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Publisher Details

The Family Planning Association of Sri Lanka (FPA Sri Lanka) is the country's premier non-governmental organisation dedicated to sexual and reproductive health. Established in 1953, it promotes multiple aspects of sexual and reproductive health and works to enhance the quality of life for people across Sri Lanka.

FPA Sri Lanka is an accredited member of the International Planned Parenthood Federation (IPPF).

Signed articles are the responsibility of their respective authors, and the views expressed in published works do not necessarily represent those of The Family Planning Association of Sri Lanka or the editorial board of *ReproSex: International Journal on Sexual and Reproductive Health.*

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ReproSex: International Journal on Sexual and Reproductive Health

Aims and Scope

ReproSex: International Journal on Sexual and Reproductive Health is a peer-reviewed, international, open-access journal dedicated to advancing knowledge and understanding across the diverse field of sexual and reproductive health and rights (SRHR). It is an official publication of The Family Planning Association of Sri Lanka, an accredited member of the International Planned Parenthood Federation since 1954.

The Journal aims to publish high-quality original research, reviews, commentaries, case reports and policy analyses that address critical gaps in SRHR knowledge and inform the development of laws, policies, services, and practices that uphold the rights and meet the sexual and reproductive health needs of people across all ages, gender identities, and sexual orientations. *ReproSex: International Journal on Sexual and Reproductive Health* adopts a multidisciplinary perspective, welcoming contributions from a broad range of disciplines including, but not limited to, Medicine, Public Health, Social Sciences, Humanities, Behavioural Sciences, Demography, Economics, Law, Biometry, and Biostatistics. The Journal is committed to inclusive academic inquiry and supports diverse epistemological and methodological paradigms ranging from positivism and interpretivism to feminism and pragmatism. We particularly encourage submissions that centre the voices, experiences, values, and realities of individuals and communities most affected by SRHR issues. *ReproSex: International Journal on Sexual and Reproductive Health* embraces a wide range of methodological approaches, including qualitative and quantitative research, policy analysis, mixed-methods studies, health finance, health systems and implementation research, economic and political analysis, historical inquiries, and epidemiological investigations; all with a rights-based and equity-focused lens.

While the Journal welcomes studies focused on specific local or national contexts, authors are expected to articulate their findings with broader regional or global relevance to ensure meaningful engagement with our international readership. *ReproSex: International Journal on Sexual and Reproductive Health* is published biannually in June and December. The Journal also considers the publication of special issues (supplements) based on thematic priorities or stakeholder requests. All articles are published in English.

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ReproSex: International Journal on Sexual and Reproductive Health

From Silence to Safe Care: Evidence, Ethics and Equity across the Sexual and Reproductive Health Continuum

W. Indralal De Silva[1]

Co-editor, ReproSex: International Journal on Sexual and Reproductive Health

Editorial

ReproSex: International Journal on Sexual and Reproductive Health is a platform dedicated to advancing sexual and reproductive health (SRH) and rights through credible evidence, inclusive dialogue, and practical solutions that respond to lived realities. As part of this initiative, ReproSex serves as an open-access, multidisciplinary forum that brings together research, policy analysis, clinical insights, and scholarly commentary, connecting Sri Lankan and regional perspectives with wider global debates. The Journal's central purpose is to strengthen knowledge that is methodologically sound, ethically grounded, and directly relevant to improving services, systems, and outcomes across the SRH continuum.

Within this broad mission, the most consequential determinants of SRH and well-being often emerge at the intersection of private experience and public systems, where what is lived in silence meets what is permitted, provided, or withheld in practice. The papers in this issue collectively advance a life-course view of SRH while underscoring a unifying imperative: to translate ethical commitments into service realities that are safe, dignified, and equitable. Sir Prof. Sabaratnam Arulkumaran's leading article offers a timely compass for this work, demonstrating how the foundational bioethical principles of beneficence, non-maleficence, justice and autonomy can be operationalised across clinical practice, policy and social reform [1]. In an era of polarised debates and uneven progress, the reminder is clear: SRH is not only about interventions; it is about the conditions that enable informed choice.

This theme is particularly salient in contexts where law and clinical reality diverge. Dias and Jeyamaruthy illuminate

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the ‘grey zones’ of Sri Lanka’s abortion law through experience-based clinical narratives, showing how restrictive legal frameworks generate uncertainty, moral distress and constrained care in recurrent scenarios such as sexual violence, severe fetal anomaly and profound vulnerability [2]. From a different regional vantage point, Schmitz analyses My Voice, My Choice, a European Citizens’ Initiative proposing solidarity-based mechanisms to improve access to legal abortion services for women living under restrictive regimes within the European Union [3]. Together, these contributions broaden the reader’s understanding of how rights and safeguards are shaped; sometimes enabled and sometimes curtailed by the governance architecture surrounding reproductive healthcare.

Violence remains a critical, cross-cutting challenge within SRH systems. The review by Suranga and colleagues synthesises evidence on intimate partner violence during pregnancy across Asia, with special reference to Sri Lanka, and makes an evidence-informed case for strengthening routine identification and referral pathways within maternal health services [4]. Complementing this synthesis, Boyagoda and Sumathipala examine help-seeking behaviour among women who experienced sexual violence by intimate partners in Sri Lanka, highlighting that avoidance of help-seeking is pervasive and that many women rely largely on informal networks, with limited use of specialised support services [5]. Taken together, these papers reinforce the need for survivor-centred, privacy-assured service responses across the continuum of care, from antenatal contacts to broader social protection and legal support.

SRH equity is also shaped long before clinical encounters, through education systems and the social contexts in which knowledge is acquired. Park’s commentary on proposed Swedish school reforms offers an instructive case study on how policy shifts may weaken comprehensive sexuality education and, in turn, compromise young people’s access to reliable, rights-affirming information [6]. In Sri Lanka, Gnanarathne and Subasinghe extend the conversation into women’s health settings by examining awareness, attitudes and acceptability of the Female Sexual Function Index (FSFI), showing both the promise of validated tools for patient-centred assessment and the continued need for improved sexual education and stigma-sensitive practice [7].

Advancing sexual well-being requires both robust measurement and effective care pathways. Randombage and colleagues review evidence on botulinum toxin as a treatment modality for vaginismus, situating it as a potential adjunct in selected severe or refractory cases while reaffirming psychotherapy and conservative modalities as the cornerstone of first-line management [8]. The qualitative study by Abirami and colleagues shifts the lens to infertility, documenting how it affects marital relation-ships, social interactions, and psychological well-being among couples seeking care in Northern Sri Lanka, and arguing for integrated psychosocial support within infertility services [9]. These papers, in different ways, speak to an often-neglected truth: SRH outcomes are inseparable from mental health, relationship dynamics and the quality of communication within care.

Midlife SRH, too, demands greater attention in research and services. Sana and Dissanayake argue that menopause remains a 'blind spot' across South Asia, shaped by cultural stigma, limited provider training and inadequate workplace policies, and they propose context-sensitive digital and AI-enabled approaches to strengthen information, support and access to care [10]. Alongside this, Ariyarathne and colleagues systematically review plant-based inter-ventions for menopausal mental health, noting promising effects in some herbal therapies while emphasising methodological heterogeneity and the need for more rigorous clinical trials with standardised outcome measurement and safety monitoring [11]. Together, these contributions encourage readers to consider menopause not as a peripheral topic, but as a central life-course phase that merits evidence-based, culturally responsive, and person-centred models of care.

Finally, this issue reminds us that clinical practice frequently confronts rare conditions that test preparedness, coordination and continuity of care. Jayalath's case report of pregnancy-associated exacerbation of Darier's disease underscores the importance of early recognition and multidisciplinary planning to minimise morbidity and support safe delivery and postnatal care [12]. While uncommon, such cases reinforce a broader principle: responsive SRH systems must be capable of both routine service delivery and tailored care for complexity.

Collectively, the articles in this issue invite readers to move beyond siloed thinking. They foreground SRH as an integrated field in which rights, ethics, law, education, psychosocial well-being and clinical innovation converge. For researchers, the agenda ahead includes generating context-sensitive evidence, particularly on under-studied populations, life-course transitions and service pathways. For practitioners and policymakers, the challenge is to ensure that safe care is not only technically available, but also ethically grounded, socially accessible and responsive to lived realities. As ReproSex continues to grow as an open-access platform rooted in Sri Lanka and engaged with global debates, we hope this issue catalyses dialogue and action across disciplines, bringing us closer to a future where SRH services and policies consistently uphold dignity, choice and equity for all.

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ReproSex: International Journal on Sexual and Reproductive Health

Ethical Foundations and Human Rights in Sexual and Reproductive Health: Reflections on Global Progress and Challenges

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Editor's Note: This article is based on the keynote address delivered by Professor Sir Sabaratnam Arulkumaran at the Launching Ceremony of the *ReproSex: International Journal on Sexual and Reproductive Health,* held in Colombo, Sri Lanka, on 4 September 2025. The full speech underpinning this article is publicly available as an online video on the official *ReproSex* YouTube channel and can be accessed at: https://www.youtube.com/watch?v=PmJm8-mSXAk.

Leading Article

Abstract

Ethical and human-rights-based approaches form the moral and professional backbone of sexual and reproductive health (SRH). This article explores the evolution of SRH ethics through the application of four foundational bioethical principles: beneficence, non-maleficence, justice, and autonomy, and their implications for clinical practice, policy, and social reform. Drawing on international examples and professional experience, the discussion highlights how ethical reasoning translates into practical interventions that promote dignity, equality, and choice for all individuals, particularly women. Historical injustices such as gender-based violence, harmful cultural practices, and inequitable access to care underscore the need for sustained advocacy, education, and institutional accountability. Lessons are drawn from global experiences, including the reform of abortion law in Ireland, the expansion of postpartum intrauterine device (PPIUD) programs, and improvements in maternal mortality governance frameworks. Together, these examples illustrate that rights-based, evidence-driven, and ethically grounded SRH policies are essential to achieving global commitments such as the Sustainable Development Goals. The article concludes by reaffirming the responsibility of healthcare professionals, policymakers, and educators to uphold ethical integrity and human rights in every aspect of reproductive healthcare.

Key Words: Sexual and reproductive health, ethics, human rights, autonomy, justice, global health

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Introduction

The relationship between ethics, human rights, and sexual and reproductive health (SRH) is intrinsic and interdependent. Modern SRH practice extends beyond clinical service provision; it encompasses respect for human dignity, equity, and the empowerment of individuals to make informed choices about their bodies and lives. Ethical principles not only guide professional conduct but also shape national and international health policies that determine access, quality, and inclusiveness of SRH care [1,2].

Sri Lanka's establishment of ReproSex: International *Journal on Sexual and Reproductive Health* represents a significant milestone in advancing this dialogue. It aligns with global efforts pioneered by the World Health Organisation (WHO), the International Planned Parenthood Federation (IPPF), and FIGO to mainstream ethics and human rights across all aspects of reproductive healthcare [1-3].

Ethical Foundations of Sexual and Reproductive Health

Health professionals encounter ethical challenges daily as they balance individual needs, cultural expectations, and institutional constraints. SRH, perhaps more than any other domain, exposes tensions between personal morality and universal human rights. Ethical reflection allows clinicians to navigate these complexities and ensure that care remains patient-centred, compassionate, and just.

Historically, SRH practice was constrained by moralistic and patriarchal norms that subordinated women's autonomy. Over time, medical ethics evolved from paternalism toward partnership models that recognise patients as decision-makers. This shift was catalysed by global recognition that reproductive health is a fundamental human right, as articulated in the 1994 Programme of Action of the International Conference on Population and Development (ICPD) [4,5].

Core Bioethical Principles in SRH Practice

Beneficence

The principle of beneficence obliges healthcare professionals to act in patients' best interests by promoting wellbeing and preventing harm. In SRH, beneficence is reflected in efforts to provide supportive, individualised, and value-based care. Collaborative care models emphasising respect, empathy, and continuity strengthen patient trust and improve outcomes [4,6].

Non-maleficence

Non-maleficence, the duty to "do no harm," extends beyond avoiding physical injury to preventing emotional or psychological distress. In reproductive care, this means rejecting coercive practices, ensuring confidentiality, and safeguarding against disrespect or abuse in maternity settings. WHO's 2018 framework on respectful maternity care exemplifies this principle [6-8].

Justice

Justice requires equitable access to healthcare regardless of socioeconomic status, gender, ethnicity, or geography. In SRH, justice translates into ensuring that every woman, man, and adolescent has access to safe, affordable, and non-discriminatory services. Ethical practice demands prioritising marginalised groups, such as sex workers, migrants, and youth, who often face systemic exclusion [1-3].

Autonomy

Autonomy underpins the right of every individual to make informed decisions regarding their reproductive lives. Healthcare providers are ethically obliged to communicate information in culturally appropriate and understandable ways, enabling true informed consent or refusal. Autonomy also entails recognising women's voices within families and communities and dismantling patriarchal structures that restrict decision-making power [1,2,6].

Rights-Based Approaches to SRH

Human rights and ethics are two sides of the same coin in reproductive healthcare. The late Professor Mahmoud Fathalla, former FIGO President and ardent supporter of IPPF, eloquently stated that "sexual and reproductive rights are not new rights, they are the application of already recognised human rights to the domains of sexuality and reproduction." This perspective affirms that reproductive rights derive from established frameworks of dignity, equality, and freedom [9].

A rights-based approach ensures that healthcare systems uphold the principles of accessibility, availability, acceptability, and quality (AAAQ). Policies must guarantee that services are provided with respect for privacy, confidentiality, and cultural sensitivity. Ethical governance also mandates transparency in healthcare financing, ensuring that costs do not exclude the poor or vulnerable [1,10].

Illustrative Global Experiences

Learning from History

The historical subjugation of women's reproductive rights illustrates the consequences of neglecting ethical and rights-based principles. Practices such as sati, sex-selective abortion, female genital mutilation, honour killings, and dowry-related deaths exemplify the intersection of gender inequality and moral neglect. Eradicating such practices required legal reform, community education, and the empowerment of women through access to education, nutrition, and employment opportunities [11,12].

Legal Reform and the Irish Experience

The liberalisation of abortion law in Ireland following the 2018 referendum demonstrates how ethical discourse, informed by evidence and compassion, can lead to legislative change. By centring women's health and autonomy, Ireland aligned national policy with international human rights standards and WHO guidance [13,14].

Clinical Governance and Maternal Mortality Reduction

Ethical accountability within clinical governance frameworks has significantly reduced maternal mortality in many countries. Through structured audits, confidential enquiries, and professional training, healthcare systems have improved the safety and quality of obstetric care. These initiatives exemplify how ethics and evidence synergise to protect women's lives [15].

Expanding Contraceptive Choice

Innovations such as postpartum intrauterine device (PPIUD) programmes and single-rod subdermal implants have expanded contraceptive options, empowering women to plan pregnancies safely. Integrating counselling and consent protocols within such programs ensures that technology serves autonomy rather than coercion [16-18].

Discussion

Ethical principles cannot be implemented in isolation; they require systemic support through law, policy, and education. Medical schools, professional bodies, and ministries of health must embed ethics and human rights within training curricula and accreditation standards. Evidence shows that ethical literacy among healthcare professionals improves patient satisfaction, reduces litigation, and enhances quality of care [1,3,6].

Moreover, the global SRH agenda must recognise that ethical practice is inseparable from social justice. Issues such as gender-based violence, adolescent pregnancy, and unsafe abortion are not merely medical challenges; they are moral failures of governance and equity. Intersectoral collaboration between health, education, and justice systems is therefore essential [11,14,19].

