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Systematic Review

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Prevalence and Trends of Unmet Need for Family Planning in West Africa: A Systematic Review and Meta-analysis

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Abstract

Background: Unmet need for family planning remains a major public health challenge in West Africa, where low contraceptive use continues to contribute to unintended pregnancies and adverse reproductive health outcomes. Although several country-specific studies have been conducted, evidence remains fragmented, limiting regional estimates and informed policy decisions. This systematic review and meta-analysis aimed to estimate the pooled prevalence of unmet need for family planning, including unmet need for spacing and limiting, and to explore country-level variations across West Africa.

Methods: This systematic review and meta-analysis followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and was prospectively registered with PROSPERO (CRD420261361984). PubMed, Web of Science, Google Scholar, and the Cochrane Library were searched for studies published between 2000 and 2025. Two reviewers independently extracted data and assessed study quality using the Joanna Briggs Institute checklist. Pooled prevalence estimates were calculated using random effect model with Freeman–Tukey transformation. Heterogeneity was quantified with I^2 statistics, and sensitivity analyses were performed. Due to limited studies, spacing and limiting unmet need were synthesized descriptively.

Results: Eleven studies involving 51,991 women met the inclusion criteria. The pooled prevalence of unmet need for family planning in West Africa was 41.1% (95% CI: 30.5–52.1%; $I^2 = 99.6\%$). Country-specific prevalence was highest in Benin (47.0%), followed by Ghana (34.5%). Six studies (n = 8,327) reported unmet need for spacing and limiting, with pooled prevalence estimates of 19.2% and 13.9%, respectively. Ghana recorded the highest prevalence of both unmet need for spacing (19.6%) and limiting (16.0%). Unmet need for spacing increased after 2016, while unmet

need for limiting demonstrated fluctuating but generally increasing trends. Sensitivity analyses confirmed the robustness of the findings, and no evidence of publication bias was observed.

Conclusions: Unmet need for family planning remains a significant reproductive health challenge across West Africa, with substantial variation between countries and a predominance of unmet need for spacing. These findings emphasize the need for sustained context-specific strategies to improve equitable access to family planning services and support progress toward improved reproductive health outcomes in the region.

Keywords: Family planning, Contraceptives, Unmet need, Spacing, limiting, West Africa, Reproductive health

Introduction

The use of contraceptives as a fertility regulator is widely recognized for its critical role in women's health and well-being [1]. By extending inter-pregnancy intervals, contraception reduces maternal risks and improves neonatal outcomes [2]. Conversely, non-use of contraception directly contributes to unmet need for family planning [3]. Unmet need is observed among two groups: (i) pregnant women whose current pregnancy was mistimed or unwanted due to non-use of contraception prior to conception, and (ii) fecund, non-pregnant women who are not using any contraceptive method despite wishing to delay the next birth for at least two years or being undecided about future childbearing [4,5]. Unmet need highlights the gap between women's reproductive intentions and their contraceptive behavior, serving as a key indicator of progress toward universal access to reproductive health [6,7]. Despite its significance, approximately 270 million women of reproductive age (between 15 and 49 years old) globally have a lack of access to contraception, reflecting a persistent unmet need in reproductive health [8]. In several sub-Saharan African countries, between 8% and 25% of young women discontinue their education

due to unintended pregnancies linked to unmet need [9]. In 2012, an estimated 40% of all births worldwide were unintended, placing economic strain on families and jeopardizing the health of millions of women and children [10]. In many low and middle-income settings, unmet need for family planning is closely linked to limited knowledge of family planning options and insufficient guidance on birth spacing which constrain couples' ability to manage fertility [11]. Without sufficient education and awareness of available methods, females often struggle to make informed decisions about when and how to have children, perpetuating unmet need and increasing the risk of unintended pregnancies [12]. Evidence from West Africa highlights the magnitude of unmet need, with prevalence as high as 38.0% in Benin [13] and 35.2% in Ghana [2]. This high prevalence is influenced by regional disparities, partner characteristics, and fear of contraceptive side effects, which consistently predict both unmet need for spacing and limiting [14]. For these reasons, counteracting unmet need for family planning has become a key global health priority, which is addressed by both the Millennium Development Goals 4 and 5 [15] and is further reinforced under the Sustainable Development Goals (SDGs), specifically targets 3.1 and 3.7, aimed to reduce maternal mortality and ensure universal access to sexual and reproductive health services, including family planning [16]. Studies in West Africa have reported high levels of unmet need for family planning, but the evidence is scattered. Each country shows different numbers, and some focus only on spacing while others look at limiting. Without pooling the data, we cannot know the true regional burden, nor can we track changes over time. This systematic review and meta-analysis to estimate the pooled prevalence of unmet need for family planning, including unmet need for spacing and limiting, and to explore country-level variations across West Africa. By addressing these objectives, the review will provide a clear and comprehensive picture of unmet

need in the region and generate evidence that can guide policies and programs aimed at reducing unintended pregnancies and improving reproductive health.

