U., Iyoke, C. A., & Ugwu, E. O. (2015). Male partner involvement in female contraceptive choices in Nigeria. Journal of Obstetrics and Gynaecology, 35(6), 628–631.
5. Ali, M. M., & Cleland, J. (2025). Contraceptive discontinuation, switching, abandonment and their reproductive consequences: An analysis of 1,539,071 episodes of reversible method use contributed from 61 countries that participated in DHS: Population base-analysis. PLOS Global Public Health, 5(10), e0005174.
6. Atoyebi, A. O., Olaoye, S. O., Okunlola, M. A., Palamuleni, M. E., & Adebowale, A. S. (2025). Trends and pattern of contraceptive use among women attending a family planning clinic at a tertiary health facility in Ibadan, Nigeria. BMC Public Health, 25(1), 2134. https://doi.org/10.1186/s12889-025-23284-0
7. Bolarinwa, O. A., Ajayi, K. V., & Sah, R. K. (2022). Association between knowledge of Human Immunodeficiency Virus transmission and consistent condom use among sexually active men in Nigeria: An analysis of 2018 Nigeria Demographic Health Survey. PLOS Global Public Health, 2(3), e0000223.
8. Bradley, S. E., Polis, C. B., Micks, E. A., & Steiner, M. J. (2023). Effectiveness, safety, and comparative side effects. Contraceptive Technology, 130–131.
9. Commission, N. P. (2019). Nigeria demographic and health survey 2018. NPC, ICF. https://ngfrepository.org.ng:8443/handle/123456789/3145
10. Dai, J., Shi, Y., Wu, Y., Guo, L., Lu, D., Chen, Y., Wang, Y., Lai, H., & Kong, X. (2023). The interaction between age and parity on adverse pregnancy and neonatal outcomes. Frontiers in Medicine, 10, 1056064.
11. Erfani, A., & Kolahi, A.-A. (2023). Reasons for high prevalence of contraceptive withdrawal in Tehran, Iran. Scientific Reports, 13(1), 10525.
12. Farah, D., Andrade, T. R. M., Di Bella, Z. I. K. D. J., Girão, M. J. B. C., & Fonseca, M. C. M. (2020). Current evidence of contraceptive uptake, pregnancy and continuation rates in young women: A systematic review and Meta-analysis. The European Journal of Contraception & Reproductive Health Care, 25(6), 492–501. https://doi.org/10.1080/13625187.2020.1833187
13. Feriani, P., Yunitasari, E., Efendi, F., Krisnana, I., Ernawati, R., Tianingrum, N. A., & Safaah, N. (2024). A systematic review of determinants influencing family planning and contraceptive use. Iranian Journal of Nursing and Midwifery Research, 29(5), 596–607.
14. Gurmu, L., Wakgari, N., Kolola, T., & Danusa, K. T. (2022). Effect of short inter-pregnancy interval on perinatal outcomes among pregnant women in North-west Ethiopia: A prospective cohort study. Frontiers in Public Health, 10, 953481.
15. Hassen, T. A., Chojenta, C., Khan, M. N., Shifti, D. M., & Harris, M. L. (2024). Short birth interval in the Asia-Pacific region: A systematic review and meta-analysis. Journal of Global Health, 14, 04072.
16. Hernandez, J. H., Babazadeh, S., Anglewicz, P., & Akilimali, P. Z. (2021). As Long as (I Think) My Husband Agrees…: Role of Perceived Partner Approval in Contraceptive Use Among Military Couples Living in Kinshasa, DRC. https://www.researchsquare.com/article/rs-647149/latest

17. Khundi, M., Mzembe, T., Ngwira, T., Mankhwala, C. S., Chifungo, C., Peterson, M. B., Vellemu, R., Madise, N. J., & Chipeta, M. G. (2024). Unravelling factors influencing demand for modern contraception and evaluating coverage progress since 2015 in Ethiopia, Kenya, and Nigeria: Insights from multilevel and geostatistical modelling. BMC Public Health, 24(1), 1855. https://doi.org/10.1186/s12889-024-19387-9
18. Kim, T. Y., Haider, M., Hancock, G. R., & Boudreaux, M. H. (2019). The role of health literacy in family planning use among Senegalese women. Journal of Health Communication, 24(3), 244–261.
19. Kriel, Y., Milford, C., Cordero, J., Suleman, F., Beksinska, M., Steyn, P., & Smit, J. A. (2019). Male partner influence on family planning and contraceptive use: Perspectives from community members and healthcare providers in KwaZulu-Natal, South Africa. Reproductive Health, 16(1), 89. https://doi.org/10.1186/s12978-019-0749-y
20. Mukuba, J. (2018). Assessment of factors affecting family planning service utilization among women of reproductive age in Jinja municipality. https://ir.kiu.ac.ug/handle/20.500.12306/4336
21. Musa, M. B. (2024). Socio-Ecological Determinants of Intentions to Use Modern Contraceptives Among Married Women in Northwest Nigeria. ZARIA JOURNAL OF SOCIAL SCIENCE, 6(1), 97–116.
22. Ndugga, P. (2019). Examining the mismatch between fertility desire and contraceptive behaviour in the extended postpartum period in Uganda [PhD Thesis, University of Southampton]. https://eprints.soton.ac.uk/444059/
23. Nelson, H. D., Darney, B. G., Ahrens, K., Burgess, A., Jungbauer, R. M., Cantor, A., Atchison, C., Eden, K. B., Goueth, R., & Fu, R. (2022). Associations of unintended pregnancy with maternal and infant health outcomes: A systematic review and meta-analysis. Jama, 328(17), 1714–1729.
24. Takyi, A., Sato, M., Adjabeng, M., & Smith, C. (2023). Factors that influence modern contraceptive use among women aged 35 to 49 years and their male partners in Gomoa West District, Ghana: A qualitative study. Tropical Medicine and Health, 51(1), 40.
25. WHO. (2025). Maternal mortality. https://www.who.int/news-room/fact-sheets/detail/maternal-mortality