Conclusion

Ethics and human rights together form the moral compass of sexual and reproductive health. Applying the principles of beneficence, non-maleficence, justice, and autonomy enables healthcare providers and policymakers to uphold dignity, equity, and choice. As global health continues to evolve, ethical integrity must remain at its core. ReproSex provides an invaluable platform to advance this dialogue, bridging evidence, policy, and practice. Its continued success will depend on our shared commitment to translate ethical principles into real-world action that ensures every woman and man enjoys the right to safe, respectful, and compassionate care throughout the reproductive life course.

Ethical Considerations

This Leading Article is based on a keynote address delivered at the Launching Ceremony of ReproSex: International Journal on Sexual and Reproductive Health (Colombo, Sri Lanka, 4 September 2025) and a publicly available recording of that address. It does not report new research involving human participants, human tissue, or identifiable personal data. Accordingly, ethics committee approval and informed consent were not required.

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Conflicts of Interest

The author declares that there is no conflicts of interest.

Data availability statement

The full speech underpinning this article is publicly available as an online video on the official ReproSex YouTube channel and can be accessed at: https://www.youtube.com/watch?v=PmJm8-mSXAk. No additional datasets were generated or analysed for this article.

Statement on the Use of Artificial Intelligence Tools

The Editors-in-Chief declare the use of ChatGPT (GPT-5.2 Thinking) solely to improve language and clarity. The author reviewed and approved the final content and takes full responsibility for the accuracy and integrity of the article.

Disclaimer

The views and opinions expressed in this article are those of the author and do not necessarily reflect those of their affiliated institutions, any funders, or the publisher.

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Awareness, Attitudes, and Acceptability of the Female Sexual Function Index (FSFI) Among Women in Sri Lanka: A Cross-sectional Study

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Original Article

Abstract

Introduction: The Female Sexual Function Index (FSFI) is used to assess female sexual function, but limited data exists on patient perceptions of, and potential stigma associated with completing the questionnaire.

Objectives: To evaluate patient awareness, attitudes, and perceived stigma related to completing the Sinhala version of the FSFI among patients admitted to the Professorial Gynaecology wards of the Teaching Hospital, Peradeniya.

Methods: A descriptive cross-sectional study was conducted among 139 sexually active women, irrespective of ethnicity, who were literate in Sinhala and provided informed written consent. Participants completed the FSFI, which was developed using standard forward–backward translation, with content and cultural validation by an expert panel comprising an obstetrician, a psychiatrist, and a community physician, and a separate anonymous questionnaire assessing sexual education, awareness, comfort level, and perceptions toward the FSFI. Data were analysed using SPSS Version 23.

Results: The mean age of the cohort was 34.5 years (SD: 5.86). Most participants (79.9%) believed that discussing female sexual function is necessary, and 82.0% viewed a healthy sexual relationship as essential for overall well-being. 66.2% rated the questionnaire as very useful. Most respondents (63.3%) felt that using such a questionnaire is appropriate in Sri Lanka. A total of 74.8% did not feel uneasy when completing the FSFI. Healthcare workers were identified as the preferred method for assessing female sexual concerns. Overall, 25.05% of all response cells were left blank.

Conclusion: It was concluded that the participants' perception of FSFI was generally positive. The majority identified it as a useful, culturally appropriate tool to discuss female sexual function. However, findings also highlight the need for improved sexual education among Sri Lankans.

Key Words: Female Sexual Function Index (FSFI), Sexual health attitudes, Stigma and acceptability, Cross-sectional study, Sri Lankan women

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Introduction

Globally, few studies have explored stigma associated with the use of the Female Sexual Function Index (FSFI). As this tool is newly introduced to the Sri Lankan context, no local data exists on this aspect. Social and cultural barriers may discourage open discussions about sexual function, potentially hindering both the assessment and management of female sexual function disorders.

The objective of this study was to explore patient perspectives on stigma, awareness, acceptability, and perceived usefulness of the Sinhala version of the FSFI, and to assess perceived needs for sexual health education among women admitted to the Professorial Gynaecology wards at Teaching Hospital, Peradeniya.

According to a study conducted in 1999 in the USA, the prevalence of female sexual function disorders (43%) exceeds that of males (31%) [1]. Despite this high prevalence, these disorders are often underdiagnosed, highlighting the need for further research.

The Female Sexual Function Index (FSFI) was developed in 2000 by Rosen *et al*. as a brief, self-administered instrument to evaluate female sexual function in clinical and epidemiological studies [2]. It assesses female sexual function through 19 questions covering six domains: (a) desire, (b) arousal, (c) lubrication, (d) orgasm, (e) satisfaction, and (f) pain [2]. Since the tool was developed in English, the Sinhala version of the FSFI used in this study was previously cross-culturally adapted and validated among adult women attending a tertiary care gynaecological unit in Sri Lanka. This process demonstrated satisfactory psychometric properties, and followed standard forward–backward translation procedures with content and cultural validation conducted by an expert panel comprising an obstetrician, a psychiatrist, and a community physician [3].

Methodology

Study design and Setting

The study was conducted as a descriptive cross-sectional study among patients of reproductive age (18-49 years) admitted to the Professorial Gynaecology wards at the teaching hospital in Peradeniya. A self-administered questionnaire was used in data collection. Inclusion criteria were patients who gave informed written consent and had been sexually active for the last 6 months. Patients who didn't consent, had not been sexually active over the previous 6 months, were already diagnosed with sexual dysfunction, and were not fluent in the Sinhala language were excluded from this study. The FSFI questionnaire is designed for women who are currently sexually active; therefore, sexual activity within the past six months was required to ensure accurate completion of the tool. Since the questionnaire assessing perceptions toward completing the FSFI was administered together with the FSFI itself, the same group of eligible women was recruited for both components of the study. Data collection was carried out from November 2023 to March 2024.

Sampling Method

A consecutive sampling method was used. All eligible women admitted to the Professorial Gynaecology Ward during the data collection period were invited to participate. Those who met the inclusion criteria and gave informed consent were recruited until the required sample size was achieved.

Sample Size Calculation

The sample size was determined to estimate the prevalence of perceived stigma related to completion of the Sinhala version of the FSFI. Since no prior data were available on the expected prevalence of stigma, a population proportion of 50% was assumed to obtain the maximum required sample size.

The calculation was carried out using a 95% confidence interval and a 5% margin of error (d=0.05). Based on these assumptions, the minimum required sample size was calculated using the standard formula for a single population proportion:

$n=(Z^2 \times p \times (1-p)) / d^2$

Substituting the values (Z=1.96, p=0.5, d=0.05),

$n=(1.96^2 \times 0.5 \times (1-0.5)) / 0.05^2=384$

However, given the exploratory nature of this single-centre study and the sensitive subject matter, recruitment feasibility was expected to be limited. Although approximately 40-60 women were admitted weekly to the Professorial Gynaecology wards, only an estimated 10-15 women per week met the eligibility criteria. Exclusions were made for women who were not sexually active in the preceding six months, had language limitations, had prior diagnoses of sexual dysfunction, or declined participation due to the sensitive nature of the study. Therefore, during protocol development, a wider margin of error of 8% was predefined as acceptable for assessing feasibility.

Using a 95% confidence level and an 8% margin of error (d=0.08), the revised minimum sample size was calculated as:

$n = (1.96^2 \times 0.5 \times (1-0.5)) / 0.08^2=139$

Therefore, a total of 139 participants were included in the final analysis.

Data Collection Tool and Procedure

Both the FSFI questionnaire and the patient perspectives and stigma evaluation tool were printed and placed in separate envelopes. Patients who provided consent were asked to select an envelope and anonymously complete both questionnaires, after which they placed them in a designated collection box. This procedure ensured that investigators had no access to participants' personally identifiable information at any stage of the study. The patient perspectives and stigma evaluation tool included questions on sexual education level, sources of sexual education, and patients' perceptions of the FSFI questionnaire.

Ethical Approval

Ethical approval was granted by the Ethics Review Committee of the Teaching Hospital Peradeniya (ERC Number: THP/PLANNING/ERC/19/2023). The project was conducted in compliance with the Declaration of Helsinki.

Statistical Analysis

Data were coded and entered into a statistical software package for analysis. Descriptive statistics including frequencies, percentages, and means were used to summarize the findings.

Patient and Public Involvement Statement

As the study aimed to evaluate awareness, attitudes, and perceptions using a recognised and previously validated instrument (the FSFI), patients were not involved in developing the research question, study design, or outcome measures. Additionally, patients were not involved in study recruitment or execution; instead, eligible participants were approached sequentially while in the hospital. No patient advisory group was used. Since data were collected anonymously, results will not be shared individually with participants. However, the findings will be published in academic journals and may be shared with clinical teams to guide future patient care.

Results

A total of 139 participants completed the questionnaire, with a mean age of 34.5 years (SD: 5.86). All responses were coded numerically. Blank responses were treated as system-missing values and excluded from relevant analyses, with no imputation undertaken. Descriptive statistics were generated using SPSS Version 23.

Awareness and Knowledge-Related Findings

Perceptions on the Need to Discuss FSFI

A large majority (79.9%, n=111) believed that discussions about FSFI are necessary. Contrarily, 12.2%, n=17, felt this was not necessary, while 2.2%, n=3, considered such discussions to be against culture. 5.8% (n=8) did not answer the question.

Understanding the Importance of Sexual Relationships for Health

The majority of participants, 82.0% (n=114), agreed with the statement that a healthy sexual relationship contributes to a woman's physical and mental health. Only 10.1% (n=14) believed that this was not necessary, while 3.6% (n=5) responded "I don't know." The remaining 4.3% (n=6) did not respond.

Attitudes Toward the Questionnaire and Sexual Education

Difficulty Experienced While Answering the FSFI

The majority of participants, 63.3% (n=88) reported that the questionnaire was easy to answer. However, 28.8% (n=40) indicated that they sometimes struggled with the questions, while 2.9% (n=4), found them consistently difficult. A further 5.0% (n=7) did not provide a response.

Rating of Participants' Sex Education

Among participants, nearly half (49.6%, n = 69) reported being "somewhat informed," while 46.0% (n=64) felt well informed. Only 1.4% (n=2) considered themselves inadequately informed, and 2.9% (n=4) did not respond to this item.

Need for Formal Sex Education in Sri Lankan Schools

An overwhelming majority of participants, 91.4% (n=127), agreed that sexual education in Sri Lankan schools needs improvement. A small proportion believed current education is sufficient, 0.7% (n=1), while 5.0% (n=7) felt no improvement was needed. A further 2.9% (n=4) did not respond.

Effectiveness of Sexual Education in Understanding Sexual Function

Most respondents (79.9%, n=111) believed that sexual education helps explain sexual function. Another 15.1% (n=21) felt it was only sometimes helpful, while 1.4% (n=2) believed it does not help. A further 3.6% (n=5) left this item blank.

Awareness of Multiple Stages in Female Sexual Activity

Awareness levels were mixed: 44.6% (n=62) of participants knew that there were multiple stages in female sexual activity. 36.7% (n=51) were unaware, 2.9% (n=4) preferred not to know and 15.8% (n=22) did not respond. These findings highlight significant knowledge gaps in female sexual physiology.

Perceptions of the Questionnaire

Usefulness of the Questionnaire

Two-thirds of respondents (66.2%, n=92) reported that the questionnaire was very useful. A further 19.4% (n=27) found it somewhat useful, and 14.4% (n=20) found it not useful.

Appropriateness of Using the Questionnaire in Sri Lanka

A majority of respondents, 63.3% (n=88), considered this type of questionnaire very appropriate in the Sri Lankan context, while 18.7% (n=26) considered it somewhat appropriate. Only 0.7% (n=1) viewed it as inappropriate and 17.3% (n=24) did not respond.

Best Method of Assessing Female Sexual Problems

The most commonly preferred source of information was health workers, 51.8% (n=72). Other responses included printed documents, 7.9%, n=11; family/friends, 4.3%, n=6; the internet, 5.8%, n=8; and "other", 0.7%, n=1. In particular, 29.5% of participants did not answer this item (n=41).

Level of Discomfort When Completing the Questionnaire

Most participants, 74.8% (n=104), did not feel uneasy. Whereas 7.9% (n=11) reported discomfort, and 0.7% (n=1) considered the questions unethical. 16.5% (n=23) did not respond.

Patterns of Missing Data

The overall percentage of blank cells averaged across all participants was 25.05%. This suggests moderate missingness and differential engagement by the respondents.

Table 1. Participant Responses to FSFI-Related Questions

Question	Results (n=139)
Do you believe it is required to talk about FSFI?	Yes: 79.9% (111) No: 12.2% (17) Against culture: 2.2% (3) Blank: 5.8% (8)
Do you believe that a good sexual relationship is important for a woman's physical and mental health?	Essential: 82.0% (114) Not essential: 10.1% (14) I don't know: 3.6% (5) Blank: 4.3% (6)
Did you find it hard to answer the FSFI at any point?	No: 63.3% (88) Sometimes: 28.8% (40) All the time: 2.9% (4) Blank: 5.0% (7)
How would you rate the sex education you have received?	Somewhat: 49.6% (69) Well informed: 46.0% (64) Not informed: 1.4% (2) Blank: 2.9% (4)

Do you believe that there should be formal sex education in Sri Lankan schools?	Needs improvement: 91.4% (127) Sufficient: 0.7% (1) No improvement: 5.0% (7) Blank: 2.9% (4)
Do you believe that sexual education helps you understand your sexual function?	Yes: 79.9% (111) Sometimes: 15.1% (21) No: 1.4% (2) Blank: 3.6% (5)
Are you aware that there are multiple steps in a female's sexual activity?	Yes: 44.6% (62) No: 36.7% (51) Don't want to know: 2.9% (4) Blank: 15.8% (22)
How would you rate the use of this questionnaire in addressing and identifying female sexual problems?	Very useful: 66.2% (92) Somewhat: 19.4% (27) Not useful: 14.4% (20)
Do you believe that the use of this type of questionnaire to assess sexual function is appropriate in Sri Lanka?	Very appropriate: 63.3% (88) Somewhat: 18.7% (26) Not appropriate: 0.7% (1) Blank: 17.3% (24)
In your opinion, what is the best method of assessing female sexual problems?	Healthcare workers: 51.8% (72) Printed: 7.9% (11) Internet: 5.8% (8) Family/friends: 4.3% (6) Other: 0.7% (1) Blank: 29.5% (41)
Did using this questionnaire make you uneasy?	Not uneasy: 74.8% (104) Uneasy: 7.9% (11) Unethical: 0.7% (1) Blank: 16.5% (23)

Discussion

Overall, the results indicate that the acceptability of the FSFI in a clinical setting was generally favourable. Most participants had not previously heard of FSFI, yet they reported feeling fairly comfortable discussing sexual health within a health-care context. A study by Rosen *et al.* suggests that this finding aligns with global trends, where the tool is primarily used in specialized clinics [2]. Similar gaps in knowledge in low and middle-income countries are often attributed to limited sexual education, cultural taboos, and underdiagnosis of female sexual dysfunction [4]. These findings suggest that low awareness may be due less to stigma and more to limited exposure.

Despite this lack of knowledge, most people held positive attitudes toward female sexual health. Nearly 80% of respondents believed that discussing sexual issues is important. The majority felt that sexual function is vital for both physical and mental health. These findings match recent cross-cultural validations of the FSFI, which indicate that women are willing to engage in safe, structured discussions about sexual health [5]. This also hints at a gradual cultural shift, with women feeling more comfortable talking about their sexual health, especially in medical environments.