2.0 Methods

2.1 Protocol and registration

This systematic review and meta-analysis were carried out following Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines [17]. This systematic review was registered at PROSPERO (ID: CRD420261361984).

2.2 Data sources and search strategy

We conducted comprehensive literature searches in PubMed, Web of Science, Scopus, and Cochrane Library from January 2000 to December 2025 to identify studies reporting unmet need for family planning in West Africa. Search terms were applied individually and in combination using Boolean operators ("AND", "OR"). The keywords included: "family planning services", "contraception", "birth control", "fertility regulation", "unmet need", "demand", "spacing", "limiting", "prevalence", "epidemiology", combined with "West Africa" (each country in West Africa). Only peer-reviewed articles published in English were considered.

2.2 Eligibility Criteria

Studies were eligible if they included women of reproductive age (15–49 years) from West African countries and employed an observational study design, including cross-sectional, case-control, or cohort studies. The index condition was unmet need for family planning, defined as women who wished to delay their next birth (spacing) or stop childbearing altogether (limiting) but were not using any contraceptive method [5]. To qualify for inclusion, studies had to report the prevalence of overall unmet need for family planning and/or unmet need for spacing or limiting, either as

proportions or absolute counts, or provide sufficient data to derive these estimates. Only peer-reviewed articles published in English between 2000 and 2025 were considered. Studies conducted outside West Africa, qualitative studies, reviews, editorials, commentaries, conference abstracts, case reports, and studies that did not provide relevant prevalence data or sufficient information to estimate prevalence were excluded.

2.3 Data Extraction

Following the literature search and study selection, all eligible records were exported into a reference management system to standardize data handling. The dataset was then imported into Rayyan for duplicate removal and screening, after which title and abstract screening was conducted according to predefined inclusion and exclusion criteria. Full texts of potentially relevant studies were reviewed in Mendeley (version 2.218). Data extraction was performed independently by two reviewers using a standardized form, and included the name of the first author, year of publication, country, study design and setting, and total sample size. The prevalence estimates for the overall unmet need for family planning, including spacing and limiting, together with the corresponding numbers of women, were extracted directly from each study where available. In studies where absolute counts of women with unmet need were not explicitly reported, the number of cases was derived by multiplying the published prevalence estimate by the total sample size. For studies that collected data across multiple years, prevalence counts were aggregated by summing across all years to generate a single combined figure for analysis.

2.4 Quality Assessment

The quality of each study was evaluated using the Joanna Briggs Institute (JBI) Critical Appraisal. Tools Checklist for prevalence studies [18]. The checklist comprised nine questions, with each

question receiving a score of 1 for a "yes" response and 0 for a "no" or "unclear" response, yielding a maximum score of 9. Studies scoring 7–9 were considered high quality, 4–6 moderate quality, and 0–3 low quality (Supplementary Table1).

2.5 Data Analysis.

Prevalence estimates of unmet need for family planning were pooled using a random-effects meta-analysis from R meta package (version 8.3-0). To stabilize variances, the Freeman–Tukey double arcsine transformation was applied. Between-study heterogeneity (τ^2) was estimated using the DerSimonian–Laird method, and statistical heterogeneity was quantified using the I^2 statistic. Heterogeneity was interpreted as low (0–25%), moderate (25–50%), high (50–75%), or substantially high (>75%). To improve the reliability of pooled estimates, the Hartung–Knapp adjustment was applied to derive more robust confidence intervals. In addition, prediction intervals were calculated to estimate the expected range of prevalence in future comparable studies. Publication bias was assessed through visual inspection of funnel plots and formally evaluated using Egger's regression test to detect potential small-study effects. To assess the robustness of the pooled estimates, a leave-one-out sensitivity analysis was conducted, whereby each study was sequentially excluded and the meta-analysis re-run to determine the influence of individual studies on the overall estimate. Univariate meta-regression analyses were performed to explore potential sources of heterogeneity, Study-level covariates, including country, study setting, year of study, and sample size, were examined individually. For the analysis of unmet need for spacing and limiting, a formal meta-analysis was not performed due to the limited number of eligible studies and variability in reporting. Instead, a descriptive quantitative synthesis was undertaken. Study-specific prevalence estimates were summarized in tabular form, and temporal variations were explored using graphical methods to illustrate patterns across studies and over time

