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The Perceived Benefits and Challenges of Fertility Awareness Based Methods: A Systematic Review

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ABSTRACT

Background: Fertility Awareness-Based Methods (FABMs) are increasingly recognised for their potential to support reproductive autonomy, inclusivity across cultural, religious, and ethical contexts, and freedom from pharmacological side effects. However, their uptake and sustained use remain uneven, shaped by knowledge requirements, training demands, relational dynamics, and limited integration into mainstream healthcare systems.

Methods: A systematic review was conducted to map empirical evidence on perceived benefits and challenges of FABMs. Studies published between 2012 and 2025 were identified across global settings. Eligible studies employed qualitative, quantitative, or mixed-methods designs and focused on user-reported perceptions of FABMs. Studies involving refugees or asylum seekers were excluded. Extracted data was then subjected to thematic analysis and narrative synthesis.

Results: Findings revealed distinct themes categorised into perceived benefits and challenges. Reported benefits included the non-hormonal nature of FABMs, avoidance of pharmacological side effects, enhanced emotional well-being, increased reproductive literacy, and a sense of autonomy and trust arising from greater understanding of menstrual cycles and bodily patterns. Despite these benefits, practical and methodological challenges emerged as the most frequently reported barriers, including difficulties identifying fertility biomarkers, charting accuracy, daily monitoring demands, and variability in instructional quality. These challenges suggest underlying gaps in reproductive health knowledge and access to trained providers. Less commonly reported barriers related to relational dynamics, including abstinence-related tension, concerns about reliability in the absence of structured support, and context-specific intimacy strain.

Conclusion: While FABMs offer perceived benefits related to autonomy, trust, and well-being, their effective adoption depends on robust education, consistent instructional quality, and supportive relational and healthcare contexts. Interventions such as clinician training using digital decision-support tools, alongside community and targeted user education, may help address identified barriers. Findings should be interpreted cautiously, given the scope of included studies. Future research should evaluate how educational and clinical interventions influence acceptability, sustained use, and health outcomes over time.

Keywords: Perceived, FABMs, Benefits, Challenges, Health

INTRODUCTION

Equity and accessibility in reproductive health remain central to global development agendas, particularly within the frameworks of the Sustainable Development Goals (SDGs), universal health coverage, and the movement for reproductive justice.[1] Despite these commitments and the availability of a range of strategies employed in reproductive health monitoring and management, for example, pharmacological approaches such as hormonal methods, injectables, fertility drugs, and device-based interventions,[2] persistent barriers limit access to mainstream contraceptive services across both high- and low-resource settings.

Pharmacological contraceptives have been widely adopted due to their efficacy and availability; however, they present limitations such as side effects, financial costs, and acceptability across different cultural and religious contexts.[2-3] In addition, some synthetic hormones used in contraceptive formulations may enter aquatic environments through wastewater systems and contribute to concerns around endocrine-disrupting pollutants. These issues highlight that contraceptive decision-making is influenced not only by clinical efficacy but also by structural inequities, cultural values, economic constraints, ethical concerns, and

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potentially environmental sustainability.[4]

Fertility awareness-based methods (FABMs) are positioned as "natural" alternatives, relying on the monitoring of biological markers rather than pharmacological or surgical interventions.[5-6] Interest in FABMs has been reported to increase; for example, studies in the US show an increase from approximately 1% in 2008 to 3% in 2017.[3,7] This reflects a preference for alternatives to hormonal or invasive contraceptives, particularly among individuals motivated by personal, religious, or ethical considerations, or by concerns about side effects.[2]

Recent trends highlight a growing adoption of FABMs, particularly in the Global North, where digital health innovations—such as mobile apps, wearable technologies, and online advocacy—are facilitating greater accessibility and engagement.[8-9] Understanding the benefits and possible challenges is increasingly important because hybrid models that combine biomedical monitoring with digital FABM tools present a potential pathway for broader acceptance and integration into family planning services.[10]

In addition, the World Health Organization recognises fertility awareness methods as family-planning options and identifies simple fertility-awareness approaches as part of fertility care.[11] When used correctly and consistently, selected FABMs can be used for contraception, while identification of the fertile window may facilitate appropriately timed intercourse when conception is desired.[12-13]

In essence, the effectiveness of FABMs depends heavily on correct and consistent use. Hence, uptake and integration into mainstream healthcare systems may be shaped by various factors, such as perceived reliability and previous experiences among users and healthcare professionals, knowledge of use, the influence of socially constructed roles, expectations, and power relations between men and women on reproductive decision-making and responsibility, as well as broader cultural expectations.[14-15]

Therefore, synthesis of perceptions surrounding FABMs is important for understanding the factors that facilitate or hinder their uptake and use. This review aims to map existing evidence on the perceived benefits and challenges of FABMs across different contexts.[16-17] The implications for these perceptions and areas for interventions to support correct and consistent use of FABMs will be discussed.

METHODS

This mixed-method review was conducted following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-analyses) Statement, to help with transparent reporting of why the review was done, what was done and how it was done.[18] The review protocol was registered with the International Prospective Register of Systematic Reviews (PROSPERO), registration number CRD420261406900. The review was conducted in the UK.

Eligibility Criteria and Study Selection

All primary studies published between 2012 and 2025, in English language expressing views, opinion, experience, attitude, belief, believe, feeling, satisfaction and impression, were included. We limited the review to between 2012 and 2025 to capture current scientific discussions of benefits and challenges of FABMs, and to reduce the number of studies retrieved to a manageable size (while ensuring that the screening process remained feasible within the available time). We included studies reporting users' perceived benefits and/or challenges of non-digital FABMs, including calendar-based methods practised using paper or physical tracking tools and methods involving the self-observation of biological fertility indicators. Studies focused on app-based or otherwise digitally assisted FABMs were excluded.[5] The population was not limited as we wanted to capture any relevant current studies on the topic from around the world. Due to the complexity of service provision and other nuanced factors that might influence our findings, we excluded studies with refugees, asylum seekers and use of apps. Also, for ethical reasons, we excluded studies involving women less than 18 years of age. See Table 1 below for inclusion and exclusion criteria.

Table 1. Eligibility Criteria based on the PEO (Population, Exposure, and Outcome) tool.