One major conclusion of the study was the widespread acceptance of the FSFI. Most participants found the questionnaire suitable for the Sri Lankan context, with two-thirds rating it as "very useful." This matches global experiences with translated FSFI versions, showing that, when properly adapted, the tool remains acceptable in various cultural contexts [4,6]. Importantly, 74.8% of respondents felt at ease answering the questions. This suggests that discomfort and stigma decreased due to the clinical environment and the anonymous administration method. Research from other collectivistic cultures also shows that stigma significantly drops in structured clinical settings [7].

Healthcare professionals were the most preferred source for discussing female sexual health issues. This is expected, particularly in South Asian contexts, where patients value professionalism and discretion in sensitive matters. Studies indicate that clinicians play a key role in normalizing discussions about sexual health, and their involvement can significantly reduce stigma [8]. These findings highlight the importance of healthcare providers actively starting these conversations.

As a secondary finding, the study also uncovered significant gaps in sexual education. A large majority of participants (91.4%) believed that school sexual education should be improved. This aligns with international research indicating that better sexual health education boosts comfort, corrects misinformation, and reduces stigma associated with sexual function evaluations [9]. Improving formal sexual education in Sri Lanka could raise awareness of resources like the FSFI and promote overall sexual well-being.

A notable finding was that 25% of response cells were left blank, indicating missing data. This level of missingness can be considered moderate and is not unexpected in studies addressing sensitive topics. Possible reasons for these omissions include discomfort, or embarrassment, uncertainty about how to answer specific questions, or survey fatigue. Higher non-response rates due to sociocultural factors have also been noted in similar studies on sexual health [10]. The missing data suggest that more patient education and reassurance are needed when using such tools regularly.

This study has several limitations. The sample size was relatively small, and data were collected from a single site. As responses were self-reported, social desirability bias may have influenced participants' answers. Additionally, including only Sinhala-literate participants limits the generalizability of the findings to all Sri Lankan ethnic groups. Missing data may also have impacted the strength of the descriptive findings. Despite these limitations, the study provides a foundation for future research and adds valuable local evidence to a relatively neglected field.

To gauge the FSFI's acceptability among various groups of women, including those from community-based populations, future research should involve larger multi-centre studies. Qualitative interviews could also yield deeper insights into cultural perceptions and any underlying stigma. Furthermore, it will be essential to enhance sexual education programmes and train healthcare professionals in how to initiate conversations about sexual health in a culturally sensitive way. By pursuing these strategies, the FSFI can become a reliable, culturally appropriate tool for assessing the sexual health of women in Sri Lanka.

Conclusion

This cross-sectional study among sexually active, Sinhala-literate women in a Sri Lankan tertiary gynaecology setting indicates that the Sinhala FSFI is generally acceptable and perceived

Ethical Approval

Ethical approval was granted by the Ethics Review Committee of the Teaching Hospital Peradeniya (ERC Number: THP/PLANNING/ERC/19/2023). The project was conducted in compliance with the Declaration of Helsinki

External Funding

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Conflicts of Interest

The authors declare there are no conflicts of interest.

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Data Availability Statement

The datasets generated during and/or analysed during the current study are available from the corresponding author upon reasonable request.

Statement on the use of Artificial Intelligence

The authors used ChatGPT (GPT-5.1) AI-based tools only for minor language editing. All scientific content, data interpretation, and conclusions are the work of the authors.

Author Contribution Statement

Gnanarathne S conceived and designed the study. Subasinghe H collected the data. Gnanarathne S and Subasinghe H performed data analysis and interpretation. Subasinghe H drafted the manuscript, and Gnanarathne S critically revised it for intellectual content. All authors approved the final version of the manuscript and agree to be accountable for all aspects of the work.

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Help seeking behaviour of women facing sexual violence by intimate partners in Sri Lanka

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Original Article

Abstract

Introduction: Intimate partner violence (IPV) is a social, economic and health concern affecting women world over. In 1993, the UN adopted the agreement to eliminate all forms of violence against women, leading many countries to adopt measures to curb IPV. Despite these measures, it persists and is more so in the case of sexual violence. According to the Women's Well-being Survey (WWS)-2019 conducted by the Department of Census and Statistics, Sri Lanka, 20.4% of women have experienced physical and/or sexual violence and 6.8% sexual violence by a partner in their lifetime.

Methods: This study provide a descriptive analysis as to: a) disclose the behaviour of women victims; b) identify who among the victims of sexual violence seek help and who does not; c) examine if help is sought, from which type of person/s or institutions/organizations it is sought; and d) analyse the association between selected characteristics of women and help seeking; and e) reasons for seeking or not seeking help. The study is based on secondary data using the WWS-2019. The WWS sample was 2100 ever partnered women aged 15 years and above.

Results: Among them, 148 reported sexual violence by an intimate partner. The analysis was based on these 148 women. Among them, 79.7% have stated that someone about their intimate partner's sexual violent behaviour, while 20.3% have not told anyone. Among those who disclosed, the majority have discussed with a parent (63.0%) and 53.4% with a sibling. In addition, 52.1% have discussed this with the police. Among those who disclosed, 49.6% have sought help while 50.4% did not.

Conclusion: The study concludes that help-seeking avoidance is a pervasive issue transcending demographic and socio-economic boundaries, with a significant proportion of women either not seeking help or relying solely on informal sources.

Key Words: Gender, intimate partner, sexual violence, help seeking, empowerment

International Journal on Sexual and Reproductive Health

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Introduction

Intimate partner violence (IPV) is a social, economic and health concern affecting women around the world, irrespective of their different backgrounds. It is estimated that the global prevalence of physical and/or sexual intimate partner violence among all ever-partnered women was 30.0% [1], and according to a study reviewing data from 81 countries [2], South Asia where Sri Lanka is located, has the second highest prevalence of IPV. According to the United Nations – UN (2024) approximately 51,100 women and girls were killed by their intimate partners or other family members in 2023 [3]. The reported figure is alarming, but, it is likely to be higher given the scarcity of data in this area. In March 1993, the UN adopted the agreement to eliminate all forms of violence against women, leading many countries to adopt laws and strategies to curb the issue. Despite this, IPV persists, and is difficult to eliminate. This is more so in the case of intimate partner sexual violence (IPSV) which can occur within a current or former relationship. According to Barker *et al.* (2019) IPSV is "an important but often overlooked form of gender-based violence" (p.363) [4]. The World Health Organization (WHO) defines sexual violence as: 'Any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic or otherwise directed against a person's sexuality using coercion, by any person regardless of their relationship to the victim, in any setting, including but not limited to home and work'[5] and IPSV includes acts such as physically forced penetrative sex, birth control sabotage, pregnancy pressure, coerced abortion, unwanted humiliation during sexual acts and withholding money contingent on sex [6]. Research on IPV in the country was initiated in the 1980s [7]. Findings on prevalence differ as these studies are done in different parts of the country and contexts. How violence is defined and measured also differs [8-11]. Thus, an accurate picture is not possible. What can be gathered is that IPV is prevalent and that the consequences are severe.

At national level, the Demographic and Health Survey-DHS 2016, Sri Lanka [12] reports that 17% of ever-married women have undergone domestic violence by an intimate partner. IPV is commonly termed as 'domestic violence' though domestic violence is broader [13]. The Women's Well-being Survey (WWS) 2019 conducted by the DCS mainly focusing on gender-based violence indicates that 20.4% of the ever-partnered women have encountered IPV [14]. DHS further reports that domestic violence by an intimate partner is higher among older women, urban residents, those in the lowest wealth quintile and women with primary education. However, the WWS indicates that violence is more prevalent in the estate sector and that women aged 45-50 are more prone to experiencing physical IPV, indicating disparities at the national level. The WWS findings also indicate that violence faced by women physically or sexually from a partner is higher than violence encountered from other persons. This indicates the gravity of IPV within the broader context of violence against women in Sri Lanka.

In 1981, Sri Lanka was one of the first countries in the South Asian region to ratify the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW). The country later also subscribed to the Beijing Platform of Action to Prevent Violence Against Women. Yet, Sri Lanka continues to be a country with relatively high prevalence of IPV

[7,15,16]. Studies on IPV, and particularly IPSV remain very limited in Sri Lanka. However, a similar focus is also given in studies that look at domestic violence. Domestic violence is most often used for IPV and comprises a range of violent acts including sexual violence. Research on IPV in the country can be identified from the 1980s [7]. However, most of these are micro studies pertaining to specific areas or groups, and the definitions of violence are not consistent across them. Hence findings on prevalence differ and it is not possible to project an accurate picture [8-11,17]. For example, a study done by Upekshika (2023) in Lihiniyawa West Grama Niladhari Division Western Province notes a prevalence of 6% in sexual violence under domestic violence [18]. In another study done by Vidanapathirana (2014) in a tertiary care hospital in Colombo using 4838 medico-legal examination forms show 6 sexual abuse cases and 2 cases where sexual intercourse was denied [11]. A scoping review by Guruge *et al*. (2015) focusing on literature indicates that the prevalence of IPV in Sri Lanka varies across locations, and ranges from 20-72%. [7]. Additionally, according to Kohombage (2012), Sri Lankan women experience at least five incidences of IPV over their lifetime [19].

At national level, according to the last DHS 2016 (DCS, 2017), 17% of ever married women have suffered from domestic violence from an IP and out of them 15% have experienced sexual violence. Providing similar figures, according to the WWS-2019 conducted by the Department of Census and Statistics (DCS), Sri Lanka (DCSs, 2020), around one fifth of women have experienced physical and/or sexual violence and around 7% sexual violence by a partner in their lifetime [12,14]. It is very likely that women facing physical intimate partner violence also face sexual intimate partner violence [4]. The WWS 2019 (DCS, 2020) further indicates that married women in Sri Lanka are at a higher risk of experiencing IPV, with one in five ever married women reporting IPV compared to all other women aged 15 years and over. Given that marriage is nearly universal in Sri Lanka and that sexual interactions are considered an inherent part of marriage, married women's risk of IPSV is particularly pronounced [14]. The matter is aggravated as many women do not know or believe that they can refuse sex with their husbands [5]. Although the United Nations High Commission for Human Rights in 1993 established marital rape as a human rights violation, a large number of countries including Sri Lanka (Udani, 2017) have not criminalized marital rape due to the sensitivity of the subject area [20].

Like all forms of violence, IPSV also carries mental, physical and sexual health consequences and even death. In addition, it is connected to other economic and social consequences such as loss of income and stigma. More so, IPV and IPSV not only impacts the victimized woman but also her children, the extended family and also the larger community [21-24]. However, since IPSV occurs in closed environments and is sensitive to be discussed in most cultural contexts such as Sri Lanka, many women suffer alone without seeking help. However, all victims are not passive to what happens and will turn to seek help [25-27]. Identifying why women seek help and more importantly why they do not, will facilitate policy to empower women to seek help. This is because it is well researched that support is helpful in minimizing the negative consequences of violence [28].

Based on the above, the main objective of this paper is to examine the help seeking behaviour of women experiencing sexual violence, using secondary data from the WWS 2019 conducted by the DCS. Additionally, the paper explores patterns of disclosure and the reasons why women choose to seek, or not seek help.

Literature review

Theoretical literature

Help seeking in the context of intimate partner violence means women disclosing partner violence to someone [29]. Theorizing help seeking through the 'survivor theory' Gondolf and Fisher (1988) notes that victimized women can be categorized into two groups – those who seek help and those who do not [25]. The concept of 'learned helplessness' was elaborated by Seligman and Maier (1967) using psychological experiments [30]. They note that when exposed to repeated shocks that are out of their control, the victims refrained from taking action. The 'learned helplessness' theory is used to theorize women in IPV circumstances and help seeking, noting that when women continuously face violence, they tend to believe it is beyond their control and that they do not have the possibility to escape the violent environment they have to live in. Thus, it results in not seeking help.

Many reasons have been identified for this situation, including sex role socialization in society, women's economic dependency on men, fear for self and children, stigma, denial of violence by those approached for help and the lack of alternative mechanisms. Some studies identify that women seeking help are doubly victimized, either because they are women or because they belong to certain racial backgrounds and face discrimination. This may lead some women to take more extreme actions, such as suicide [29]. Reasons for seeking help also vary depending on the purpose: some women seek help to escape the violent relationship, whereas others seek help to end the violence.

The popular belief is that battered women do not seek help [31]. However, women are not always helpless and passive victims, and in some instances tend to seek help actively attempting different mechanisms to prevent or escape from violent partners [25-27].

Help seeking behaviour is not usually a response to a singular violent act. One view is that women seek help when the number of violent acts increase or when the severity of violence increases [25]. Another view is that help seeking is a process where women temporarily leave violent relationships several times before they take the step towards permanently leaving the relationship [32,33].

Types of help seeking are also diverse and can be informal or formal. Campbell *et al*. (1998) and Yoshioka *et al*. (2003) notes that large numbers of victims seek help from family and friends, while Hutchinson and Hirschel (1998) notes that relatively large numbers contact formal sources such as police, counselors or medical personnel [34-36].

All women do not face similar kinds of violence and therefore universal responses will not be effective as they need different types of support [25]. Further, women victims are not homogeneous. Research indicates that the background characteristics of victims are associated with help seeking behaviour [36,26].

Methodology

Data Source: This study is based on secondary data from the Women's Wellbeing Survey (WWS)-2019, conducted by the Department of Census and Statistics (DCS) in Sri Lanka. The DCS adopted WHO ethical and safety recommendations for research on violence against women for this survey (WHO, 2001 as cited in DCS, 2019) [14]. The WWS-2019 is a comprehensive, nationally representative household survey dedicated to capturing the prevalence and nature of violence against women, including intimate partner violence. It was designed to provide reliable data for policymakers and stakeholders to monitor progress on Sustainable Development Goal (SDG) Target 5.2 (Eliminate all forms of violence against women and girls). The survey used internationally recommended methodologies (such as the WHO Multi-country Study on Women's Health and Domestic Violence) to ensure the ethical and safe collection of sensitive data. Data was collected using a survey questionnaire administered by female enumerators [14].

Sample and Sampling: The WWS-2019 employed a multi-stage stratified random sampling technique to select a nationally representative sample of households.

Inclusion and Exclusion Criteria: The inclusion criteria for the main WWS-2019 survey were:

- Ever-partnered (married, cohabiting, or formerly partnered) women.
- Aged 15 years and above.
- Usual residents of the selected households.
- One eligible woman was randomly selected from each household to participate.

Exclusion criteria included:

- Women who were not ever-partnered.
- Individuals residing in non-private dwellings (e.g., hostels, barracks).
- Households in selected Primary Sampling Units that were non-residential or vacant.

Sample Characteristics: The total sample for the WWS-2019 comprised 2,100 ever-partnered women aged 15 years and above.

Among these women, 148 women reported experiencing sexual violence by an intimate partner during their lifetime. Identification of sexual violence was based on Question 706 of the survey which included the following three questions on sexual violence – i) Did your current husband/partner or any other husband/partner ever force you to have sexual intercourse when you did not want to, for example by threatening you or holding you down?; ii) Did you ever have sexual intercourse you did not want because you were afraid of what your partner or any other husband/partner might do if you refused?; and iii) Did your husband/partner or any other husband/partner ever force you to do anything else sexual that you did not want or that you found degrading or humiliating?

The study is an analysis of the148 women who ever faced sexual violence. Data was analyzed using the software SPSS and univariate and bi-variate analysis is used for descriptive examination. Chi-square tests are used to check the relationships between selected characteristics of the women and their help seeking Behavior's Purpose of this test was to determine if there were statistically significant relationships between the help-seeking behavior and selected independent categorical variables.