3.0 RESULTS

3.1 Study Selection

The electronic data sources and study selection processes are presented in **Fig. 1**. Initially, a total of 213 records were identified from PubMed, Web of Science, Google scholar, and Cochrane databases. After removing 46 duplicate records, the remaining 167 studies were screened based on their titles and abstracts. An additional 97 records were excluded due wrong population, reviews, full text unavailable, publications in languages other than English and those outside of West Africa. Following this, 70 studies were subjected to full-text screening. During full-text review, 59 studies were excluded for the following reasons: 20 studies did not report the prevalence of unmet need for family planning, 29 studies focused on contraceptive uses and 10 were associated factors without reporting unmet need as an outcome. Ultimately, 11 studies met the eligibility criteria and were included in both the qualitative and quantitative synthesis.

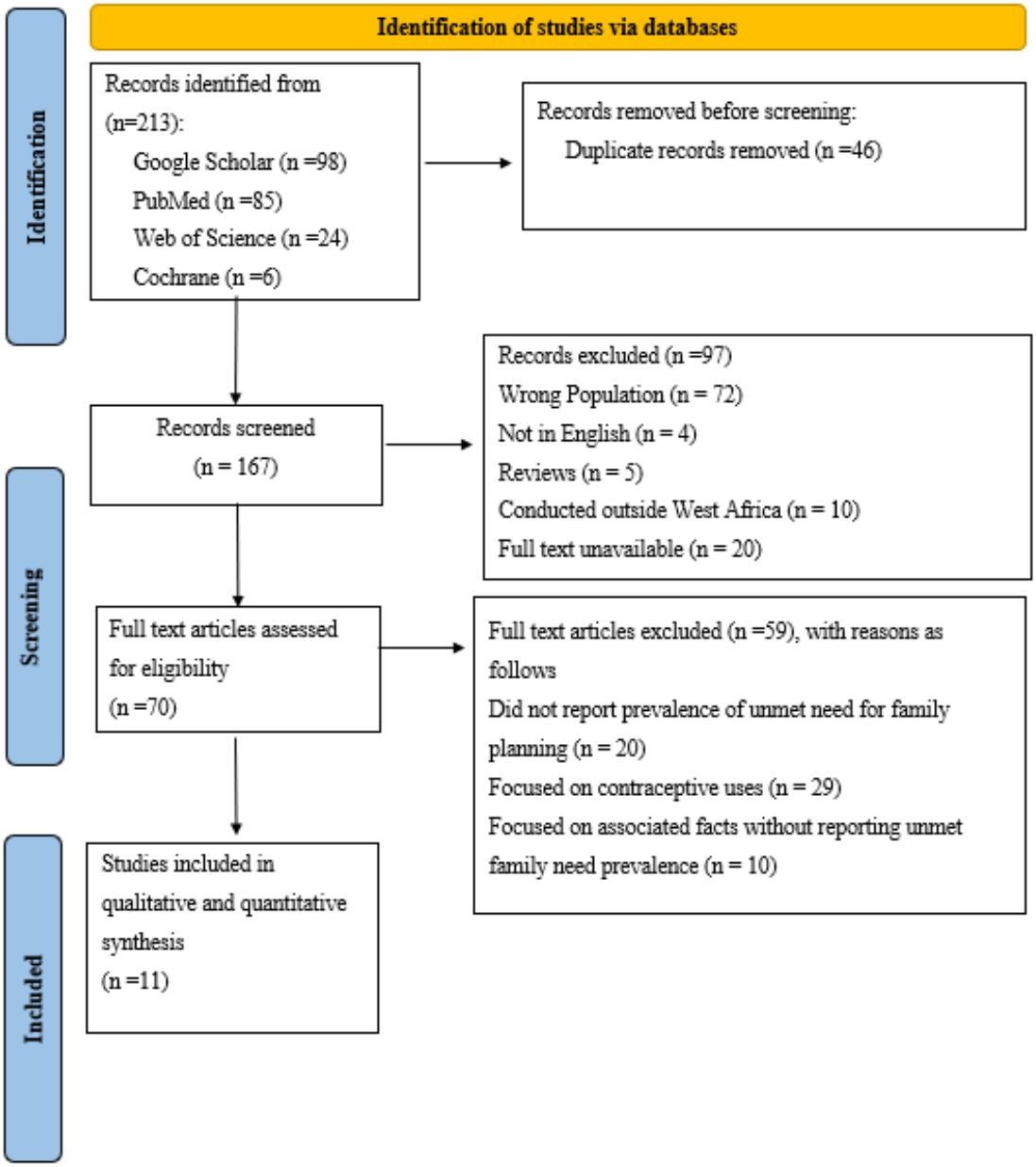


Fig 1. Flow diagram showing studies selection process implemented for this analysis.

3.2 Characteristics of Included Studies

The 11 studies included in this review were conducted in three West African countries: Ghana (n=5, 45.5%), Nigeria (n=4, 36.4%), and Benin (n=2, 18.2%). The studies spanned 2003–2025 and drew data from nationally representative Demographic and Health Surveys (n=5, 45.5%),