PEO	Inclusion Criteria	Exclusion Criteria
Population	Studies on all adults from 18 years old, in all countries (universal)	Refugees and asylum seekers Men and Women under 18 years of age
Exposure	Fertility awareness-based methods, natural family planning, natural conception, cervical mucus, cervical secretion, ovulation method, Billings, Billings Ovulation method, Creighton method, TwoDay method, Sympto-thermal method, Marquette Method, Basal Body temperature method, Calendar method, Standard Days Method, Lactation Amenorrhea,	Interventions on specific methods, Technology assisted fertility monitor, Apps
Outcome	Perception, viewpoint, opinion, attitude, belief, perspective, feelings, impression, recognise, note, benefit, advantage, satisfaction, strength, profit, effectiveness, usefulness, acceptability, barrier, obstacle, negative, inconvenience	

Search Strategy

The search strategy followed the PEO (population, exposure, and outcome) framework and was designed in collaboration with an experienced health studies librarian at the University of one of the authors (LW). The PEO tool was selected because there is no comparison group and the exposure fits nicely with exposure to services being considered by this review.

The search was conducted using the following search terms applied to four electronic databases (Scopus, Medline, CINAHL, and APA PsycInfo). ((“perception” OR “perceive*” OR “opinion” OR “viewpoint” OR “impression” OR “perspective” OR “recognise*” OR “note*” OR “attitude*” OR “feeling*” OR “benefit*” OR “advantage” OR “satisfaction” OR “strength” OR “profit” OR “effectiveness” OR “acceptability” OR “usefulness” OR “positive*” OR “pros” OR “convenience” OR “challenge*” OR “difficulty” OR “problem” OR “disadvantage” OR “barrier” OR “obstacle” OR “negative*” OR “cons” OR “inconvenience”) AND ("Natural Family Planning Methods"[Mesh] OR “natural family planning”) OR (“Fertility awareness” OR “Fertility awareness method” OR “Fertility awareness-based methods” OR “Natural family planning” OR “Natural contraception” OR “Cervical mucus” OR “Cervical secretion” OR “Ovulation Method” OR Billings OR “Billings ovulation” OR “Billings ovulation method” OR “Creighton model” OR “TwoDay method” OR “Sympto-thermal” OR “Sympto-thermal method” OR “Marquette Method” OR “Basal body temperature” OR “Basal body temperature method” OR “Calendar method” OR “Standard Days method” OR “Lactation Amenorrhea” OR “Lactation Amenorrhoea” OR “Lactational Amenorrhoea” OR “Lactational Amenorrhea”)).

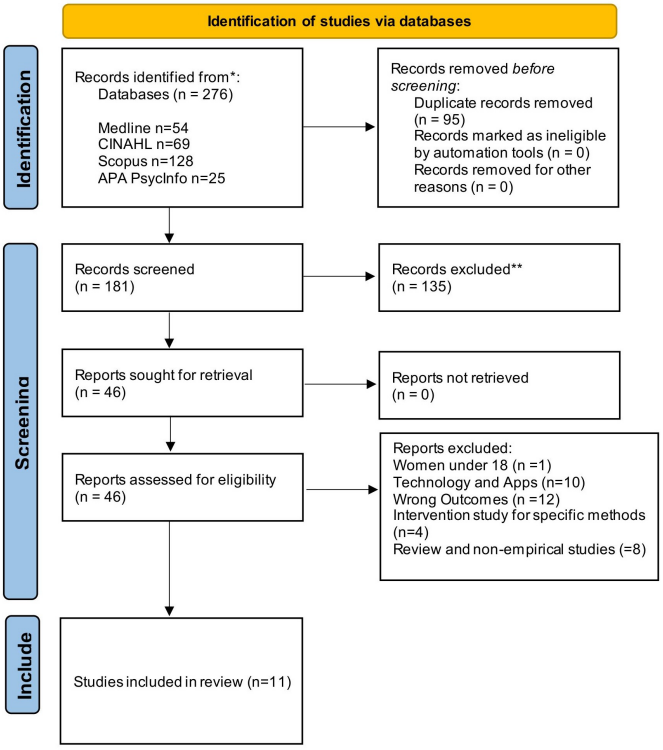
Search strings were developed and linked together using Boolean operators ‘OR’ or ‘AND’ to either combine searches for the same concept or synonyms or to combine two or more searches of different concepts and synonyms. Titles, abstracts, and subject headings were searched for each database. MeSH (Medical Subject Heading) keywords were used to identify articles in Medline. References of identified articles were searched for additional studies. No additional studies were found from references of included studies.

Screening process

The search yielded 276 articles which were exported to Rayyan. Rayyan is a platform used for systematic reviews and meta-analyses. It allows collaborative screening of articles whilst removing duplicates and allowing inclusion and exclusion decisions.[19] Duplicate articles (n=95) were removed, and the most recent articles were selected in case of corrected articles. Articles written in English were also selected in case of articles published in both English and other languages. The screening of titles and abstracts of the remaining 181 records were undertaken by II, LW and MD. A further 135 records were removed after this stage; thus 46 records were sought for full-text retrieval. Further screening applying the inclusion and exclusion criteria left 11 articles.

Please see Figure 1 below for the included articles. There was continuous discussion between four of the researchers (II, LW, MD and MV) throughout the study selection process to determine eligibility criteria and resolve any discrepancies.

Figure 1.



The most common reasons for exclusion were articles exploring use of technology/app (n=10), reviews and articles that were not empirical studies (n=8), articles on intervention study for specific methods (n=4), articles that did not focus on perceived benefit or challenge (n=12), and studies including women under 18 years (n=1).

Quality Appraisal

The included articles were subjected to critical appraisal by MD and II using the most appropriate Joanna Briggs Institute (JBI) critical appraisal tool for the qualitative and quantitative studies.[20-22] The appraisal allowed the research team to assess the methodological quality and rigor of the included studies and to account for potential biases or any misrepresentations.[20] This led to the determination of the trustworthiness and relevance of identified studies. The tools contained 8-11 questions assessing the research objectives, sampling, study design, analyses and reporting. No studies were excluded based on quality appraisal or their risk of bias.

Table 2 (below, p. 5) displays the quality assessment scoring for the articles included. All items were assessed categorically indicating whether a criterion was fulfilled (+), not fulfilled (-) or not applicable (N/A). All articles were assessed by two researchers (II and MD) independently.