The specific independent variables tested against help-seeking behavior were:

- Level of Education
- Main Daily Activity
- Age Group
- Employment Status

For each chi-square test, the null hypothesis (H_0) stated that there was no association between the independent variable and help-seeking behavior. The alternative hypothesis (H_1) stated that a significant association did exist. A p-value of less than 0.05 ($p<0.05$) was set as the threshold for statistical significance. The results of these tests are presented, showing the chi-square statistic (χ^2), degrees of freedom (df), and the asymptotic significance (p-value) to identify which characteristics were significantly related to the patterns of disclosure and help-seeking among survivors of intimate partner sexual violence.

Though the WWS data was used, the paper is not a report of what was presented in the WWS, but analysed focusing only on women facing sexual violence, using criteria that the authors think are important to build a picture on violence disclosure and help seeking of women facing sexual violence.

Results

Sample characteristics

As noted above, 148 women from the total WWS sample had experienced IPSV during their lifetime; that is, they had faced sexual violence at some time in their conjugal lives. Table 1 presents selected characteristics of this group. The majority represent the rural sector which is accepted as majority in the country also represnts this sector The current ages of these women ranged from 24 to 82 years. Among them, 31.1% were aged 45-54 followed by 27% in the 55-64 age group. The representation of younger women was low, likely due to the average age at marriage being around 24 and the low prevalence of unions outside marriage in the country. When education was considered, the majority had completed secondary education (GCE O/L and A/L). Representation at higher education levels were low. Education is recognized as an empowering factor and may act as a deterrent to IPV. Almost similar proportions were observed for women whose main daily activity was household work (47.3%) or currently engaged in economic activity (45.9%). Among those employed, 44.1% could be considered as engaged in home based economic activities classified as 'own account workers' or 'contributing family workers'. Though engaged in economic activities, their exposure and empowerment are not as high as that of women working outside the home.

In Sri Lanka, marriage provides the primary context for IPV, as marriage is almost universal and intimate relationships outside of marriage are relatively low. The current marital status of the sample indicates that 64.2% are currently married and living with their husbands, while 16.2% are currently married but not living with their husbands. Another 16.2% do not currently have a male partner – likely widows or divorcees. To provide an overview of conjugal relationships and associated violence, Table 2 has been formulated.

Table 1. Socio-Demographic Characteristics of the Study Sub-Sample

Characteristic	Category	N	%
Geographical Area	Urban	18	12.2
	Rural	121	81.8
	Estate	9	6.1
Age Group	15-24	2	1.4
	25-34	14	9.5
	35-44	27	18.2
	45-54	46	31.1
	55-64	40	27.0
	65+	19	12.8
Educational Level	No Schooling / Primary	33	23.7
	Secondary (O/L & A/L)	103	71.1
	Higher	3	2.2
Main Daily Activity	Engaged in economic activity	68	45.9
	Seeking for and available to work	1	0.7
	Household activities	70	47.3
	Retired	4	2.7
	Unable to work	5	3.4
Employment Type	Government Employee	8	11.8
	Private Sector Employee	29	42.6
	Employer	1	1.5
	Own Account Worker	24	35.3
	Contributing Family Worker	6	8.8

Source: Author calculations based on Department of Census & Statistics (2020) data

Note: Percentages for Geographical Area, Age Group, Educational Level, and Main Daily Activity are based on the total sub-sample (N=148). The percentages for educational level are based on 139 respondents, as 9 responses are missing. Percentages for Employment Type are based on the 68 respondents who reported "Employed" as their main daily activity.

Table 2. Status of conjugal relationships and who perpetrated violence

Marital status / Partner type	Currently married/ living together	Currently married / not living together	Living with a man/ not married	Having a regular relationship (engaged/ dating) / not living together	Not currently having a male partner
Current/ most recent husband	84.2	78.8	33.3	100.0	83.3
Previous husband/ partner	12.6	29.2	66.7	0.0	16.7
Don't know	1.1	0.0	0.0	0.0	0.0
Refused to answer	2.1	0.0	0.0	0.0	0.0
	100.0 (95)	100.0 (24)	100.0 (3)	100.0 (2)	100.0 (24)

Source: Author calculations based on the Department of Census & Statistics (2020) data N=148

According to table 02, in the sample, 95 (64.2%) women were currently married and living with their husbands. Among them, 84.2% reported experiencing sexual violence from the same partner. This indicates that the overwhelmingly large majority of women tend to remain with their husbands, despite facing sexual violence.

The majority (78.8%) of the women who were currently married but not living with the husband had also faced violence from their current or most recent husband while women not currently having a husband/ partner (very likely due to widowhood or divorce) had also faced violence from their most recent partner. Some women had faced violence from a previous husband/ partner also, but the proportions/numbers were low. This result indicates that the majority of the women remain with their husbands despite the violence.

Disclosing sexual violence

Although sexual violence is often kept secret due to the sensitivity of the subject, and women may remain with the perpetrator, some do tend to disclose their circumstances to others. According to Sylaska & Edward (2014, p.4), disclosure of violence refers to “any conversation, where the victim provides information regarding the abuse occurring in a relationship to another individual” [27]. Disclosure of IPV is not always equivalent to seeking help, though it is sometimes identified as the same. However, disclosing violence to someone usually precedes requesting support, either by the same party or enabling access to another source of help. Hence disclosure is an important factor in help-seeking behaviour [37].

The WWS asked women who had ever faced sexual violence, whether they had told anyone about it (Q908). Among these women, 79.7% (118) had disclosed the violence, while 20.3% (30) have not, representing the silent sufferers of sexual violence. Of those who did not disclose, 46.7% has experienced IPV at least once in the past 12 months, indicating the gravity of their situation. However, from the 20.3% who did not disclose, 50.0% reported that they had not faced violence in the past 12 months. 3.3% refused to answer this question.

Sources to whom violence is disclosed

Disclosure of violence can occur to both informal and formal sources, but the literature indicates that victims are more likely to disclose IPV to informal sources [34, 35]. The WWS identifies a list of sources to whom violence is disclosed. Friends, parents, siblings, aunts/uncles, the husband's /partner's family, children and neighbours are categorized as informal sources, while formal sources include the police, doctors/health workers, priests/ religious leaders, counsellors, NGO/ women's organizations and local leaders. Table 3 presents women's disclosure of violence to formal and informal sources.

Table 3. To whom women talk about violence

Source	Percentage
Only informal	63.6
Only formal	4.2
Both formal and informal	32.2

Source: Author calculations based on Department of Census & Statistics (2020) data

In accordance with the literature, the majority of women (63.6%) disclose violence only to informal sources, with approaching formal sources being limited. When individual sources to whom violence is disclosed are taken into account, from the 118 women who disclosed violence, the vast majority (63%) has informed parents, followed by siblings (53.4%). This indicates the importance of the immediate consanguine family in crisis situations. Neighbours (25.4%), friends (24.6%), husband's family (22%) and children (17.8%) form the next layer of disclosure sources, emphasizing the role of close social networks.

A relatively large proportion (52.10%) from those who disclosed, also did so to the police, which is a formal source. Approaching the police is usually done for a more immediate solution to the problem. However, disclosing violence to other formal sources is very low. It is noted that women would first reach out to informal sources such as family and friends before approaching formal sources for help [14]. Although a relatively high proportion had approached the police to disclose violence, the proportion is lower than informal sources such as parents and siblings.

Help seeking via formal sources

The WWS differentiates disclosure of violence (Q 908: who have you told about his violent behaviour) and seeking help from formal sources (Q 910: Did you go to the 'police, hospital or health centre, social services, legal advice centre, court, shelter, local leader, women's organization, priest/ religious leader). Therefore, help seeking is only connected with formal sources in the WWS.

Figure 1 depicts the pathway to help seeking. Of the women who discussed violence (118), 61% sought help from a formal source, while 39% did not seek help. Among the 30 women who did not disclose violence to anyone, only one woman had sought help from a formal source, while 98% had not sought help (Figure 1). Overall, of the total 148 women, nearly 50% (49.3%) had sought help, while just over 50% (50.7%) had not.

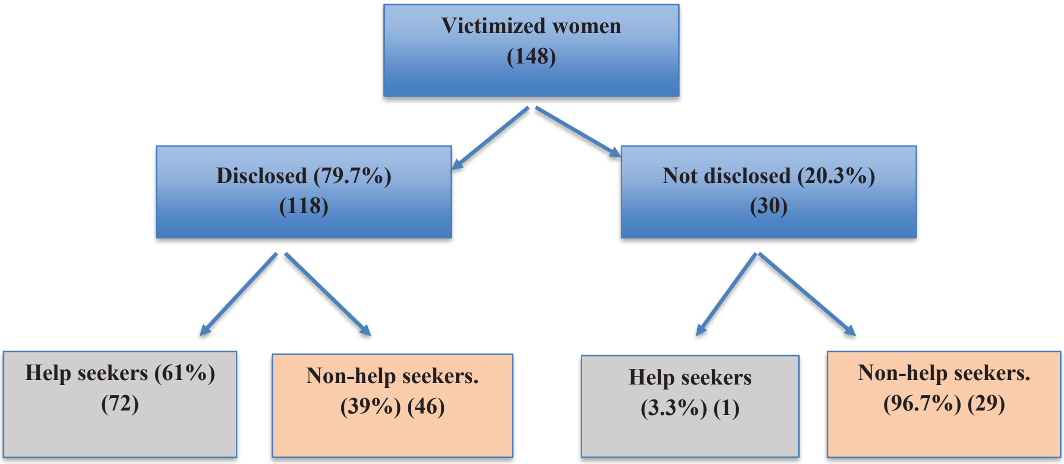

Figure 1. Pathways to help seeking.

Among the 73 who sought help from a formal source, the vast majority (76.7%) sought help from the police. The next most common source was a hospital or health centre, likely reflecting the need for medical assistance for the physical or psychological impacts of IPV. This is supported by the finding that 15% of the respondents who sought formal help reported that the reason for seeking help was a serious injury. Unfortunately, approaching social services or legal advice centres was very low among those seeking help, with 8.2% reaching out to social services and 1.37% to legal advice centres.

This is a concerning issue when analysing help-seeking, as women may not be reaching out due to a lack of awareness or knowledge about these services.

A Chi-square analysis was conducted to examine the relationship between women's help-seeking behavior and specific demographic characteristics. According to the Chi-square results , the core finding of this analysis is that help-seeking behavior among women who experienced sexual violence is largely independent of their educational background (χ^2=21.66, *p*=.155) main daily activity (χ^2=1.29, *p*=.863), and age (χ^2=49.28, *p*=.306). The most promising finding is related to employability (χ^2=9.14, *p*=.058) The marginally significant result suggests that economic agency and the social networks associated with being employed may open up or encourage different help-seeking avenues compared to those available to or chosen by unemployed women (who may rely more heavily on informal family networks). This indicates that interventions and support services should be broadly accessible and not targeted based on a woman's age, education, or daily role. However, specific outreach may be beneficial for unemployed women, who might face greater barriers to accessing formal support systems.

Reasons for seeking help or not seeking help

Of the women experiencing sexual violence, only 73 sought help. When asked why they sought assistance, the largest proportion (53.4%) reported that they did so because they could no longer endure the violence. This was followed by women who reported being encouraged by friends or family (30.1%). This proves Yando *et al.*'s (2019) observation that people first disclose to informal sources and then approach a formal source encouraged by them. Another 24.7% sought help as they saw that the children were suffering due to violence. According to the UN (2024), many women are killed by intimate partners [3]. Though killings are not reported in the WWS data set, 9.6% reported that they sought help fearing that the partner would kill them and 13.7% reported that the partner threatened or tried to kill them. Among the women, 15.1% were badly injured which resulted in them seeking help. Being thrown out of the house or hitting children were the other reasons for help seeking.

Reasons for not seeking help

It is crucial to understand and identify why women experiencing IPSV do not seek help. The most common reason cited is the fear of bringing a bad name to the family. This is followed by other

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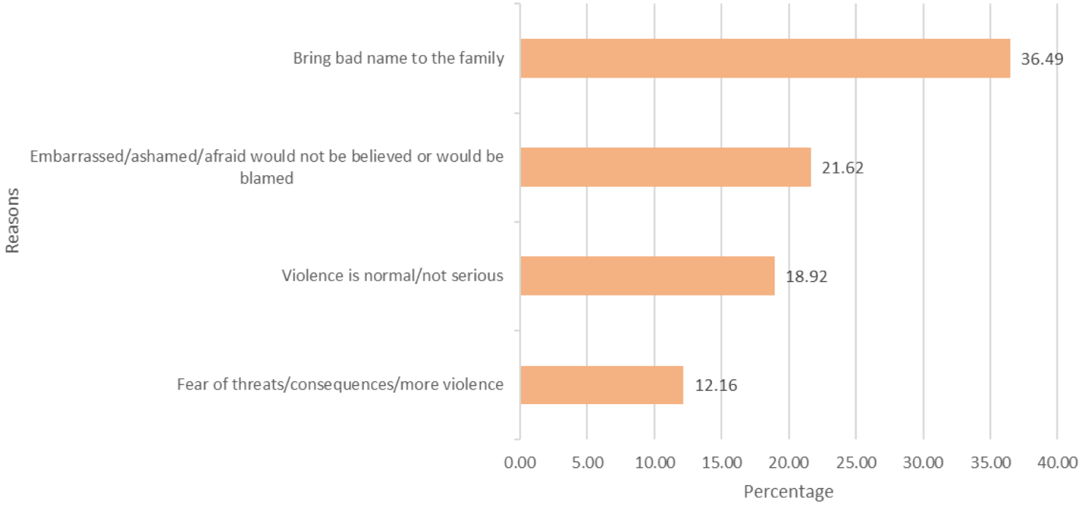
[1] *p* < .05, **p* < .01, ***p* < .001.

social reasons, such as embarrassment/shame/fear of not being believed, or being blamed (21.62%). 12.7% did not seek help due to fear of further violence or the consequences of seeking help. The most concerning is that nearly one fifth (18.9%) believe that violence is normal (Figure 2).

Table 4 indicates the marital status of the women who have not sought help. It shows that 73% among them are still currently married and living with the spouse. These figures show that most women facing IPSV continue to remain with their spouse despite the violence.



Source: Author calculations based on Department of Census & Statistics (2020) data N=74

Figure 2. Key Reasons for not seeking help among women experiencing Intimate Partner Violence.

Table 4. Marital status of women not seeking help

Marital status	Percentage of women
Currently married, Living together	73.0
Currently married, Not living together	13.5
Living with a man, Not married	1.4
Currently having regular partner (Engaged or dating), Not living together	1.4
Not currently having a regular partner	10.8

Source: Author calculations based on Department of Census & Statistics (2020) data N=74

Discussion

This paper analyzed the help seeking behaviour of women experiencing IPSV, focusing on disclosure of violence, whom women seek help from, and the reasons for seeking help. More importantly, it examined why women do not seek help, based on the view that support can serve as a mitigating mechanism to reduce violence.

The findings show that the majority (64%) of the victims are currently married and among them 84.2% faced violence from their current partner. This indicates that a majority of married women remain with their husbands, despite experiencing sexual violence, as shown in other studies [38]. Women may stay with a violent spouse for several reasons, such as dependency, not recognising ISPV as an act of violence, having no voice or support, concern for family honour and stigma, and considerations for their children etc. Therefore, in a context like Sri Lanka, where marriage continues to provide value and security to women, the ideal solution may not be simply supporting women to leave violent relationship. Instead, it may involve helping women negotiate gender and sexual relations through education for both men and women, as well as empowering women financially and emotionally. However, if the acceptance of violence is an attitudinal issue rooted in patriarchal culture, it is necessary to implement mechanisms aimed at changing attitudes among both men and women.