community-based investigations (n=3, 27.3%), and facility-based studies (n=3, 27.3%). Sample sizes varied considerably, ranging from small community studies with fewer than 200 participants to large national surveys with over 20,000 women (Table 1)

Table 1. Characteristics of included studies

Study	Country	Setting	Population	Total participant	Unmet family (%)	Spacing (%)	Limiting (%)
Igwegbe et al. [19]	Nigeria	Facility	Pregnant women	356	21.4	15.2	6.2
Lukman Solanke[20]	Nigeria	DHS	Women with pregnancy termination	2,383	23.0	14.0	8.8
Nyarko et al. [21]	Ghana	DHS	Reproductive women	20,003	36.9	Not reported	Not reported
Wulifan et al.[2]	Ghana	DHS	Married women	4,527	35.2	20.2	14.9
Wemakor et al.[22]	Ghana	Community	Women	386	38.9	12.2	27.5
Schrumpf et al. [23]	Ghana	Community	Women	135	68.9	Not reported	Not reported
Oguche et al.[24]	Nigeria	Community	Married women	400	52.0	36.3	15.5
Uthman et al. [25]	Nigeria	Facility	Women	275	58.2	38.1	28.8

Yeboah et al. [13]	Benin	DHS	Married women	9,513	38.0	Not reported	Not reported
Ahissou et al. [26]	Benin	DHS	Young women	6,251	60.8	Not reported	Not reported
Okyere et al [27]	Ghana	DHS	Married women	7,762	26.7	Not reported	Not reported

Key: DHS means Demographic and Health Surveys

3.3 Publication Bias Assessment

Qualitative inspection of the funnel plots revealed no evidence of asymmetry, indicating the absence of significant publication bias. This visual impression was supported by Egger's regression test, which showed no small-study effects in the overall prevalence of unmet need for family planning in West Africa (P = 0.78; see Fig. 2).