Discrepancies were resolved by discussion until consensus was reached. To ensure robustness, areas of discrepancies were shared with the whole team, and final decision was made on the quality. Based on the outcome of the quality appraisal, all assessed articles were included in the review.

Data Extraction and Thematic Synthesis

Data was extracted by II, LW, MV, and MD using the standardized JBI mixed methods data extraction form following the convergent integrated approach. Due to heterogeneity in the directionality of the included studies and their outcomes, meta-analysis was not possible. Thus, narrative synthesis (used when statistical pooling cannot be performed because of differences across studies) was conducted in accordance with established guidance for systematic reviews[23] whereby developed themes were supported by statistical/quantitative information where possible.[24] The main information extracted was publication characteristics (i.e., title, year, type of study, methodology, author), characteristics of participants including the age range of population, phenomena of interest, setting, and other context-related information, outcomes or findings (including prevalence data, risk scores, level of significance, themes and subthemes) and authors' conclusions. Where possible, we included descriptive statistics and statistical measure of association on the Table of Study Characteristics (see Table 3 in Appendix at the end of this article). Studies on hormonal contraceptives or use of technology were added if a subset of data was identifiable for non-hormonal contraception. If the subset of data on non-hormonal contraception could not be extracted, the study was excluded (n=2).

To ensure the robustness of the methodology and trustworthiness of this review's results, II validated 20% of the total sample for the accuracy of the extracted data. The final data extraction forms were uploaded onto NVIVO (version 12) for thematic analysis. This followed an iterative process until the team (II, LW, MV and MD) were satisfied that they had reflected findings from included studies accurately. The keeping of a reflective journal by II and frequent debriefing with members of the research team established analytical reasoning and robustness.

Table 2. Quality Assessment of Qualitative studies[5] and Quantitative cross-sectional studies[5] and cohort study[1].

Author(s) and Year	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Total	OVERALL APPRAISAL
	Quality assessment of qualitative studies (n=5)												
Weshahi et al. (2021)	-	+	+	+	+	-	-	+	+	+	N/A	7	Include
Uwajeneza et al. (2023)	+	+	+	+	+	-	-	+	+	+	N/A	8	Include
Capotosto & Fu (2023)	+	+	+	+	+	+	+	+	+	+	N/A	10	Include
Schwandt et al. (2017)	-	+	-	+	+	-	-	+	+	+	N/A	6	Include
Ayala-Ramirez et al. (2023)	+	+	+	+	+	+	+	+	+	+	N/A	10	Include
Total (+)	**3**	**5**	**4**	**5**	**5**	**2**	**2**	**5**	**5**	**5**	—	**41/50**	
Quality assessment of analytical cross-sectional studies (n=5)													
Unseld et al. (2017)	+	+	-	-	+	-	+	+	N/A	N/A	N/A	5	Include
Balakrishnan et al. (2023)	+	+	+	-	-	-	+	+	N/A	N/A	N/A	5	Include
Kersten et al. (2022)	+	+	-	-	+	-	+	+	N/A	N/A	N/A	5	Include
Ezeome et al. (2018)	+	+	+	-	+	-	+	+	N/A	N/A	N/A	6	Include
Nilsson et al. (2018)	+	+	+	-	+	+	+	+	N/A	N/A	N/A	7	Include
Total (+)	**5**	**5**	**3**	**0**	**4**	**1**	**5**	**5**	—	—	—	**28/40**	
Quality assessment of cohort studies (n=1)													
Bustos et al. (2017)	N/A	N/A	+	+	-	-	+	+	+	-	+	6	Include
Total (+)	—	—	**1**	**1**	**0**	**0**	**1**	**1**	**1**	**0**	**1**	**6/9**	

***Checklist Criteria Definitions by Study Design (JBI Critical Appraisal Tools):**

Qualitative Research (Q1–Q10):

Q1: Is there congruity between the stated philosophical perspective and the research methodology?

Q2: Is there congruity between the research methodology and the research question or objectives?

Q3: Is there congruity between the research methodology and the methods used to collect data?

Q4: Is there congruity between the research methodology and the representation and analysis of data?

Q5: Is there congruity between the research methodology and the interpretation of results?

Q6: Is there a statement locating the researcher culturally or theoretically?

Q7: Is the influence of the researcher on the research, and vice-versa, addressed?

Q8: Are participants, and where appropriate, their voices, adequately represented?

Q9: Is the research ethical according to current criteria, or is there evidence of ethical approval?

Q10: Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?

Analytical Cross-Sectional Studies (Q1–Q8):

Q1: Were the inclusion criteria in the sample clearly defined?

Q2: Were objective, standard criteria used for measurement of the condition?

Q3: Was the exposure measured in a valid and reliable way?

Q4: Were the outcomes measured in a valid and reliable way?

Q5: Were confounding factors identified?

Q6: Were strategies to deal with confounding factors stated?

Q7: Was appropriate statistical analysis used?

Q8: Were the study subjects and the setting described in detail?

Cohort Studies (Q1–Q11):

Q1: Were the two groups similar and recruited from the same population?

Q2: Were the exposures measured similarly to assign people to both exposed and unexposed groups?

Q3: Was the exposure measured in a valid and reliable way?

Q4: Were confounding factors identified?

Q5: Were strategies to deal with confounding factors stated?

Q6: Were the groups/participants free of the outcome at the start of the study (or at the time of exposure)?

Q7: Were the outcomes measured in a valid and reliable way?

Q8: Was the follow-up time reported and sufficient to be long enough for outcomes to occur?

Q9: Was follow-up complete, and if not, were the reasons to loss to follow-up described and explored?

Q10: Were strategies to address incomplete follow-up utilized?

Q11: Was appropriate statistical analysis used?

Key: + = Criterion fulfilled; - = Criterion not fulfilled or unclear; N/A = Not applicable to study design.