The study indicates that nearly 80% of victims disclose their experiences of violence to someone, with the majority of disclosures made to informal sources. This indicates that a considerable proportion of women share their experiences, which is a positive sign. Managing IPSV within informal settings has also been noted by other studies [39]. The challenge with informal support bases is that they may attempt to suppress the violence due to social and cultural reasons. However, an encouraging finding is that 30% of women were encouraged by informal sources to seek help. A relatively large number (52%) also disclosed violence to the police, making the police the most prevalent source of formal help. This suggests that disclosure to the police and seeking help from them often go hand in hand. Seeking help from medical or health centres (34%) was also noted, though less prominent than seeking help from the police. Given the severe health risks associated with IPV, especially injuries (Sabri *et al*., 2014), women may seek medical attention even if they do not wish to disclose the violence [40]. In this study, 15% of women reported seeking help due to serious injury.

Though help seeking is relatively low for women facing IPV [41], this study found that around half of the women sought help from a formal source, mainly the police, which is a positive sign. However, since a large number of women experiencing IPV are married and living with their spouse, seeking help from the police may provide only a temporary solution. Therefore, the role of the police should include guiding victims toward more permanent solutions.

Seeking help from social services or a legal entities is very low, indicating either a lack of awareness among women about these services or other barriers to access. In contrast, the police are readily accessible to women. Strengthening legal and social services is therefore imperative for supporting and empowering women.

Conclusion

IPSV is a sensitive and often hidden issue worldwide, and the sensitive nature of the issue often impedes disclosure and help-seeking. Further, women tend to remain in abusive relationships sometimes due to helplessness or the belief that such behaviour is normal. This study indicates that Sri Lanka exhibits similarly low levels of help-seeking behaviour. ISPV is a gender issue that must be addressed. However, in a country context like Sri Lanka, where marriage adds value and sometimes serves as a safety net for women, strategies to eliminate violence should also consider maintaining marriages if women so desire. Empowering women financially and emotionally is a must in this process. Educating men and family members about the positives of a violence free life and to about the benefits of a violence free life using television or social media is important. Community programmes should be developed to link women with formal help providing agencies, as women are unlikely to directly approach formal sources. Since women across all characteristics are less likely to seek help, it is evident that vulnerability is more closely linked to gender than to other demographic and socio-economic factors, indicating that empowerment efforts should therefore target women as a whole.

Ethical Clearance and Data Permission Statement

This study is based on secondary data obtained from the Women's Wellbeing Survey (WWS) 2019 conducted by the Department of Census and Statistics (DCS), Sri Lanka. The original survey was carried out in accordance with the World Health Organization (WHO) ethical and safety recommendations for research on violence against women, ensuring informed consent, confidentiality, and the protection of participants.

Permission to use the WWS 2019 microdata for this study was formally obtained from the Department of Census and Statistics. The Department has granted approval for the use of the data and has no objection to the publication of this research. However, the Department of Census and Statistics bears no responsibility for the analysis, interpretations, or conclusions presented in this study.

As this research involves secondary analysis of anonymized data with no access to personally identifiable information, no additional ethical approval was required. All analyses were conducted in compliance with accepted ethical standards for research.

External Funding

Authors declare that there is no external funding.

Conflict of Interest

Authors declare that there are no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Author Contribution Statement

Both authors contributed equally to this work.

Statement on the Use of Artificial Intelligence

The authors did not use AI tools in the preparation of this manuscript.

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Disclaimer

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Exploring the Impact of Infertility on Life of Couples treating for infertility: A Qualitative Study at the Teaching Hospital Jaffna, Sri Lanka

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Original Article

Abstract

Introduction: Infertility is a major life stressor that affects couples' well-being across multiple dimensions. Beyond its physiological implications, infertility can have profound effects on marital intimacy, social relationships, and psychological health. Although previous studies have examined the psychosocial consequences of infertility, limited evidence is available from Sri Lanka, particularly from the Northern Province, where sociocultural expectations surrounding childbearing may uniquely shape couples' experiences. Therefore, there is a need to explore the context-specific impact of infertility on the social, marital, and psychological lives of affected couples.

Objective: To explore the impact of infertility on the social, marital, and psychological life of couples attending the Infertility Clinic at the Teaching Hospital Jaffna, Sri Lanka.

Methods: A qualitative descriptive design was employed. Semi-structured, in-depth interviews were conducted with 20 participants (10 infertile couples) recruited purposively from the infertility clinic. Data were analyzed using content analysis as outlined by Sirilakshmi *et al*. (2024). .

Results: Three major themes emerged: (1) *Infertility impacted on my marital and sexual relationships, (2) How infertility affects my social interactions and lifestyle,* and (3) How my mental well-being *affected by infertility.* Infertility led to tension and emotional distance in marital relationships, social withdrawal and stigma in community interactions, and significant emotional distress including anxiety, guilt, and depression.

Conclusion: Infertility profoundly influences couples' relational, social, and emotional well-being. Integrating psychosocial counselling, couple therapy and culturally sensitive nursing interventions into infertility management could mitigate these effects.

Key Words: Infertility, lived experiences, couples, marital satisfaction, Sri Lanka

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Introduction

Infertility is defined as the inability to achieve pregnancy after 12 months of regular unprotected sexual intercourse [1]. It is a complex global public health issue that transcends biological boundaries to influence the social, emotional, and relational spheres of human life [2] Globally, infertility affects approximately 8-12% of adults of reproductive age, with prevalence rates varying across regions and socioeconomic groups [3] indicating 17.8% in high income countries and 16.5% in low income countries. Despite significant advances in assisted reproductive technologies (ART), infertility continues to impose heavy psychosocial burdens on affected individuals and their families [4].

Rather than being confined to biological limitations, infertility deeply influences couples' self-concept, the quality of their marital relationship, and their social connectedness [5]. In societies where parenthood symbolizes success, continuity, and social respectability, infertility may lead to stigma, isolation, and marital instability [6]. In patriarchal and collectivist cultures, childbearing is closely tied to gender identity and family honor; therefore, infertility, particularly female infertility can draw blame and discrimination [7].

Furthermore, In South Asian societies, fertility is closely intertwined with identity, gender roles, and social expectations [8]. In these contexts, womanhood and masculinity are often evaluated through the ability to produce children, and childbearing is seen as a social obligation rather than a personal choice. Parenthood is therefore widely regarded as a marker of marital success, and infertility may result in stigma, blame, or marginalization directed at one or both partners [9]. For couples seeking treatment, the journey can also be emotionally and financially exhausting. In South Asian societies, including Sri Lanka, reproduction is viewed as a moral and social responsibility, with couples often facing societal pressure to conceive soon after marriage [10]. When conception fails, women frequently bear the emotional burden and social blame, even when male infertility contributes equally to the problem [11]. The emotional repercussions include feelings of guilt, depression, anxiety, and reduced self-esteem [12]. Marital relationships can also become strained due to repeated medical procedures, performance anxiety, and communication breakdown between partners [13].

Several studies from Sri Lanka have documented the social and psychological dimensions of infertility, highlighting its broader impacts beyond biological dysfunction. Research among Sri Lankan women has shown that infertility is associated with significantly higher levels of psychological distress, including anxiety and depression, compared with fertile women, and that factors such as poor marital communication and intense pressure for childbearing are strongly linked to that distress [14]. Qualitative work in Sri Lanka has also highlighted how infertile women experience social marginalization and cultural silencing, as marriage without children is often interpreted as personal failure and a deviation from expected social roles [15]. Moreover, Sri Lankan sociological research indicates that infertile couples commonly confront social stigma, exclusion, and gendered blame, with women disproportionately held responsible despite evidence that male-factor infertility is also prevalent [16].

Quantitative evidence from community-based studies further shows that subfertile couples in Sri Lanka experience reduced quality of life, with psychological well-being varying by gender, age, marital duration, and childbearing history [17]. These studies collectively demonstrate that infertility in Sri Lanka has complex psychosocial implications shaped by cultural expectations of childbearing, yet the lived experiences of both partners together and how these unfold in different sociocultural settings such as Jaffna remain under-explored.

Prior studies have highlighted that infertility negatively affects marital satisfaction, sexual intimacy, and self-esteem [18, 19]. Couples experiencing infertility often report social isolation and a diminished quality of life resulting from negative community attitudes [20]. This reduction in quality of life is further compounded by social stigma, which frequently remains hidden and unaddressed in their daily lives. Exploring this concealed dimension of the lived experience of individuals facing infertility is crucial for understanding their psychosocial needs and life challenges. Although international research has extensively documented the emotional and relational impacts of infertility such as increased depression, anxiety, stress, and strain in intimate relationships [21, 22], there remains a paucity of evidence on how these experiences unfold within the Sri Lankan sociocultural context, where strong cultural expectations and extended family influences significantly shape perceptions and coping behaviors. For instance, studies from South Asian contexts have shown that infertile women often face social stigma, marital pressure, and family-imposed expectations to conceive, which can exacerbate psychological distress and influence coping behaviors [23, 24]. However, few studies have explored these dynamics specifically in Sri Lanka, highlighting a critical gap in understanding culturally nuanced experiences of infertility. Understanding the lived experiences of infertile couples within this cultural milieu is vital to inform the development of holistic, culturally appropriate psychosocial support services.

Therefore, this study sought to explore the impact of infertility on the social, marital, and psychological life of couples attending the Infertility Clinic at the Teaching Hospital, Jaffna, Sri Lanka, through a qualitative exploration of their lived experiences.

Methodology

Study Design

A qualitative approach and phenomenological design were used to capture participants' lived experiences of infertility. This means how participants experience when living with the issue of infertility in the socially embedded context.

Setting

The study was conducted at the Infertility Clinic, Teaching Hospital Jaffna, a tertiary care institution serving the northern province of Sri Lanka. Jaffna presents a distinctive sociocultural and historical context that makes it a meaningful site for exploring infertility experiences. The Northern Province, which was significantly affected by the three-decade civil conflict, has undergone substantial post-war social and demographic transitions. In the post-war period, there has been increased health-seeking behavior and expanding access to fertility treatments, including growth in both public and private sector reproductive services.

Furthermore, Jaffna society is characterized by strong kinship networks, pronatalist cultural expectations, and deeply embedded norms surrounding marriage and parenthood. Within such a context, childbearing is often closely linked to marital stability, social status, and gender identity. These sociocultural dynamics may intensify the social and psychological consequences of infertility, making Jaffna a particularly relevant setting for examining how infertility affects couples' marital relationships and social lives.

Participants and Sampling

At the initial stage of participant selection, a preliminary sample size of 22–26 individuals (11–13 couples) was proposed, based on recommendations in the qualitative research literature [25], with the intention of determining the final sample size according to data saturation. Purposive sampling was used to recruit participants who could provide rich, relevant, and diverse insights into the lived experiences of infertility. Couples who met the following inclusion criteria were considered eligible to participate in the study:

- Currently married and living together
- Diagnosed with primary or secondary infertility for at least one year
- Able to communicate in Tamil or English
- Willing to voluntarily share their personal experiences

Data Collection

Before commencing the interviews, firstly, well trained and experienced researchers (graduated staff nurses who served as data collectors in conducting qualitative interviews and undergraduate students who conducted this study under supervision and were trained by the supervisor) provided infertile couples with necessary care in infertile clinics and made deliberate efforts to build a good relationship with the participants to ensure comfort and trust throughout the study process. Researchers approached the participants and began by introducing themselves. Then, the researchers engaged in informal, friendly conversations before the formal interview to create a relaxed atmosphere and reduce participant anxiety. Next, the purpose of the research, the procedures involved and the significance of the participants' contributions were clearly explained. Then, participants were reassured about the confidentiality of their information and their right to withdraw at any stage without any consequence. By showing respect, and genuine interest in the participants' experiences, the researchers were able to establish mutual trust and rapport, which encouraged open and honest sharing during the interviews.

Data Collection Procedure

After establishing a good rapport with the participants, as described above, the interview process was initiated. At this stage, all individuals who agreed to participate were provided with detailed information about the study, including its aim, their role as participants during the interviews, and the measures taken to ensure privacy and confidentiality. This information was delivered both verbally in a group setting and through the distribution of a written participant information sheet. Sufficient time was then allowed for participants to read the information, reflect on it, and ask any questions or seek further clarification. Following the clarification of all queries, informed written consent was obtained from each participant. Subsequently, separate interviews were conducted with husbands and wives to ensure privacy and confidentiality in the absence of their spouses. This approach enabled participants to express their thoughts and experiences freely without fear of confrontation or influence from their partners.

Data were collected through face-to-face interviews using a semi-structured interview guide prepared in English by referring literature related to the study topic. The guide was then translated into Tamil and back translation was undertaken following the 7- step framework "*Translation and Cultural Adaptation of Patient-Reported Outcomes Questionnaires – Principles of Good Practice*" developed by Wild, Grove, Martin, Eremenco, McElroy, Verjee Lorenz, *et al*. in 2005 [26]. This was done by professional translators and bilingual experts in English and Tamil languages to assure semantic equivalence. During the translation process, one bilingual expert and three professional translators were involved in the steps of initial translation, forward translation and backward translation. The forward and backward translations of the research instrument demonstrated a high level of semantic and conceptual equivalence. Only a few minor discrepancies were identified, primarily related to wording and phrasing rather than meaning. These differences were carefully reviewed by the research team in consultation with bilingual experts, and consensus was reached through discussion to ensure conceptual accuracy and cultural appropriateness. The final version of the instrument was refined accordingly, preserving the original intent and ensuring clarity for the target population.

Before conducting actual interviews, the Tamil translated version of the interview guide was pre-tested with a purposively selected few potential participants who were not included in the main study. Their voluntary participation helped the research team to assess the clarity, cultural relevance, and comprehensibility of the questions. A few necessary modifications were made based on participants' responses. For example, certain technical terms were replaced with more commonly used local expressions to enhance understanding. These revisions helped ensure that the final version of the interview guide was both linguistically appropriate and easily understood by the target population.

Interviews explored participants' marital and sexual relationships, social experiences, and emotional reactions to infertility. Each session lasted 45–60 minutes and was audio-recorded with participants' consent. Field notes were taken to capture non-verbal cues of participants. Interviews were conducted by the researchers in private settings selected by the participants according to their convenience, with careful attention to ensuring privacy and confidentiality. To ensure participants' privacy and confidentiality, all interviewed data were anonymized using identification codes instead of personal names and stored securely in password-protected devices accessible only to the research team (research supervisor and the undergraduate researchers of this study). Any potentially identifying information was removed during transcription to further safeguard participants' privacy. Data collection continued until data saturation was reached at the 20th participant, resulting in a final sample of 20 participants (10 couples).

Data Analysis

All recorded interviews were transcribed verbatim and back-translated into English by professional translators and bilingual experts in English and Tamil, after discussing the study aim and objectives with researchers. Then, interview transcriptions were analyzed using eight step Qualitative Content Analysis (QCA) method proposed by Sirilakshmi *et al.*in 2024 [27]. Initially, groundwork was completed by preparing transcripts and familiarizing with the data through repeated reading, after which initial codes were generated. Next, the data were collated into categories, which were then refined and organized into subthemes. The categories and subthemes were reconsidered by reiterating the analysis process, and some categories were promoted to candidate themes. Next, these subthemes and candidate themes were analyzed and to identify emerging themes and patterns, which were then promoted to overarching themes. The themes were interpreted in alignment with the study objectives. Trustworthiness was ensured through investigator triangulation and the use of member checking technique. In this process, the themes and subthemes derived from the data analysis were presented to the participants to verify whether they accurately represented their experiences of infertility. A few participants who were willing to review the findings confirmed that the themes closely reflected their lived experiences. Therefore, the authenticity and credibility of the study were strengthened.