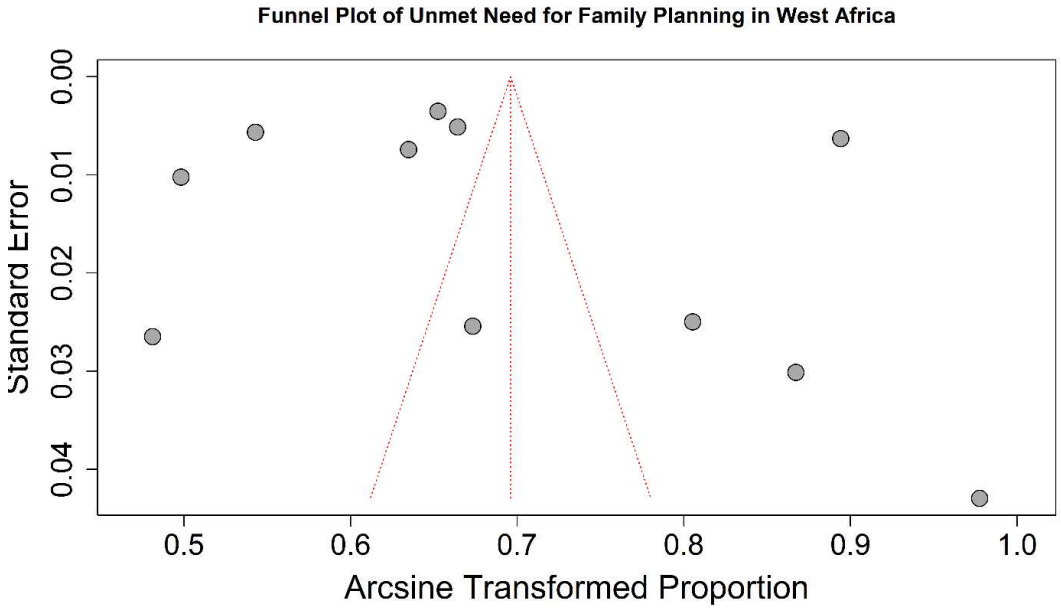


Fig 2. Funnel plot of pooled prevalence of unmet need for family planning in West Africa

3.4 Overall Prevalence of Unmet Family planning in West Africa

A total of 11 studies, comprising 51,991 women, were included in the pooled analysis. Of these, 21,368 were identified as having an unmet need for family planning. Using a random-effects model, the pooled prevalence was 41.1% (95% CI: 30.5%–52.1%), with a prediction interval of 16.7%–68.2%. Substantial heterogeneity was observed across studies (I^2 = 99.6%, τ^2 = 0.0139, P= 0), reflecting marked variation in prevalence estimates by setting and population (Fig. 3)

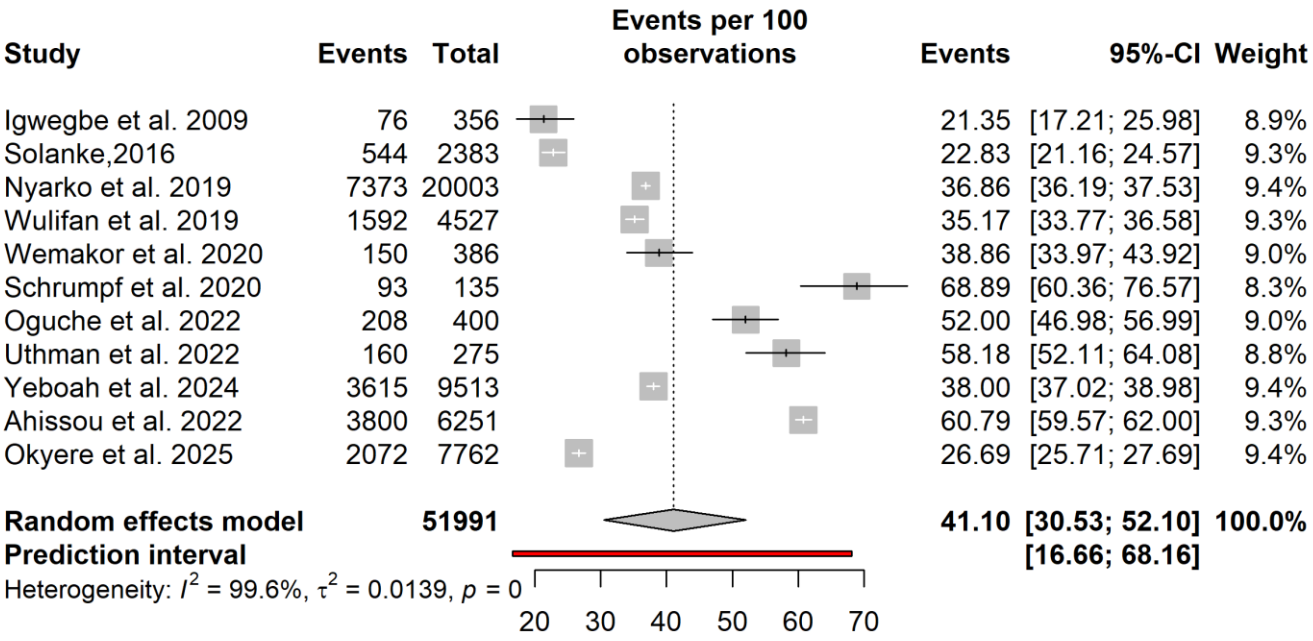


Fig. 3. Forest plot of pooled prevalence of unmet need for family planning in West Africa

3.4.1. Geographic variations of unmet need for family planning across West Africa

Table 2. shows the pooled prevalence estimates of unmet need for family planning across West Africa. The synthesis included five studies from Ghana, four from Nigeria, and two from Benin.