FINDINGS

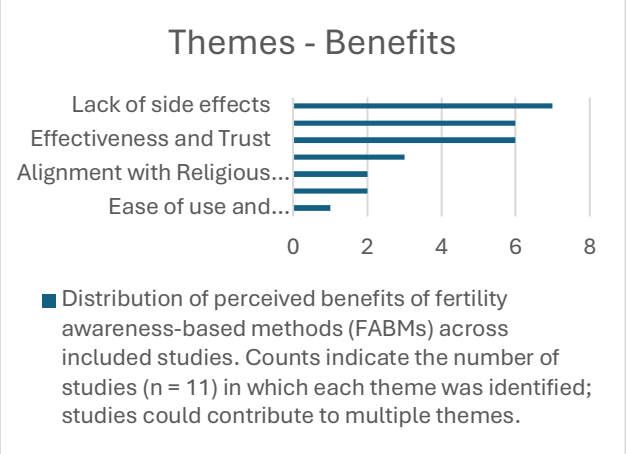
The 11 studies included in this review originated from seven countries. Six of the studies were quantitative (one cross-sectional study used mixed methods) and five were qualitative. Please see the table of study characteristics for detail on the individual studies included in the analysis (Table 3). Together, 6007 participants who used FABMs informed the themes derived.

Five overarching themes were generated for the perceived benefits of FABMs during NVivo coding. Benefit themes included (1) Body literacy and Emotional Wellbeing, (2) Effectiveness, Reliability and Trust, (3) Practical benefits (4) Relationship and Psychosocial benefits, (5) Alignment with Religious belief

Four overarching themes were generated for challenges (1) Practical and Methodological Challenges, (2) Knowledge, Awareness and Competence Gaps, (3) Professional and Structural Limitations, and (4) Relationship-Related Barriers.

BENEFITS

Figure 2. Themes for Benefits of FABM



Body Literacy and Emotional Wellbeing

This theme was one of the most frequently reported benefits, appearing across six of the eleven included studies and generating 24 coded references during NVivo analysis (see Figure 2). In a study aimed at describing the characteristics of FABMs users and their understanding and perception, 85% (n=693) of women and 82% (n=251) of men who had children felt knowledge gained from FABMs helped them to explain sexuality to their children (25). Participants from multiple studies using different FABMs felt that the methods helped increase body literacy.[26-30]

"…. The users of FABMs methods learn the function of their body, especially the reproductive physiology."[30]

In support of this, 95% of women and 55% of men in a study assessing the characteristics of participants using an STM method said that using FABMs helped them to know their body better. Of those who used the method for less than one year, 92% (n=297) felt that it helped them to know their body better while only 2% (n=7) disagreed.[25] In the same study, >80% of men and women felt FABMs improved their knowledge and understanding of sexuality regardless of educational level. This knowledge was important for overall wellbeing.

Sense of Control

Multiple studies cited the sense of control felt by participants and the perception that participants were able to overcome self-doubt as benefits of the FABMs methods.[27,31]

"You know rather than just feeling like months were going by and I wasn't getting pregnant, I think I felt like that I had more a sense of why that might be. Like maybe I didn't ovulate that month. Or you know that we didn't have intercourse at the right time. And so, I feel like it, it helped me understand what was happening with my body more."[27]

Effectiveness, Reliability and Trust

Multiple articles mentioned the effectiveness of the methods and reliance as benefits, and they felt the method was evidence based and reliable. Participants felt it was a good and effective option for regulating family size,[31] and the method presented with lack of complications and worked well.[29] The risk score was much lower for FABMs (1.60) compared to use of pill (19.62) in a study that compared perception of risk of family planning methods and pregnancy related scenarios among urban Nigerians[32]. In another study documenting users' experience of FABMs with 20 women using Billings method, participants felt the method was backed by science.[26] The lack of trust in pharmacological methods was also reflected in a study. "*I don't trust any other alternative. The safe week and withdrawal have always worked."*[29] This was supported by findings from Kersten et al.[28] where the proportion of FABMs users increased with age. Perceptions of the contraceptive safety differed depending on the method used with contraceptive safety being more important to women on hormonal contraception compared to women using FABMs or not using contraception (P<0.001).

Practical Benefits

This theme included all references to lack of side effects, ease of use and affordability

Lack of side effects

There was the feeling that the FABMs method had no side effect compared to hormonal methods thus increasing its appeal to participants in multiple studies.[26,28-33]

Ease of use and affordability

The ease of use and affordability of the methods were cited benefits by one study.[26]

Relationship and Psychosocial benefits

In one study,[25] 62% of women (n=915) and 63% of men said it improved their sex life. In a study evaluating the impact of using the FABMs to regulate fertility, there was progressive increase in PAIR score in all evaluated areas. The areas assessed were emotional, social, sexual, intellectual and recreational areas.[34] To support this, 74% of men and 65% of women stated that FABMs helped them to improve their relationship.[25] In the same study, 69% of women and 72% of men felt FABMs helped them to speak about sexuality to their partner. In one study, participants said there was shared decision making due to improved communication and mutual trust within the relationship.

"… the FABMs methods value the female/wife so that she is less likely to be sexually abused by her husband, and using these methods will help them (wife and husband) achieve their shared objective."[30]

Alignment with Religious Belief

There was the reasoning that FABMs aligned with participants' religious beliefs in two studies.[30-31]

CHALLENGES

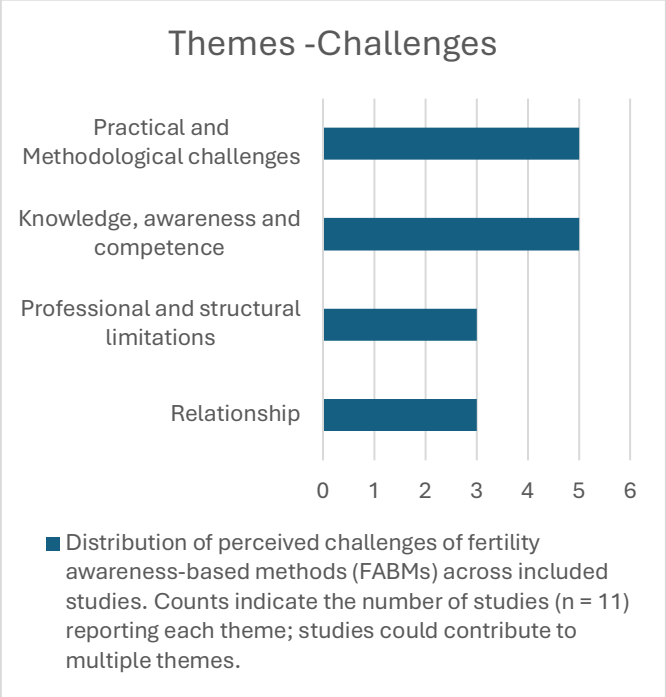
There were four themes highlighting the challenges with FABMs. These were:

Practical and Methodological Challenges

This was the most common challenge in the literature (See Figure 3). Reported issues included difficulty identifying fertile signs (e.g., cervical mucus), challenges with charting accuracy, demands of daily monitoring, managing abstinence during fertile windows and inconsistent teaching quality. In one study, 48% queried the reliability of the methods[33] and 66% of study participants in another were concerned about contraceptive safety.[28]

Also, participants found the methods difficult and overwhelming. The overwhelming aspects seemed to be because the methods required charting every day and there is learning required to master the method.[26] One difficulty was related to the need to strictly follow the rules as stated by 29% of study participants in one study.[33]

Figure 3. Themes for Challenges of FABM



Difficulty also related to making 100% observations[31] for users. For teachers, it was the time required to teach the method,

"Teaching FABMs requires time to seek information and sit with the clients to teach them the menstrual cycle and the signs that will help them identify the fertile phase. Most of the time, we are overloaded and do not have time"[30]

and the commitment required.

"It requires commitment as sometimes you miss your break time to stay with clients…. In reality, it is not easy to explain FABMs methods"[30].

This unease with teaching the method was explained to be more difficult if the client is uneducated.

"*Even with educated people … it is difficult to teach them about the menstrual cycle, and to non-educated ones… it is more difficult".*[30]

Other challenges related to charting with health issues for example for those who have pre-existing conditions such as PCOS and during breastfeeding.[26,33] In Balakrishnan et al.,[33] 14% of study participants cited usage related challenges as barrier.

Knowledge, Awareness and Competence

Four studies informed this theme with eight references (Figure 3). Studies assessing the trends and use of FABMs methods found lack of adequate knowledge as barrier. In one study, 36% of participants cited inadequate knowledge as being a particular challenge for using FABMs.[28] There was also uncertainty about the fertile window and poor

confidence.[30-31] This lack of knowledge and uncertainty was explained to lead to failure of the method.

"the failure to recognize the fertile phase"[30]

Poor public awareness of the methods[30] and poor awareness of fertility monitors were also challenges.[29] Awareness ranged from awareness about specific methods to awareness of the fertile window.

"*I have tried several times to get more information about both diaphragm and Billings. But the ones I've talked to, particularly at the youth clinics, have not been able to give information."*[29]

In Nilsson et al.,[29] for example, 73% of participants had poor awareness of their fertile window but this was aggregated data and it was not broken down by contraception use. There was also the misconception and incorrect use of lactational amenorrhea as a contraceptive.[35]

Professional and structural limitations

The difficulty with workload was more pronounced because there is lack of financial incentives to spend the time and effort teaching clients and this may be responsible for the supervision errors reported in the study.

"… even though we provide the Standard Days Method, the clients who are using it are not considered for Performance-based financing (PBF), so you understand that we do not encourage our clients to use it".[30]

These challenges may be in part responsible for lack of guidance of the methods from healthcare providers[27] and the negative attitudes displayed towards the method.[30]

Studies reported that the methods needed instruction and the instruction needed to be good for clients to be able to use them effectively.[26,30] It was also felt that detailed description for each FABMs method is lacking and participants in one study advocated for the need for a quality FABMs method of pre-service education to improve availability and accessibility.[30]

"At school, you study FABMs superficially, but you need experience and in-depth training to teach the method to clients. It is not easy to come directly from school and immediately work well in this unit. Schools could increase the amount of clinical placement time in the FP unit so that a student could leave school and start working *in the service without any problems"*.[30]

Another challenge was related to too much religious messaging. This was related to instructors teaching the method from a religious perspective.[26]

Relationship related barriers

Two studies mentioned poor compliance in adherence to rules of the methods for couples with low motivation[30-31] thus leading couples to seek more convenient methods of contraception. Tension between spouses in times of abstinence and lack of sexual spontaneity between couples[31] was also a challenge. In Unseld et al.,[25] 10% of men and women felt their use of FABMs harmed their relationship whilst 8% felt the FABMs did not help them to speak about sexuality to their partner.

We mapped the benefits and challenges extracted from studies against countries in which the studies were conducted. Mapping themes by country showed that studies from countries with greater representation (United States, Germany, Nigeria) contributed a broader range of benefit and challenge themes, including relational and intimacy-related issues. In contrast, studies from countries represented by a single publication tended to report narrower, context-specific themes, mostly focused on health benefits or knowledge-related barriers. See Table 4 in Appendix at end of article.

DISCUSSION

Findings from the systematic review revealed distinct themes in how Fertility Awareness-Based Methods (FABMs) are perceived, categorised into benefits and challenges.

Analysis of the 11 studies across seven countries (see Table 4) showed clear cross-country differences in the perceived benefits and challenges of fertility awareness-based methods (FABMs). Although all themes appeared at least once across the dataset, some were context-specific, while others (the most common challenges) appeared consistently across diverse regions.

The perceived benefits have important implications. First, increased recognition of FABMs as tools for enhancing body literacy may enable individuals to monitor observable fertility biomarkers, such as cervical mucus and basal body temperature, which serve as indicators of hormonal health.[36] This could empower users to monitor their menstrual cycles as a vital sign to facilitate early detection of conditions such as anovulation, abnormal uterine bleeding**,** and polycystic ovarian syndrome (PCOS).[37-38]

Regarding emotional well-being, existing evidence reports associations between hormonal contraceptive use and mood changes among adults and young adults aged 16–25 years.[39-40] Our findings suggest that users of FABMs may be aware of these potential effects, alongside other pharmacological side effects associated with hormonal contraceptives.[40] This may contribute to the perception of FABMs as safer, non-pharmacological alternatives that support reproductive health. Such perceptions are also reflected in earlier literature, indicating that considerations of safety, autonomy, and promoting reproductive health have long shaped discourse around acceptance and promotion of FABMs. [41-44]

In this context, training clinicians in FABMs may enhance their ability to personalise care and engage patients in preventive health behaviours, using menstrual cycle patterns as a diagnostic and monitoring tool. To support this, Duane et al. demonstrated that medical students who received structured FABMs education reported significantly greater

confidence in discussing and recommending these methods, indicating increasing clinical acceptance of FABMs as a legitimate and empowering approach to reproductive health.[38,45]

Beyond reproductive health autonomy, these findings have broader implications for workforce well-being. Given that the age groups most likely affected by mood-related side effects of hormonal contraceptives overlap with the most economically and professionally productive stages of life,[46-47] supporting informed contraceptive choice, including FABMs, may contribute to improved mental well-being and sustained workforce participation. Encouraging FABMs in response to positive user perceptions may therefore be relevant not only to individual reproductive autonomy but also to broader public health and occupational well-being.