Ethical Considerations

Ethical clearance for the study was obtained from the Ethics Review Committee of the Faculty of Medicine, University of Jaffna (Ref. No: J/ERC/24/162/DR/0099). Permission to conduct the study was also obtained from the Director, Chief Nursing Officer, and In-Charge Nursing Officer of the respective clinic setting.

Prior to data collection, all potential participants were provided with a comprehensive information sheet outlining the purpose of the study, procedures involved, potential risks and benefits, and their rights as participants. The researchers explained the study objectives in detail and ensured that participants clearly understood their role before agreeing to take part. Participation was entirely voluntary, and individuals were informed that they could withdraw at any time without any consequences. Face-to-face semi-structured interviews were conducted in a reserved room adjacent to the clinic within the hospital premises. The room was located in a quiet area with restricted access and minimal external interruptions, ensuring that no unauthorized individuals were present during the interviews. This arrangement safeguarded participants' privacy and helped maintain the confidentiality of the information shared.

Written informed consent was obtained from each participant prior to the interviews. Confidentiality was maintained by anonymizing all identifying information, and data were securely stored with access limited to the research team. Interviews were conducted in private settings to ensure participants' privacy, comfort, and dignity throughout the research process.

Results

Demographic Characteristics of Participants (n=20)

The demographic profiles of study participants are presented here. A total of

20 participants (10 couples) diagnosed with infertility and currently receiving treatment were recruited for the study. Regarding the demographic characteristics, the majority of participants (75%) identified as Hindu, whereas 25% identified as Christian. The majority of participants (40%) were between 31 and 35 years of age, with 30% falling within the 25–30 age range and another 30% between 36 and 40 years. In terms of infertility type, 70% of participants were diagnosed with primary infertility, whereas 30% experienced secondary infertility.

Theme 1: How infertility impacted my marital and sexual relationships

The theme "How infertility impacted my marital and sexual relationships" emerged from several subthemes including loss of intimacy and spontaneity, performance anxiety and guilt, and blame and emotional distancing all of which are repeatedly highlighted from participants' stories. Many couples described infertility as a source of marital tension and emotional distance. The diagnosis often transformed sexual intimacy into a task-oriented act driven by medical timing rather than affection.

> *"We used to be very close, but now every time we try, it feels like a duty, not love," (a female participant, age 34).*
>
> *"We were very friendly before; I mean after we sought medical treatment. Now we are very official like ..... No lovely feelings. My wife is very rude now, so, our sexual relationship is like a doctors' prescription. I feel we are very distant now" (a male participant, age 39).*
>
> *"This is our problem, I mean this issue is between me and my husband, okay. But my in-laws intervened now and make troubles. So, we don't have a happy life now. I feel like we do not have a sex life now. Husband ignores me" (a female participant, age 30).*

Partners reported feelings of inadequacy, guilt, and loss of sexual spontaneity. Some women felt blamed by their husbands or in-laws, while a few men described frustration

Table 1. Themes and subthemes emerged from Content Analysis

	Theme 1	Theme 2	Theme 3
Themes	**How infertility impacted my marital and sexual relationships**	**How infertility affects my social interactions and lifestyle**	**How my mental well- being is affected by infertility**
Sub themes	• Loss of intimacy and spontaneity • Performance anxiety and guilt • Blame and emotional distancing • Marital resilience or strain	• Social withdrawal and avoidance • Perceived stigma and gossip • Financial strain and lifestyle adjustment • Loss of social identity as parents	• Anxiety and depression • Guilt and self-blame, • Loss of control and uncertainty • Faith-based or emotional coping

from repeated treatment failures. Communication breakdowns were common between couples.

Some couples adapt and strengthen their bond; others experience emotional divorce or dissolution. The following excerpt shows how a female participant experienced a strengthened bond with her husband during their infertility journey.

> *"This journey brought us closer than ever. We learned to lean on each other when things got tough, and that support kept our marriage strong." (Female participant, 37 years).*

Another male participant explained how infertility created distance between him and his partner, exposing them to the unique challenges of infertility

> *"At one point, it felt like we were just living under the same roof. We stopped talking about our feelings; infertility slowly built a wall between us." (Male participant, 38 years).*

Theme 2: How Infertility affects my social interactions and lifestyle

The theme "How infertility affects my social interactions and lifestyle" explain participants' views on how their social life and lifestyle have been affected by infertility. Several subthemes repeatedly emerged in the majority of participants' interview transcripts, including social withdrawal and avoidance, perceived stigma and gossip, financial strain and lifestyle adjustments, and loss of social identity as parents. These subthemes reflect how infertility affected couples' lives in many ways. Participants reported avoiding community events, family functions, and gatherings where children were present. Some faced insensitive questions or stigma from relatives. Following excerpts show their silent struggles.

> *"People keep asking when we will have a child. It hurts, so we stopped visiting family functions," (a male participant, age 38).*

> *"Some people, even our relatives do not like to see me or my husband in the morning particularly when they go for some special events. I mean they think that we are very unlucky people because we do not have children no" (a female participant, age 31).*

> *"Now we are at zero level financially. We spent a lot of money for medical checkups and treatments. We still hopeful, but we have to give up our many routines we were doing before like going on trips, helping others financially, and life enjoyments. However, we got use to them now" (a male participant, age 39).*

Women especially described isolation and reduced social participation due to shame and judgment. Financial strain from ongoing medical treatment also limited lifestyle choices and leisure activities.

Theme 3: How my mental well-being affected by Infertility

The theme "How my mental well-being affected by infertility" captures participants' views on how they have been psychologically impacted by their infertility. Repeatedly emerging subthemes from participants' voices including anxiety and depression, guilt and self-blame, loss of control and uncertainty, faith-based or emotional coping reflect their silent struggles and the efforts they made to cope with their challenging life. All participants reported psychological distress, though intensity varied. Common emotions included sadness, disappointment, hopelessness, and frustration. Many described anxiety before medical appointments and feelings of failure after unsuccessful treatments.

> *"Every month when I get my period, I cry. It feels like something inside me breaks," (a female participant, age 32).*
>
> *"Sometimes, I hate myself so much, especially when my husband blames me. I keep wondering why I even got married if I can't have a child. I never knew things would turn out this way. It feels so painful and unfair." (a female participant, age 34).*
>
> *"I feel so anxious all the time, thinking about what others might say because I have no children. Sometimes I can't sleep, and I just sit there feeling empty. It's like I've lost a part of who I am." (a male participant, age 40).*
>
> *"I feel like I have no control over my own life anymore. Every month I hope for a change, but nothing happens. I don't know what my future will be like without a child." Every month I keep hoping and praying, but nothing changes. In our society, it's hard for a woman like me." (a female participant, age 34).*

Both men and women experienced low self-esteem and emotional exhaustion. Some couples reported depressive symptoms, while others relied on faith and spiritual coping.

Although the themes are presented separately for clarity, they were deeply interconnected in participants' lived experiences. The strain on marital and sexual relationships (Theme 1) often intensified social withdrawal and altered lifestyle patterns (Theme 2), particularly due to stigma, intrusive questioning, and cultural expectations surrounding parenthood. These relational and social challenges, in turn, contributed to emotional distress, lowered self-esteem, anxiety, and persistent sadness (Theme 3). Similarly, compromised mental well-being further affects marital intimacy and reduces engagement in social interactions, creating a cyclical and mutually reinforcing pattern. Thus, infertility was experienced not as isolated relational, social, or psychological difficulties, but as an intertwined and cumulative disruption in life.

Discussion

The present study provides deep insights into the multifaceted effects of infertility on Sri Lankan couples, particularly those living in the Jaffna district, of the Northern Province. The findings revealed that infertility profoundly disrupts couples' lives across three interrelated domains: marital/sexual, social, and psychological. Marital relationships often become strained, as intimacy turns mechanical and emotional distance increases. Infertility significantly affects the social lives and psychological well-being of both partners, consistent with findings from global and Sri Lankan literature [14, 28, 13, 4]. However, the present findings also reveal distinctive sociocultural nuances within the Sri Lankan context, where infertility is frequently perceived as a woman's personal failure and primary responsibility [15]. The study particularly highlights how these experiences are shaped by the sociocultural context of Northern Sri Lanka where infertility must be understood within a strongly pronatalist cultural framework [29]. In this setting marriage is closely linked to childbearing, lineage continuation, and fulfillment of familial duty. Parenthood is widely regarded as a social expectation rather than a personal choice. In such a context, childlessness may be perceived as a deviation from normative marital roles. Sri Lankan evidence indicates that infertility is frequently attributed to women, reinforcing gendered stigma and marginalization. Women are often positioned as primarily responsible for reproduction, regardless of medical causation, intensifying emotional burden and social blame [15].

Marital and sexual implications

The first theme emphasized how infertility disrupts intimacy and emotional closeness. Participants described a gradual transformation of sexual relations into an emotionally burdensome routine dictated by medical schedules and treatment expectations. Studies across South Asia, the Middle East, and other countries have similarly documented declined in sexual spontaneity, with partners experiencing frustration and decreased satisfaction [30,5,13,18]. In the current study, both male and female participants expressed guilt, resentment, and emotional withdrawal, which, over time, eroded marital harmony. Similar findings have been documented globally, showing that infertility reduces marital satisfaction and sexual fulfillment [30,19]. Yet, a few couples in this study demonstrated resilience suggesting that mutual empathy and communication can buffer against relational breakdown. These findings highlight the importance of couple-based interventions and open dialogue facilitated by counsellors or fertility specialists.

Social stigma and lifestyle changes

The second theme reflected how infertility profoundly affects the social life of couples. In collectivist societies like Sri Lanka, where childbearing is integral to identity and social belonging, infertility can lead to marginalization. Some participants reported avoiding family gatherings and public functions to escape intrusive questions about childbearing, a finding consistent with studies by Nsabimana, Ninihazwe and Irambona, in 2024 [31]. Comparable patterns of exclusion have been observed in Ghana, Pakistan, and Iran [20, 9].

Women experienced greater stigma and emotional hurt, reflecting persistent gendered stereotypes in which fertility defines womanhood. In the Sri Lankan context, where extended family systems are still prevalent [32], infertility becomes a collective concern that invites gossip and social exclusion. This social environment not only intensifies emotional suffering but also influences lifestyle changes, leading couples to limit social contact and focus on costly fertility treatments, further straining family finances [33]. The intersection of financial stress and social withdrawal has also been reported in other Asian contexts, underscoring infertility as both a medical and socioeconomic challenge [34]. These experiences mirror international studies highlighting that infertile couples often face social exclusion and reduced quality of life [20, 8].

Psychological distress and coping

The third theme exposed deep psychological turmoil among participants, characterized by sadness, helplessness, and existential distress. Depression and anxiety, loss of control and uncertainty, faith-based or emotional coping were frequently mentioned. These experiences align with the findings of Galhardo *et al*.in 2020 [12] and Liyanage *et al*, in 2024 [28], who noted that infertile individuals often experience symptoms of depression and anxiety comparable to those with chronic illnesses. Interestingly, several participants in this study turned to spirituality, religious rituals, and faith as coping mechanisms. Such coping aligns with the cultural context of Sri Lanka, where religion and collective belief systems play central roles in dealing with adversity. However, some couples resorted to emotional withdrawal, indicating maladaptive coping that may lead to prolonged psychological distress. Psychologically, couples experienced intense distress, manifesting as anxiety, sadness, and hopelessness. Consistent with local and international literature, infertility stress significantly predicts depressive symptoms and lower well-being [35, 28, 36, 8].

These three domains are not isolated; psychological distress can exacerbate marital tension, while social stigma reinforces emotional pain. Interventions must therefore adopt a holistic and culturally sensitive approach.

From a nursing perspective, integrating psychosocial counselling and couple-centred care into infertility services is critical. Nurses and midwives can play a pivotal role in early screening for psychological distress, facilitating referrals to counselors, and promoting open communication within couples.

This underscores the urgent need for integrated mental health services within infertility care. Counselling sessions focusing on emotional expression, resilience building, and social support can improve mental well-being and enhance treatment outcomes [37]. Moreover, involving both partners in counselling can prevent blame dynamics and strengthen mutual understanding.

Cultural implications and clinical significance

This study adds culturally grounded insights to the global infertility discourse. In conservative societies, infertility is not just a personal health condition but a social identity crisis. The findings from Jaffna reflect the importance of community education and destigmatization programmes to foster empathy toward infertile couples. Fertility clinics should integrate psychosocial components into treatment, including couple therapy and peer-support groups. Clinicians and nurses must also be trained to identify signs of emotional distress and provide appropriate referrals.

Strengths and limitations

A major strength of this study lies in its contextual relevance and the use of semi-structured interviews that captured authentic narratives focusing on study objectives. However, findings may not be generalized beyond similar cultural or clinical settings. Future studies across ethnic groups could explore culture and ethnic differences of infertile related experiences and gender-specific coping patterns or compare psychological effects between primary and secondary infertility groups.

Conclusion

Infertility is not merely a biomedical condition but a complex, multidimensional experience that profoundly affects marital relationships, psychological well-being, and social identity, particularly within the strongly pronatalist sociocultural context of Sri Lanka. The findings of this study highlight the urgent need to move beyond treatment-focused models of care toward comprehensive, multidisciplinary approaches that integrate psychosocial support into routine fertility services. Structured psychological screening and culturally sensitive counselling should be embedded within infertility management, with particular emphasis on couple-based interventions that strengthen communication, mitigate emotional distancing, and promote shared coping. In addition, the establishment of peer-support mechanisms within clinical or community settings may help reduce stigma, normalize experiences, and enhance resilience among affected couples. Capacity building of nurses and reproductive health professionals in psychosocial assessment and therapeutic communication is also essential to ensure holistic care delivery. At a broader level, national reproductive health policies should formally incorporate psychosocial components into infertility services to address the relational and emotional dimensions of infertility alongside medical treatment.

Ethical Approval

Ethical clearance for the study was obtained from the Ethics Review Committee of the Faculty of Medicine, University of Jaffna (Ref. No: J/ERC/24/162/DR/0099). Permission to conduct the study was also obtained from the Director, Chief Nursing Officer, and In-Charge Nursing Officer of the respective clinic setting.

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Conflict of interest statement

No conflict: The authors declare that they have no known competing financial interest or personal relationship that could have appeared to influence the work reported in this work.

Data availability statement

The data that support the findings of this study are available from the corresponding author [AYPM] upon reasonable request.

Statement of the use of Artificial Intelligence

AI-assisted language tools were utilized to improve grammar, clarity, and overall readability of the text. The AI tools were not used for data generation, data analysis, interpretation of findings, or development of scientific conclusions.

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Author Contributions

The student authors were responsible for the development of the research proposal, data collection, preliminary data analysis, and drafting of the manuscript. The supervisor provided overall guidance and supervision throughout the study process, with substantial contributions to data analysis, critical review of interpretations, and extensive revision and refinement of the manuscript. All authors reviewed and approved the final version of the manuscript and agree to be accountable for the content of the work.

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Intimate Partner Violence during Pregnancy in Asia: Prevalence, Associated Factors, and Outcomes – A Review of Literature and Meta-Analysis with Special Reference to Sri Lanka

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Review Article

Abstract

Introduction: Intimate partner violence (IPV) during pregnancy is an important yet under-detected determinant of maternal and foetal morbidity in many Asian settings. This review aims to synthesise evidence on the prevalence, associated factors, and pregnancy outcomes of IPV during pregnancy in Asia, with special reference to Sri Lanka, to inform policy and programme responses.