The overall prevalence was highest in Benin (47.0%), moderate in Ghana (34.5%), and lowest in Nigeria (28.9%).

Table2. Geographic Prevalence of unmet need for family planning across West Africa

Country	Total participants	Study-level prevalence n (%)	Overall Prevalence (%)
Benin [13,26]	9,513	3,615 (38.0)	
	6,251	3,800 (60.8)	47.0
Total	15,764	7,415	
Ghana [2,21–23,27]	20,003	7,373 (36.9)	
	4,527	1,592 (35.2)	
	386	150 (38.9)	
	135	93 (68.9)	34.5
	7,762	2,072 (26.7)	
Total	32,813	11,280	
Nigeria [19,20,24,25]	356	76 (21.4)	
	2383	544 (23.0)	
	400	208 (52.0)	28.9
	275	160 (58.2)	
Total	3414	988	

3.5 Leave-one-out analysis

Leave-one-out meta-analysis was conducted to assess the influence of individual studies on the pooled prevalence estimate. Sequential exclusion of each study did not alter the overall prevalence, indicating that the findings were robust and not influenced by any single study. (Supplementary Fig. 1).

3.6 Meta-Regression Analysis

Univariate meta-regression was conducted to explore potential sources of heterogeneity across studies. No significant associations were identified between study characteristics and the prevalence of unmet need (Supplementary Table 2).

3.7 Overall pooled prevalence of spacing and limiting unmet need in West Africa

Six studies were included in the analysis, four (66.7%) from Nigeria and two (33.3%) from Ghana. All reported prevalence estimates for both spacing and limiting unmet need, contributing a combined sample of 8,327 participants. Across the pooled sample, 1,600 women were identified with unmet need for spacing, yielding an overall prevalence of 19.2%. In addition, 1,157 women had unmet need for limiting, with an overall prevalence of 13.9% (Table 3).

Table3. Pooled prevalence of spacing and limiting unmet needs In West Africa

Study	Country	Total Participants	Limiting n (%)	Spacing n (%)
Igwegbe et al. [19]	Nigeria	356	22 (6.2)	54 (15.2)
Lukman Solanke[20]	Nigeria	2,383	210 (8.8)	334 (14.0)
Wulifan et al.[2]	Ghana	4,527	678 (14.9)	915 (20.2)
Wemakor et al.[22]	Ghana	386	106 ([27.5)	47 (12.2)
Oguche et al.[24]	Nigeria	400	62 (15.5)	145 (36.3)
Uthman et al [25]	Nigeria	275	79 (28.8)	105 (38.1)
Overall		8,327	1157 (13. 9)	1600 (19.2)

3.7.1 Country-level variation in limiting and spacing unmet need across West Africa

Of the six included studies, four studies from Nigeria (n = 3,414) reported a limiting unmet need of 10.9% and spacing of 18.7%, while two studies from Ghana (n = 4,913) reported 16.0% limiting and 19.6% spacing (Table 4).

Table4. Country-level prevalence of limiting and spacing unmet need across West Africa

Country	Total Participant	Limiting n (%)	Spacing n (%)
Ghana [2,22]	4913	784 (16.0)	962 (19.6)
Nigeria [19,20,24,25]	3414	373 (10.9)	638 (18.9)

3.5.2 Trends in spacing and limiting unmet need for family planning in West Africa

Figure 4 shows temporal trends in unmet need in West Africa. Spacing remained stable through 2012 (14–15%), increased to 20.2% in 2014, declined to 12.2% in 2016, and elevation thereafter (36.3% in 2018; 38.1% in 2020). Limiting increased from 6.2% in 2008 to 14.9% in 2014, peaked at 27.5% in 2016, and fluctuated subsequently (15.5% in 2018; 28.8% in 2020). Both categories showed upward trends, with spacing rising more markedly after 2016. Overall, both spacing and limiting unmet need increased over time, but the rise in spacing after 2016 was more pronounced.