In contexts where discriminatory policies, provider bias, and limited culturally competent care pose structural and social barriers to reproductive health services, perceived benefits related to well-being and reproductive autonomy become especially salient. In such settings, the perception of FABMs as fostering trust and aligning with personal, cultural, and religious beliefs offers an alternative pathway to reproductive agency for individuals who may experience marginalization within formal healthcare systems.[48-49] Also, within this context, FABMs has the potential to activate key acceptability mechanisms that can reduce these structural and social barriers to family planning and reproductive health. According to Webster et al.,[50] acceptability in healthcare is influenced by perceived effectiveness, ethical alignment, self-efficacy, and emotional response to an intervention. Drawing on this, our findings suggest that FABMs methods, being non-invasive, cost-effective, and aligned with many cultural and religious values, may perform well across these dimensions. Furthermore, for individuals who have been historically excluded from or distrustful of conventional health systems due to stigma or coercion around contraception, FABMs offers a respectful, empowering alternative. Taken together, our review supports the current view that FABMs may foster trust, emotional acceptance, and more sustained engagement with reproductive healthcare services.

The perceptions of effectiveness of FABMs were another common theme from our findings. FABMs, particularly the sympto-thermal method (STM), have demonstrated strong effectiveness in addressing unmet family planning needs. STM is recognised within the World Health Organization family-planning guidance as a fertility awareness-based contraceptive option, with effectiveness dependent on correct and consistent use.[17] Earlier European studies also reported the method was considered acceptable by users, indicating that interest in and acceptance of STM are not recent developments.[51] A 2025 systematic review identified four studies evaluating FABMs for avoiding pregnancy, with reported effectiveness rates ranging from 93% to 98%, although the methods and study contexts varied.[5] Moreover, as a non-pharmacological approach, FABMs may reduce reliance on synthetic hormone-based contraceptive products for some users. This could have implications for reducing synthetic hormonal residues in wastewater and may contribute to broader discussions on environmental stewardship in reproductive healthcare.[4,52]

Despite these perceived benefits, our findings suggest that there are perceived barriers to the wide implementation of FABMs. From our study, commonly reported challenges suggest underlying gaps in understanding reproductive health biomarkers, which are further exacerbated by variability in the quality of instruction.

Less frequently reported challenges are related to interpersonal and relational dynamics. For example, some couples described tension associated with abstinence requirements, shared responsibility for fertility monitoring, and communication about fertile periods.[31] Concerns regarding method reliability were raised in a small number of studies, often in contexts where structured instruction or partner cooperation was lacking. Additionally, one study identified sexual tension and intimacy strain, including reduced spontaneity and emotional frustration during periods of abstinence.[25] However, these relational and intimacy-related challenges appeared highly context-dependent and were not universally reported.[30-31]

The persistence of these reported barriers,[53-54] therefore, points to clear areas for intervention, particularly in education and training.[54] Earlier studies have advocated strengthening healthcare professionals' education through curriculum development during pre-registration training and through continuing professional development, alongside greater attention to gender sensitivity. Gender-sensitive education may help mitigate relational tensions, promote shared responsibility, and enhance communication between partners,[54] while appropriately designed curricula for healthcare providers may support the integration of FABMs into mainstream reproductive healthcare.[38] In addition, community-based education on the correct and appropriate use of FABMs may support informed reproductive decision-making for both conception and contraception, thereby promoting autonomy in fertility regulation and more consistent use of these methods.

This review has several limitations. First, it included only studies examining perspectives on FABMs. Although studies evaluating the impact of interventions were excluded, participants' perceptions may nevertheless have been shaped by previous interventions, prior knowledge or earlier experience of FABMs. Studies focused primarily on digital applications or digitally mediated fertility-tracking methods were also excluded. Studies using apps were excluded because apps technology is still evolving and perceived benefits or barrier of app may well mask the perceived benefits or barrier of the actual FABMs method and apps and FABMs are two different concepts that deserve their own attention. This reduced the numbers of studies included in the review. This may limit the applicability of the findings to

contemporary contexts in which mobile applications, wearable technologies, and other digital tools increasingly influence engagement with fertility awareness. In addition, heterogeneity across the included studies, particularly in relation to populations, settings, FABMs types, and methods of assessing perceptions, limits the extent to which findings can be generalized. The findings should therefore be interpreted with appropriate caution.

Future research should examine how educational and clinical interventions addressing the identified barriers influence acceptability, sustained use, and reproductive-health outcomes over time. Further studies could also explore how individuals' access FABM-trained teachers or mentors and identify sustainable approaches to expanding instructor training, particularly in underserved regions. Addressing these gaps will be important for determining how FABMs might be integrated equitably and appropriately into reproductive-health services.

CONCLUSION

In conclusion, FABMs continue to attract interest for both contraception and conception because of their perceived benefits relating to safety, autonomy, well-being, and affordability, as well as their potential to broaden reproductive healthcare choices. Despite generally favourable perceptions, barriers to uptake and limited engagement remain. Targeted education and support for users and healthcare professionals may help address misconceptions and promote correct and consistent use. Greater awareness of FABMs through community-based education may also support more inclusive reproductive healthcare services by ensuring that individuals with cultural preferences, personal values, or concerns about the side effects of hormonal contraception can access accurate information and appropriate support.

CONFLICT OF INTEREST

The authors have no competing interests to declare that are relevant to the content of this review.