Methods: A narrative review was conducted using PubMed, Google Scholar, Lens.org, Dimensions, and relevant grey literature. English-language publications (2000-2025) from Asian settings were screened for evidence on IPV during pregnancy. Eligible studies were synthesised thematically across prevalence, associated factors, and outcomes. Where prevalence estimates were sufficiently comparable, pooled prevalence was calculated in RStudio using a random-effects generalised linear mixed model (logit transformation) with 95% confidence intervals, and heterogeneity was assessed using I^2 and τ^2.

Results: IPV during pregnancy prevalence ranged from 1.6% to 41.0% across Asia, while Sri Lankan estimates ranged from 4.7% to 15.9%. In the meta-analysis of 23 studies (n=52,072 pregnancies), the overall prevalence in Asia was 14.4% (95% CI 10.3-19.9), with extremely high heterogeneity and a wide prediction interval (2%-55%). Subgroup pooling yielded 8.8% (95% CI, 3.6-19.9) for Sri Lanka and 15.1% (95% CI, 10.6-21.2) for other Asian countries; the between-subgroup difference was not statistically significant (p=0.2449). Psychological violence was reported more frequently than physical or sexual violence. Commonly identified correlates included low maternal education, younger age, poverty, limited partner support, partner alcohol use, and traditional gender norms. IPV exposure was associated with low birth weight, preterm delivery, miscarriage, maternal depression, and anaemia. Despite Sri Lanka's strong maternal health infrastructure, responses to IPV during pregnancy remain fragmented.

Conclusion: IPV during pregnancy is prevalent and preventable. Sri Lanka should strengthen routine identification and referral within maternal health services, expand longitudinal and qualitative research, and advance intersectoral frameworks that prioritise survivor support.

Key Words: Intimate Partner Violence, Pregnancy, Maternal Health, Determinants, Pregnancy Outcomes, Asia and Sri Lanka

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Introduction

Intimate Partner Violence (IPV) refers to behaviour within an intimate relationship that causes physical, sexual or psychological harm, including acts of physical aggression, sexual violence, and psychological abuse and a multitude of controlling behaviours [1]. This definition covers violence by both current and former spouses and partners. IPV often leads to significant consequences, including physical injuries, chronic health conditions, psychological trauma, and even fatalities, thereby imposing a significant public health issue and an economic burden on the country [2]. Current research suggests that the negative effects of abuse can persist long after the violence has ceased. The more severe the abuse is, the greater its impact on a woman's physical and mental health, which is cumulative over time, with multiple episodes of abuse [3]. The World Health Organisation (WHO) reports that IPV is among the most common forms of violence against women, with an estimated 26% of women worldwide experiencing physical or sexual violence from a current or former male intimate partner at least once in their lifetime [4].

Pregnancy is a vulnerable period marked by significant physical, emotional, and economic strains that may increase a woman's risk of IPV [5]. Globally, IPV affects an estimated 6-16% of pregnant women [6]. A recent meta-analysis found an overall prevalence of 34% during pregnancy and identified multiple risk factors unique to this period [6]. The physical, emotional, and social practices and behaviours associated with pregnancy can increase relationship stress, potentially triggering the onset or escalation of abusive behaviours by their partners, contributing to increased IPV during the pregnancy [7]. IPV during pregnancy is linked to numerous serious health risks for both mother and child, including low birth weight, preterm birth, small-for-gestational-age infants, perinatal death, poor maternal mental health, and late and incomplete prenatal care. A particularly alarming feature of IPV during pregnancy is that abusers target the woman's abdomen, endangering both the mother and fetus [8]. Although most studies on IPV during pregnancy capture physical violence, sexual and emotional abuse are also prevalent and have significant harmful effects on their health and well-being and that of their unborn foetuses [7].

Despite the growing global literature on IPV during pregnancy, evidence from Asia, particularly from South Asian countries such as Sri Lanka, remains limited. Only a small number of studies in Sri Lanka have examined IPV during pregnancy, and these are largely cross-sectional and descriptive, offering minimal exploration of causal pathways, psychosocial determinants, or pregnancy outcomes [9-13]. The available evidence indicates considerable underreporting due to stigma, cultural norms of family privacy, and limited screening practices within maternal health services [12]. Given these research and programmatic gaps, a comprehensive synthesis of existing evidence is essential to understand the magnitude, associated factors, and consequences of IPV during pregnancy in the broader Asian region, while situating Sri Lanka's experience within this regional context. Accordingly, this review aims to consolidate regional findings and provide an in-depth analysis of the Sri Lankan situation to inform research, policy, and programme responses that strengthen the national reproductive health agenda.

Methods

This review employed an integrated evidence synthesis approach to summarise the available evidence on IPV during pregnancy, with particular attention to Sri Lanka. A thematic narrative synthesis was used to interpret findings across diverse study designs and data sources, enabling a comprehensive understanding of prevalence patterns, associated factors, and pregnancy outcomes within their social and cultural contexts. Where prevalence estimates were sufficiently comparable across studies, quantitative pooling was undertaken using a proportion meta-analysis approach. This combined approach provides both an interpretative synthesis and a robust summary estimate of IPV during pregnancy in Asia.

A systematic search of peer-reviewed and grey literature was conducted across multiple databases, including PubMed, Google Scholar, Lens.org, and Dimensions (Figure 01). To enhance contextual depth and national relevance, supplementary sources, including Demographic and Health Surveys (DHS), reports from the Family Health Bureau (FHB), and other government or NGO publications, were reviewed. Grey literature, including unpublished reports and institutional studies, was also considered. The search strategy employed Boolean operators and combined terms such as ("Intimate Partner Violence" OR "Domestic Violence") AND ("Pregnancy" OR "Maternal Outcomes") AND ("Asia" OR "Sri Lanka").

Studies were eligible for inclusion if they met the following criteria: (1) conducted in Sri Lanka or in Asia in general. (2) addressed IPV or domestic violence during pregnancy; (3) used either qualitative or quantitative designs; and (4) were published in English between 2000 and 2025. National survey reports and institutional publications were also included where they offered primary data relevant to the review's objectives. Excluded were opinion pieces, reviews, editorials, single-case reports, and any studies not directly addressing IPV during pregnancy.

The initial database and supplementary source search yielded a total of 828 records. After removing duplicates, 379 unique articles remained. Following a preliminary screening of titles and abstracts, 21 articles were retained for full-text review based on relevance to the inclusion criteria. An additional six eligible articles were identified through citation tracking and review of the reference lists. In total, 27 studies were selected and included in the final narrative synthesis.

A thematic analysis framework was employed to guide both data extraction and synthesis. The extracted data were organised across three overarching analytical domains. The first domain addressed prevalence, which included assessments of overall IPV during pregnancy as well as its specific forms: psychological violence, physical violence, and sexual violence. The second domain examined associated factors, comprising socio-demographic and economic characteristics, reproductive and biological determinants, partner-related and behavioural influences, and marital and psychosocial contributors. The third domain focused on pregnancy outcomes, categorised into loss of pregnancy, foetal and neonatal consequences, maternal health and clinical complications, and psychological and behavioural effects. The synthesis process involved iterative reading, coding, and interpretation of findings across the selected studies, followed by thematic clustering.

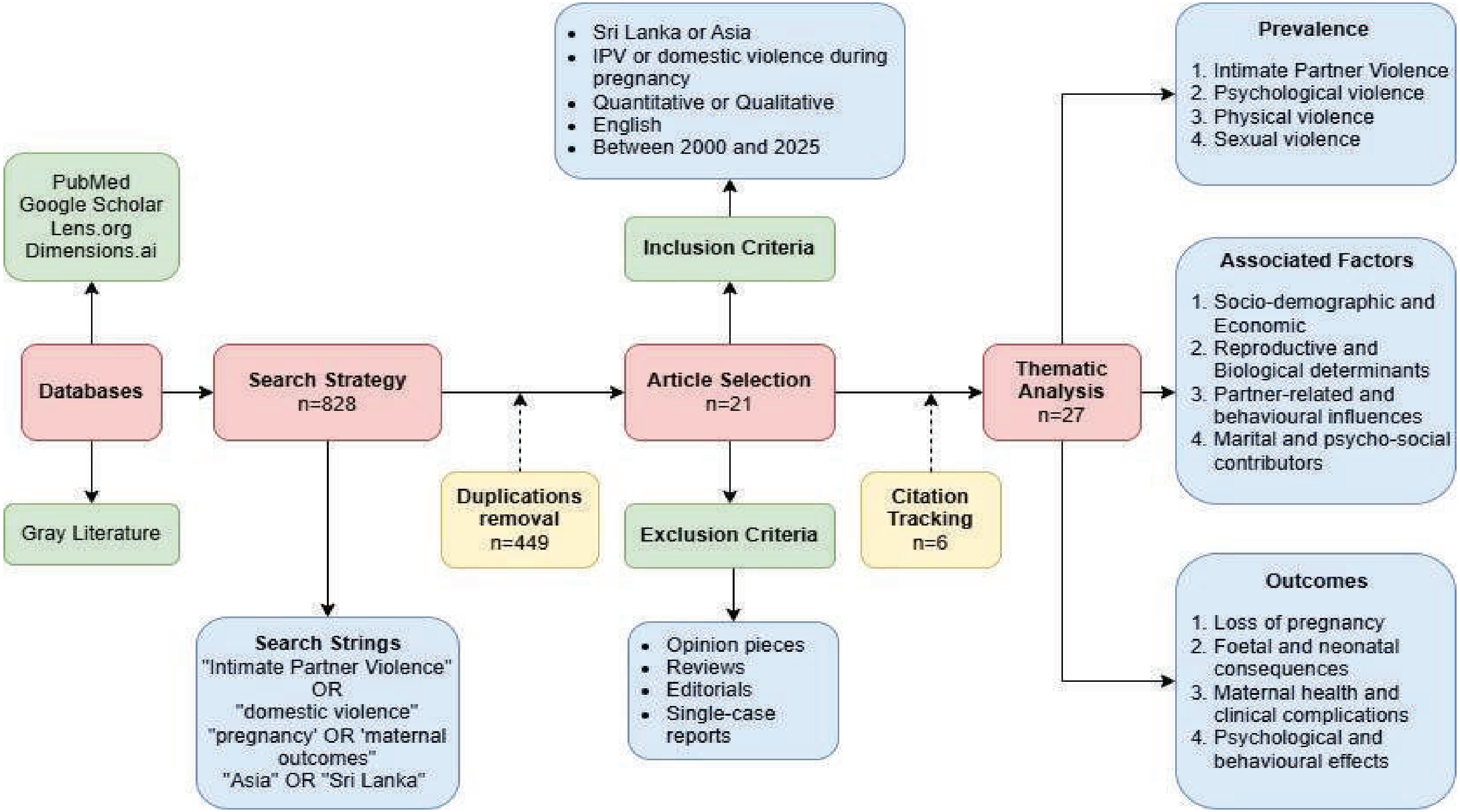

Figure 1. Methodological Framework of the Narrative Review on Intimate Partner Violence during Pregnancy in Asia and Sri Lanka with special focus to Sri Lanka.

The primary synthesis estimated the pooled prevalence of IPV during the current pregnancy using a random-effects generalised linear mixed model (GLMM) with a logit link. Individual-study confidence intervals were computed with Clopper-Pearson; between-study variance τ^2 was estimated by maximum likelihood. Heterogeneity was estimated using I^2 (with 95% CIs), τ^2, and the Q test. Because true prevalence plausibly varies across countries, settings, instruments, and timing of assessment, the prediction interval (PI) was reported to convey the range expected for a new, similar study.

Limitations

Several limitations should be considered. First, as a narrative review, no formal quality or risk-of-bias appraisal was undertaken; consequently, confidence in individual study estimates varies. Second, restricting inclusion to English-language sources may have introduced a language bias and excluded relevant evidence published in Sinhala, Tamil, or other Asian languages. Third, substantial heterogeneity in IPV definitions, measurement tools, sampling strategies, and the timing of assessment limited comparability and constrained quantitative synthesis. Additionally, Sri Lankan evidence was largely based on cross-sectional, clinic-based studies, which reduced national representativeness and generalizability. Finally, the limited availability of longitudinal studies restricted causal inference regarding maternal and perinatal outcomes, and the inclusion of grey literature with variable methodological reporting may have introduced reporting bias.

Results

Intimate Partner Violence during Pregnancy

The prevalence of intimate partner violence (IPV) during pregnancy demonstrates marked variability across Asian countries. As summarised in Table 1, the lifetime prevalence of IPV among women in Asian studies ranges from 18.3% in Sri Lanka [9] to 52.8% in Bangladesh [14], while the current pregnancy prevalence varies from as low as 1.6% in Oman [15] to as high as 41% in Pakistan [16]. This wide variation likely reflects differences in study design, measurement tools, socio-cultural contexts, and women's willingness to disclose violence during pregnancy. Overall, the evidence reveals that South Asian countries, including Sri Lanka, Bangladesh, Nepal, and Pakistan, tend to report higher IPV prevalence during pregnancy than East or West Asian counterparts.

Table 1. Study characteristics and reported prevalence of intimate partner violence (IPV) during the current pregnancy in Asian countries

	Country	Author/Study year	Methods	Prevalence
1.	Sri Lanka	Muzrif *et al.*, 2018 [13]	Clinic-based cross-sectional; 1,375 rural/urban & 800 tea-estate women (6-40 wks)	15.9%
2.	Sri Lanka	Moonesinghe *et al.*, 2004 [9]	Clinic-based cross-sectional; 1,200 women (15-49 yrs)	04.7%
3.	India	Garg *et al.*, 2020 [17]	Community prospective observational; 1,500 women (<20 wks)	29.7%
4.	India	Jungari and Chinchor, 2022 [18]	Community cross-sectional; 550 women who gave birth in last 2 yrs	15.6%

(Continued)

	Country	Author/Study year	Methods	Prevalence
5.	India	Nath *et al*., 2021 [19]	Hospital cross-sectional; 350 women >18 yrs (<24 wks)	03.7%
6.	India	Jain *et al*., 2017 [20]	Hospital prospective observational; 400 women (20-28 wks)	12.3%
7.	India	Devineni *et al*., 2018 [21]	Hospital prospective; 200 randomly selected admitted pregnant women	28.9%
8.	India	Samal and Poornesh, 2022 [22]	OPD cross-sectional; 200 women at 1st antenatal visit	06.5%
9.	India	Das *et al*., 2013 [23]	Community cross-sectional; 2,139 women with identified births	15%
10.	Afghanistan/ Iran	Dadras *et al*., 2021 [24]	Community cross-sectional; 424 women (18-44 yrs)	15.3%
11.	Bangladesh	Islam *et al*., 2021 [14]	Community cross-sectional; 424 women (15-49 yrs), ≤6 months post-partum	35.2%
12.	Nepal	Sharma and Kaphle, 2023 [25]	Community cross-sectional; 263 post-partum women	30.0%
13.	Nepal	Koirala, 2022 [26]	Hospital cross-sectional; 220 post-natal women (15-45 yrs)	32.7%
14.	Pakistan	Shahmir *et al*., 2023 [16]	Hospital prospective descriptive longitudinal; 105 women (15-49 yrs)	41.0%
15.	China	Wang *et al*., 2017 [27]	Systematic literature review; 30,665 women during pregnancy/≤1 yr post-partum	07.7%
16.	Vietnam	Hoang *et al*., 2016 [28]	Community prospective cohort; 1,276 women (<24 wks)	35.4%
17.	Japan	Maruyama *et al*., 2023 [29]	Secondary analysis of cross-sectional data; 1,230 women (>34 wks)	13.4%
18.	Thailand	Boonnate *et al*., 2015 [30]	Hospital cross-sectional; 230 women >18 yrs (32-40 wks)	11.7%
19.	Myanmar	Win Thuzar *et al*., 2016 [31]	Secondary cross-sectional analysis; 1,045 ever-pregnant women (18-49 yrs)	06.4%
20.	South Korea	Lee *et al*., 2022 [32]	Community cross-sectional; 5,953 pregnant women/mothers of young children	07.6%
21.	Jordan	Sanaa Abujilban *et al*., 2022 [33]	Hospital cross-sectional; 223 antenatal women	30.0%
22.	Oman	Al Shidhani *et al*., 2020 [15]	Hospital prospective observational; 960 women (mean age 30.3 ± 5.4 yrs)	01.6 %
23.	Hong Kong	Chen *et al*., 2022 [34]	Clinic-based longitudinal; 340 women at 1st ANC visit (>18 yrs)	13.5%