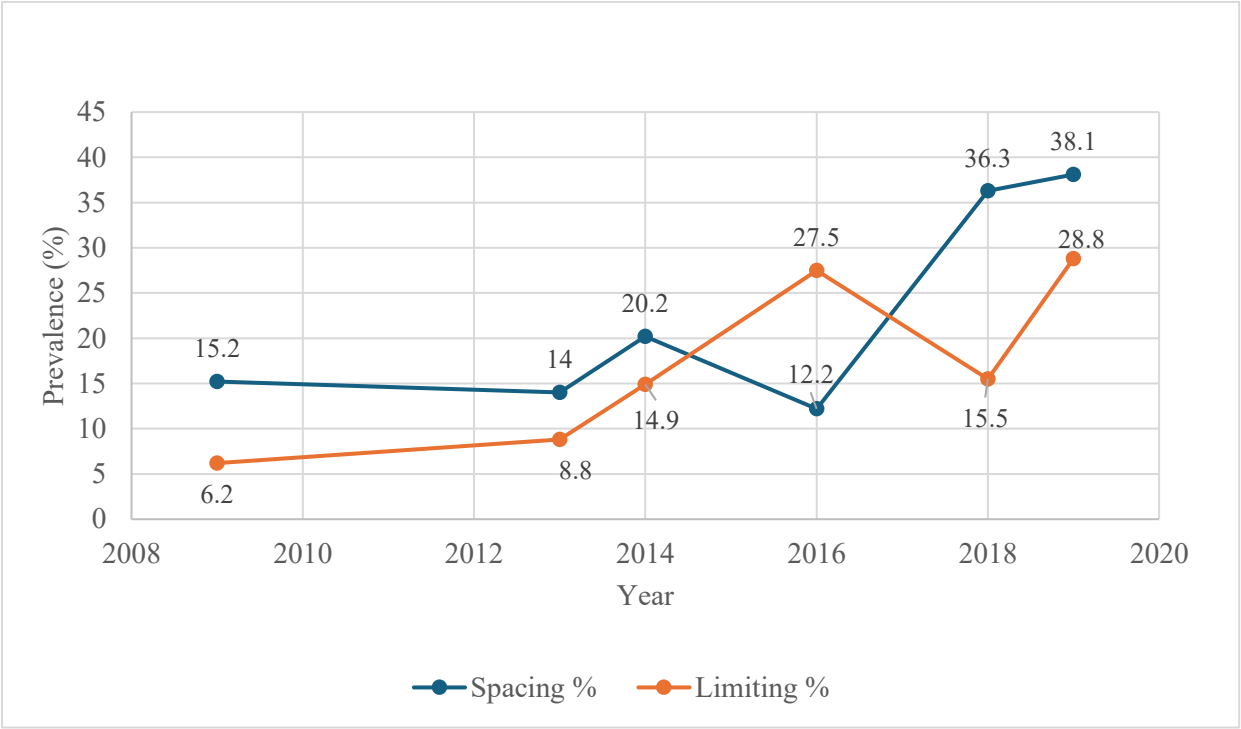


Fig. 4 Trends in spacing and limiting unmet need for family planning in West Africa

4.0 Discussion

Unmet need for family planning remains a persistent and critical public health challenge in West Africa. This study provides a comprehensive analysis of unmet need for family planning in West Africa, revealing a substantial pooled prevalence of 41.1% (95% CI: 30.5%–52.1%), indicating that a large proportion of women in the region continue to experience a gap between fertility intentions and contraceptive use. This finding reinforces earlier evidence suggesting that progress in contraceptive uptake across West Africa has been relatively slow, largely due to persistent attitudinal resistance and limited access to family planning services [28]. Benin recorded the highest prevalence of unmet need (48.3%) in this study. This finding is consistent with historical patterns of low contraceptive utilization in the country, where prevalence has been reported as low