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- Code availability: Not applicable

AUTHOR CONTRIBUTIONS

II: Conceptualisation, Methodology, Validation, Data Curation, Formal analysis, Investigation, Writing (methodology and findings, original draft creation), review & editing, and project supervision, **LW:** Conceptualisation, Data Curation, Formal analysis, Writing (abstract, introduction and discussion), Editing and Critical Review, **MV:** Formal analysis, Investigation, Findings analyst, Editing, **MD**: Conceptualisation, Data Curation**,** Formal analysis, Writing (introduction and discussion) and Editing, **OP:** Data Extraction, Writing (abstract, introduction and discussion), Validation and Critical Review, **NFPTA:** Funding Association

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APPENDIX: Tables 3 and 4

Table 3. Study Characteristics and Themes Contributed by Each Study

Part I – Study Aims and Population Characteristics

Author	Study Aims	Population Characteristics
Unseld et al., 2017	To describe the characteristics of STM users, understand their perceptions of FABMS and its perceived impact on relationships	Males (589) and Females (1971) from two major FABMS organisations in the US (couple to couple league) and Europe (Institut für Natürliche Empfängnisregelung, INER). 47% of the population were from the US. Over 80% were of reproductive age. USA, Austria, Vienna, Germany, Switzerland, Slovakia, Poland, Czech Republic, Italy.
Kersten et al., 2022	To study trends in use of contraceptive methods and digital health modalities and to identify target groups of natural family planning	779 sexually active German speaking women of fertile age-18-50years, FABMS users were 162 82.8% had university degree, 63.8% had no health care education.
Uwajeneza et al., 2023	To gain in-depth understanding of nurses and midwives experiences in providing information related to fertility awareness-based methods including natural family planning to clients in Rwanda	Ten female nurses and midwives providing family planning services in six health centres in Kicuriko District in Rwanda
Schwandt et al., 2017	To examine and compare the risk perception of family planning methods and pregnancy related scenarios among urban Nigerians	243 participants. Women and men were of reproductive age between 18 and 49 years. Participants resided in Ibadan and Kaduna in Nigeria. Focus groups were disaggregated by City, sex, age and family planning experience. 63% of participants were female.
Ezeome et al., 2018	To assess the factors influencing the use of the Creighton model system (CrMS) of FABMs and its effectiveness	Subpopulation of women in Enugu, Southeast Nigeria; 45 couples (45 men, 45 women) Aged between 22-55 years 95% of women had primary education, 22% of men had no formal education. All participants were Christians.
Ayala-Ramirez et al., 2023	To document the user experiences of FABMs	Adult women, 20 participants aged between 23-43. Population: Current users of Billings Method Asian, Black African American, other ethnicity and White.
Balakrishnan et al., 2023	To examine the contraceptive interests of women and couples in Germany using data derived from social media posts.	21 women from a population of an online German platform. 63 posts describing a switch from other contraception to FABMs or vice versa, with 2510 mentions of FABMs.
Nilsson et al., 2018	To describe women's use of non-medical contraceptive method, reasons for it and the choice of, including women's fertility awareness	648 participants, 432 using FABMs in combination with other methods, 85 using FABMs only, Swedish women aged between 26-45 years.

Author	Study Aims	Population Characteristics
Bustos et al., 2017	To evaluate the impact of using natural methods to regulate fertility (NMRF) on the perception of marital intimacy	20 Couples Aged between 21 and 49 years enrolled in the Programa de Cuidados y Estudios de la Fertilidad (PROCEF) at Universidad de los Andes in San Bernardo, Chile
Capotosto et al., 2023	To ascertain and understand women's experience using FABMs to naturally achieve pregnancy Ethnicity and religion not stated.	Two women in their thirties. Women were graduate nurse, employed and married. Women had endured previous pregnancy loss.
Weshahi et al., 2021	To explore socio-cultural and health service challenges related to postpartum family planning (PPFP) in Alexandria, Egypt, from the perspectives of providers.	32 family planning physicians (all female, aged 28–53, 3–30 years of experience) working in public clinics in Alexandria

Table 3 Cont.
Part II - Methods

Methods			
Author	**Study Design & Sampling**	**FABMs Status/Reason/ FAM Method**	**Data Collection & Method of Analysis**
Unseld et al., 2017	Quantitative cross-sectional survey; sampling method not reported.	Symptom thermal Cervical mucus method, current users, To postpone pregnancy.	Self-administered written questionnaire distributed through two FABMS organisations. Questionnaire development and validation were not reported.
Kersten et al., 2022	Quantitative cross-sectional survey; convenience sample.	Current users FABMs method not stated, Current users Reason not documented.	Online written questionnaire. Questionnaire development and validation not reported.
Uwajeneza et al., 2023	Qualitative descriptive study; purposive sampling.	Current users of lactational amenorrhea Billings method And symptom-thermal methods. Some seeking conception Some avoiding conception.	Semi-structured face-to-face interviews using an interview guide. Interview guide developed by the research team and piloted; no formal validation reported.
Schwandt et al., 2017	Qualitative study using focus groups; sampling strategy not reported.	FABMs method not documented, Reason was for spacing.	Focus group discussions using a semi-structured discussion guide. Guide development reported; formal validation not reported. Contraceptive methods compared include Sterilization, Pill, IUD, Injectable and FAM.

Author	Study Design & Sampling	FABMs Status/Reason/ FAM Method	Data Collection & Method of Analysis
Ezeome et al., 2018	Quantitative descriptive study; sampling method not reported.	Current users Pregnancy avoidance	Structured interviewer-administered questionnaire. Questionnaire development and validation not reported.
Ayala-Ramirez et al., 2023	Qualitative focus group study; convenience sampling.	Current users Want to learn about their body, pregnancy avoidance	Four virtual focus groups using a semi-structured interview guide; participants also completed a Qualtrics demographic questionnaire. Interview guide developed by researchers; no formal validation reported.
Balakrishnan et al 2023	Quantitative observational study using social media data frequency of mention.	FABMs method were not documented	Publicly available social media posts extracted from an online platform; no questionnaire or interviews.
Nilsson et al., 2018	Mixed method cross-sectional study; convenience sampling.	Current users of Billings, calendar methods. Avoiding conception.	Written questionnaire containing closed-ended items and open-ended questions. Questionnaire validation not reported.
Bustos et al., 2017	Quantitative longitudinal study.	Creighton method Current users	Personal Assessment of Intimacy in Relationships (PAIR), a validated standardized questionnaire measuring perceptions and expectations of intimacy across affective, emotional, social, sexual, and related relationship domains. The questionnaire was administered at baseline (programme entry), 3 months, and 6 months and Comparative analysis conducted.
Capotosto et al., 2023	Qualitative phenomenological study; purposive sampling.	Ovulation predictor, urinary luteinizing hormone strip.	In-depth semi-structured interviews. Interview guide developed by researchers; no formal validation reported.
Weshahi et al., 2021	Qualitative study; purposive sampling.	Current users of lactational amenorrhea to avoid early pregnancy post-partum.	Semi-structured interviews using an interview guide. Coding was cross-checked for reliability; no formal questionnaire validation reported.