as 14% and is attributed to factors such as a strong preference for large family sizes, widespread misconceptions about family planning methods, and limited awareness of available family planning services [29]. Although national strategies aimed to increase modern family planning use from 9% in 2013 to 20% by 2018, progress fell short [30]. These limitations likely contributed to the elevated trends in both unmet need for limiting and spacing observed in Figure 4. Qualitative evidence further illustrates this challenge. Ahissou et al [26], revealed that a young woman reported relying on traditional methods recommended by family members instead of modern contraception, reflecting both cultural influence and mistrust of family planning methods. This highlights the continued reliance on informal or traditional practices, which may be less effective and contribute to the persistence of unmet need. From our study, a similar pattern is evident in Ghana, where the prevalence of unmet need for remains high at 34.4%. Although policy initiatives such as the Family Planning Costed Implementation Plan (2016–2020) [31] were introduced to improve access, modern contraceptive use has remained relatively low, with only a quarter (25%) of married women using modern methods [32]. Persistent system-level constraints, including limited human resources and funding gaps for outreach services may have hindered the effective translation of these policies into practice [33]. This may explain why unmet need has not declined as expected (Table 2), but instead shows increasing patterns in this study, particularly for spacing after 2016 (Fig 4). Subnational evidence further highlights these challenges in Ghana. In northern Ghana, contraceptive use has been reported as low as 13%, with unmet need largely driven by a preference for spacing (31.7%) rather than limiting births [34], a pattern consistent with the findings of this study (Table 4). Similarly, findings from Guzman et. al [35] reports that of forty-eight women who expressed the desire to delay pregnancy, only three were using family planning methods, indicating a substantial unmet need. These patterns suggest that although the demand to

delay childbirth is high, utilization of family planning methods remains limited, resulting in a higher unmet need for family planning. Furthermore, various religious denominations have diverse discernments and self-beliefs which continue to influence family planning behavior [36]. Some members of Islamic religion and Orthodox religions such as Catholics exhibit a strong opposition to contraceptive use [14]. By this, members of such religions may not adhere to the use of contraceptives in family planning methods resulting in increasing unmet family planning. In Nigeria, this study found an unmet need for family planning prevalence of 28.8%, indicating a substantial burden, although lower than that observed in Ghana and Benin (Table2). This level of unmet need may be attributed to persistent structural and health system challenges, including heavy reliance on external donor funding, which limits the sustainability and consistency of family planning programs [37]. Fluctuations in unmet need over time, with a decline observed in 2013 followed by an increase to approximately 18.9% in 2018 [38], suggest that these underlying challenges remain unresolved and may explain the patterns observed in this study, where unmet need for both spacing and limiting show increasing prevalence after 2018 (Fig 4). We recommend that governments and health stakeholders should expand equitable access to a wide range of modern contraceptive methods through sustained investment in primary healthcare systems, community-based outreach, and reliable contraceptive supply chains. In addition, culturally sensitive education and behavior change interventions that actively engage community leaders, religious leaders, men, and adolescents are needed to address misconceptions, reduce stigma, and improve acceptance of family planning. Country-specific strategies informed by local sociocultural contexts, alongside regular national surveys and strengthened routine data systems, will be essential for monitoring progress, identifying underserved populations, and guiding

297 evidence-based policies aimed at reducing unmet need for family planning and advancing
298 reproductive health outcomes in the region.

299 **6.0 Limitation**

300 A key limitation of this study is the limited number of available studies on unmet need for family
301 planning in West Africa, coupled with infrequent survey cycles in many countries, particularly
302 Demographic and Health Surveys, which restrict the consistent synthesis of data over time.
303 Despite these limitations, this review provides comprehensive regional evidence on the magnitude
304 and patterns of unmet need for family planning in West Africa.

305 **5.0 Conclusion**

306 This systematic review and meta-analysis shows that unmet need for family planning remains a
307 substantial reproductive health challenge across West Africa, with considerable variation between
308 countries and a predominance of unmet need for spacing over limiting births. These findings
309 underscore that existing efforts have not fully translated into equitable access to or utilization of
310 family planning services. Addressing this persistent gap will require sustained commitment to
311 delivering responsive, context-specific reproductive health programs that align with the diverse
312 needs and fertility intentions of women. Strengthening these efforts will be critical to improving
313 reproductive autonomy, reducing unintended pregnancies, and advancing maternal and child
314 health outcomes across the region.

315 **Supplementary materials**

316 Supplementary Table 1: Joanna Briggs Institute (JBI) Criteria for Prevalence Studies

317 Supplementary Table2. Overall univariate meta-regression analysis in West Africa

Supplementary Fig. 1. Leave-one-out sensitivity analysis of pooled prevalence of unmet need for family planning in West Africa

Declarations

Ethics approval and consent to participate: Not applicable

Consent for publication: Not applicable

Availability of data and materials: All data generated or analyzed during this study are included in this published article and its additional files.

Competing interests: The authors declare no competing interests.

Authors' contributions: EA conceived and designed the study, coordinated the review, performed the data extraction and statistical analysis, and drafted the manuscript. SE participated in the data extraction and critically reviewed the manuscript. Both authors read and approved the final manuscript.

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