Table 3 Cont. Part III - Findings and Themes Contributed to by Studies

Author	Findings		Themes Contributed to by Studies
	Benefits	**Challenges**	
Unseld et al., 2017	● FABMS helped users to know their body better ● 65% of couples stated that FABMS helped them to improve their relationship ● FABMs helped them to explain sexuality to their children. ● FABMs helped them to speak about sexuality to their partner. ● FABMS improved their knowledge and understanding of sexuality regardless of educational level. ● improved their sex life	● 10% couples stated that FABMS harmed their relationship. ● 8% felt FABMS did not help them to speak about sexuality to their partner ● 37% of women and 25% of men felt their sex life did not change compared to before using FABMs	Benefits: Health and Emotional wellbeing Subtheme: Relationship Challenges: Practical and Methodological challenges ● Subtheme: Sexual Tension and Intimacy strain
Kersten et al., 2022	● Proportion of FABMs users increased with age ● FABMs is safe ● No fear of hormonal side effects ● Desire to obtain a better understanding of their body	● Concerns regarding contraceptive safety ● Inadequate knowledge	Benefits: Health and Emotional wellbeing Subtheme: Lack of side effects Challenges: Knowledge, awareness and competence Practical and Methodological challenges ● Subtheme: reliability
Uwajeneza et al., 2023	● No hormonal methods and its associated side effects ● Health issues and religious beliefs ● Improved communication and mutual trust within the couples ● *FABM/ methods value the female/wife so that she is less likely to be sexually abused* ● *Help couples achieve their shared objective* ● Improved knowledge of reproductive physiology ● No physiological side effects ● Allows women to be more knowledgeable about their own bodies ● Nurses and midwives attitudes towards practicality and effectiveness of FABM/ was either positive, or acted as barrier	● Lack of adequate knowledge and confidence which leads to failure of method ● Couples could be unwilling to learn or are less serious and thus are encouraged to seek more convenient methods ● Lack of public awareness and time to teach FABM ● Detailed description for each FABM/FABMS method is lacking ● Lack of financial incentives ● Nurses and midwives attitudes towards practicality and effectiveness of FABM/ was either positive, or	Benefits: Health and Emotional wellbeing Subthemes: Lack of side effects Relationships Alignment with Religious belief Challenges: Knowledge, awareness and competence Practical and Methodological challenges ● Relationship

		acted as barrier ● It requires commitment on both professionals and clients	
Schwandt et al., 2017	● Significantly low risk score compared to for example Pill ● Less risky, no side effects		Benefits: Effectiveness and Trust Lack of side effects Challenges: None documented
Ezeome et al., 2018	● Lack of fear of side effects ● Effective option for regulating family size; ● Aligning with religious beliefs ● Brings satisfaction and confidence	● tension between spouses in times of abstinence ● poor compliance for couples with low motivation or discipline ● difficulty in making 100% observations ● uncertainty about fertile period ● lack of sexual spontaneity between couples	Benefits: Effectiveness and Trust Lack of side effects Sense of control Alignment with Religious belief Challenges: Knowledge, awareness and competence Practical and Methodological challenges ● Relationships
Ayala-Ramirez et al., 2023	● Billings method easy to use, learn and apply depending on the intention ● increases awareness of their body ● Affordable ● Backed by science ● Proved effectiveness ● “Natural” method, no side effects	● inherent learning ● charting every day on paper ● more religious messaging than necessary ● need for a good instructor ● feeling of being overwhelmed when learning the method	Benefits: Health and Emotional wellbeing Lack of side effects Ease of use and affordability Challenges: Practical and Methodological challenges
Balakrishnan et al., 2023	None documented	● lower pleasure ● pre-existing conditions ● reliability ● difficulty in strictly following the method	Benefits: None documented Challenges: Practical and Methodological challenges
Nilsson et al., 2018	● Lack of adverse effects or complications ● Effectiveness ● Satisfaction ● Users of FAM knowledgeable about fertility and more confident that they could identify signs of fertility	● Poor awareness of fertility monitor ● poor awareness of their fertile window	Benefits: Effectiveness and Trust Health and Emotional wellbeing Lack of side effects Challenges: Knowledge, awareness and competence
Bustos et al., 2017	● progressive increase in perceived intimacy over time		Benefits: Relationships Challenges: None documented

Capotosto et al., 2023	● sense of control ● experimenting with different methods ● overcoming self-doubt ● enduring pressure and lack of guidance from healthcare providers ● understanding of what was happening with the body		Benefits: Health and Emotional wellbeing Sense of control Challenges: Practical and Methodological challenges
Weshahi et al., 2021		● Misconceptions about lactational amenorrhea as a contraceptive ● Incorrect use of the lactation amenorrhea method (LAM)	Benefits: None documented Challenges: Knowledge, awareness and competence

Table 4: Benefits and Challenges mapped against countries in which studies were conducted

Benefits							
Country	Ease of use and afford-ability	Sense of control	Alignment with religious belief	Relationship and psychosocial benefits	Effectiveness and trust	Body literacy and emotional wellbeing	Lack of side effects
USA	x	x		x	xx	xxx	x
Germany					x	x	xx
Rwanda			x	x		x	x
Nigeria		x	x		xx		xx
Sweden					x	x	x
Chile				x			
Egypt							

Challenges				
Country	& Relationship	* Knowledge, awareness and competence	# Practical and methodological challenges	~ Professional and structural limitations
USA	x		x	xx
Germany		x	xx	
Rwanda	x	x	x	x
Nigeria	x	x	x	
Sweden		x		
Chile				
Egypt		x		

Each X represents a separate study

Challenges

& Relates to comments that the method causes sexual tension and relationship strain as well as issues of compliance, acceptance and discipline

***** Relates to comments that user competence is a problem and participants not having adequate knowledge to practice it effectively

This related to comments that the user needs instruction to learn, the process of learning is overwhelming, requires abstinence and method reliability issues. This also covered comments that the method cannot be used in special circumstances

~ Relates to comments regarding the level of information and professional support available to use the method effectively