Note: *Prevalence values are reported as presented in the original studies and may not be directly comparable due to differences in IPV definitions, measurement tools, recall periods, gestational timing of assessment, and study populations. "During pregnancy" refers to IPV reported during the current pregnancy (or the most recent pregnancy where specified). ANC=antenatal care; OPD=outpatient department; wks=weeks; yrs=years; P=Prevalence in Percentage.*

In Sri Lanka, two key studies have reported the prevalence of IPV during pregnancy. Muzrif *et al*. (2018) found a lifetime prevalence of 38.6% and a current pregnancy prevalence of 15.9% among women from rural, urban, and tea-estate sectors [13]. An earlier study by Moonesinghe *et al*. (2002) reported comparatively lower figures, with 18.3% lifetime and 4.7% current pregnancy prevalence among clinic-attending women aged 15-49 years [9]. When positioned within the broader Asian context, Sri Lanka's prevalence estimates are moderate relative to other countries in the region. They are lower than those reported in Bangladesh (35.2%), Pakistan (41.0%), and Vietnam (35.4%), but higher than the rates found in China (7.7%), South Korea (7.6%), Thailand (11.7%), Oman (1.6%), and Myanmar (6.4%). India exhibits a broad range (3.7% - 29.7%)

across studies, with some estimates closely comparable to those of Sri Lanka.

For the pooled prevalence synthesis, 23 studies were included, comprising 52,072 pregnancies and 5,448 IPV events. Using a random-effects meta-analysis of proportions (logit scale), the overall pooled prevalence of IPV during the current pregnancy was 14.4% (95% CI 10.3-19.9). Between-study heterogeneity was extremely high (I^2=99.1%, τ^2=0.8856 on the logit scale; Q=2357.19, df=22, $p<0.001$), indicating substantial variability in prevalence estimates across settings and study designs beyond chance. The prediction interval (2%-55%) suggests that the prevalence in a new, comparable Asian study could plausibly fall anywhere within this wide range (Figure 2). In subgroup analyses, the pooled prevalence was 8.8% (95% CI 3.6-19.9) for Sri Lanka and 15.1% (95% CI 10.6-21.2) for other Asian countries; however, the difference between subgroups was not statistically significant (p=0.2449).

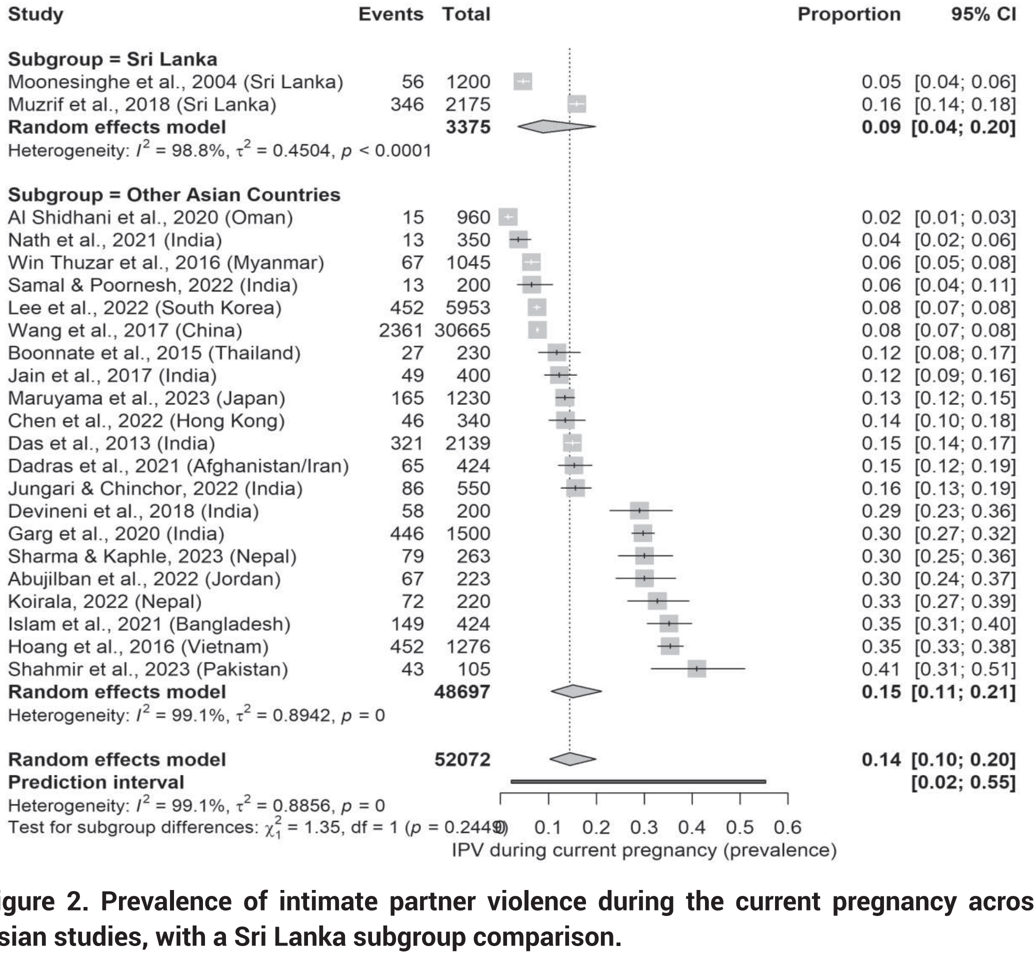

Figure 2. Prevalence of intimate partner violence during the current pregnancy across Asian studies, with a Sri Lanka subgroup comparison.

Note: Each row represents one study and shows the proportion of women reporting intimate partner violence (IPV) during the current pregnancy. The square indicates the study's estimate, and the horizontal line shows the range of uncertainty around that estimate (95% confidence interval). The diamond at the end of each subgroup summarises the overall estimate for that subgroup, and the final diamond summarises the overall estimate across all included studies, using a method that accounts for differences between studies. The vertical dotted line marks the overall pooled estimate. The prediction interval (shown at the bottom) indicates the range in which the prevalence might plausibly fall in a new, similar study conducted in the region. Studies are ordered from those with the lowest to those with the highest prevalence within each subgroup.

Psychological Violence during Pregnancy

Psychological violence, encompassing verbal abuse, humiliation, intimidation, and controlling behaviours, emerged as a significant yet often under-recognised component of IPV during pregnancy [10]. The reported prevalence of psychological violence varies widely from 1.0% in a hospital-based outpatient study in India [22] to 65.0% in a community-based study in Bangladesh [14] (Table 2).

In South Asia, the burden of psychological violence appears particularly noticeable. The Bangladeshi study by Md Jahirul Islam *et al*. (2016) reported an exceptionally high prevalence (65.0%) among postpartum women, highlighting the pervasive nature of emotional abuse. Nepal's hospital-based study [26] also reported a high rate (30.9%) among postnatal women, while studies from India documented comparatively lower levels, ranging from 1.0% to 12.3%, depending on setting and gestational stage. In contrast, studies from East and West Asia reported generally lower prevalence rates. Psychological violence was reported at 4.3% in Thailand, 5.6% in South Korea, and 25.9% in Saudi Arabia. Although these figures are lower than those seen in South Asia, they nonetheless indicate that emotional abuse during pregnancy is a region-wide concern.

Physical Violence during Pregnancy

Physical violence represents one of the most visible and injurious forms of IPV during pregnancy, often resulting in direct harm to both the woman and her fetus [10]. As summarised in Table 3, the reported prevalence of physical violence during pregnancy across Asian studies ranges from 2.0% to 39.0%, indicating considerable variation across countries and study settings.

Table 2. Prevalence of Psychological Violence during Pregnancy among Women in Selected Asian Countries: Evidence from Hospital- and Community-Based Studies

	Country	Author/Study year	Methods	Prevalence
1.	India	Jain *et al*., 2017 [20]	Hospital prospective observational; 400 women (20-28 wks)	12.3%
2.	India	Samal and Poornesh, 2022 [22]	OPD cross-sectional; 200 women at 1st antenatal visit	01.0%
3.	India	Das *et al*., 2013 [23]	Community cross-sectional; 2,139 women with identified births	08.0%
4.	Bangladesh	Islam *et al*., 2021 [14]	Community cross-sectional; 424 women (15-49 yrs), ≤6 months post-partum	65.0%
5.	Nepal	Koirala, 2022 [26]	Hospital cross-sectional; 220 post-natal women (15-45 yrs)	30.9%
6.	Thailand	Boonnate *et al*., 2015 [30]	Hospital cross-sectional; 230 women >18 yrs (32-40 wks)	04.3%
7.	South Korea	Lee *et al*., 2022 [32]	Community cross-sectional; 5,953 pregnant women/mothers of young children	5.6%
8.	Saudi Arabia	Al Taifi. *et al*., 2021 [35]	Community cross-sectional; 1,330 pregnant women at any gestational age	25.9%

Note: *P indicates the percentage of women reporting psychological IPV during pregnancy, as defined in each original study. Estimates may not be directly comparable because studies differed in the operational definition of psychological violence, measurement instruments, recall period, timing of assessment (antenatal vs postnatal), and sampling frame (hospital/OPD vs community). OPD=outpatient department; wks=weeks; yrs=years.*

Table 3. Prevalence of Physical Violence during Pregnancy among Women in Selected Asian Countries: Evidence from Hospital- and Community-Based Studies

	Country	Author/Study year	Methods	Prevalence
1.	Sri Lanka	Moonesinghe *et al*., 2004 [9]	Clinic-based cross-sectional; 1,200 women (15-49 yrs)	04.7%
2.	India	Jain *et al*., 2017 [20]	Hospital prospective observational; 400 women (20-28 wks)	10.0%
3.	India	Samal and Poornesh, 2022 [22]	OPD cross-sectional; 200 women at 1st antenatal visit	2.0%
4.	India	Das *et al*., 2013 [23]	Community cross-sectional; 2,139 women with identified births	12.0%
5.	Bangladesh	Ferdos & Rahman, 2017 [37]	Hospital-based cross-sectional; 400 randomly selected women in postnatal wards	39.0%
6.	Nepal	Koirala, 2022 [26]	Hospital cross-sectional; 220 post-natal women (15-45 yrs)	28.6%
7.	Thailand	Boonnate *et al*., 2015 [30]	Hospital cross-sectional; 230 women >18 yrs (32-40 wks)	3.5%
8.	Saudi Arabia	Al Taifi *et al*, 2021 [35]	Community-Based Cross-Sectional: 1,330 women at any gestational age	5.4%

Note: *P=Percentage of women reporting physical IPV during pregnancy, as defined in each original study. OPD=outpatient department; wks=weeks; yrs=years.*

The highest prevalence was reported in Bangladesh (39.0%), based on a hospital-based study among postpartum women [37], followed by Nepal (28.6%) [26]. In contrast, comparatively lower rates were observed in Thailand (3.5%), Saudi Arabia (5.4%), and certain Indian studies (2.0%-12.0%). The Sri Lankan evidence revealed that approximately one in ten pregnant women experienced physical violence (36), underscoring a substantial burden even within a context where such acts are socially condemned and often underreported. Studies from India demonstrate a wide range of estimates from 2.0% in outpatient antenatal settings [22] to 12.0% in community-based surveys [23], suggesting that prevalence may be higher when data are collected outside clinical environments, where women might feel safer to disclose abuse. Despite these variations, physical violence remains a persistent and serious public health concern, contributing to maternal injuries, pregnancy complications, and adverse neonatal outcomes.

Sexual Violence during Pregnancy

Sexual violence, though often less frequently disclosed than other forms of IPV, represents one of the most severe violations of women's bodily autonomy during pregnancy [10]. As summarised in Table 4, the prevalence of sexual violence during pregnancy among Asian countries varies considerably, ranging from 0.5% to 26.3%.

The highest levels were observed in Bangladesh, where community- and hospital-based studies reported prevalence rates of 18.5% (14) and 26.3% [37]. Similarly, a Nepalese study [26] documented a high prevalence of 22.7%, indicating that sexual violence during pregnancy is significant in the pockets of South Asia.

In contrast, studies from India and Sri Lanka reported substantially lower prevalence rates, typically below 3%. In Sri Lanka, the only available study by Moonesinghe *et al*. (2002) recorded a 2.7% prevalence among clinic-attending women aged 15-49 years, while Indian estimates ranged between 0.5% and 2.0% across different study settings [20,22,23]. Thailand, representing Southeast Asia, reported a prevalence of 3.9%, which is somewhat higher than most Indian estimates but still considerably lower than the rates in Bangladesh and Nepal. In Sri Lanka, while available data suggest lower prevalence, cultural taboos and social silence around marital sexual coercion likely contribute to underestimation [38].

Factors Associated with IPV

The factors associated with IPV during pregnancy identified across Asian studies demonstrate a multifaceted interplay between socio-demographic, economic, marital, behavioural, and psychosocial factors (Table 5). Although the strength and direction of these associations vary by setting, several common patterns emerge, with younger age, low education, and low socioeconomic status appearing as the most consistently reported correlates of IPV during pregnancy [6].

Evidence from Sri Lanka indicates that IPV is rooted in both structural and relationship-level vulnerabilities. Muzrif *et al*. (2018) observed that younger age, low educational attainment, low household income, and belonging to Muslim ethnic groups were associated with higher IPV risk. Moonesinghe *et al*. (2002) further emphasised that early marriage (below 19 years), limited education, low socioeconomic status, and patriarchal household dynamics such as husbands being the primary decision-makers significantly increased women's exposure to IPV. Additional risk factors included alcohol use by partners, poor sexual relationships, and nuclear family settings, highlighting the combined effects of economic strain and intimate relationship stressors.

Table 4. Prevalence of Sexual Violence during pregnancy in selected Asian settings

	Country	Author/Study year	Methods	Prevalence
1.	Sri Lanka	Moonesinghe *et al*., 2004 [9]	Clinic-based cross-sectional; 1,200 women (15-49 yrs)	2.7%
2.	India	Jain *et al*., 2017 [20]	Hospital prospective observational; 400 women (20-28 wks)	1.8%
3.	India	Samal and Poornesh, 2022 [22]	OPD cross-sectional; 200 women at 1st antenatal visit	0.5%
4.	India	Das *et al*., 2013 [23]	Community cross-sectional; 2,139 women with identified births	2.0%
5.	Bangladesh	Islam *et al*., 2021 [14]	Community cross-sectional; 424 women (15-49 yrs), ≤6 months post-partum	18.5%
6.	Bangladesh	Ferdos & Rahman, 2017 [37]	Hospital-based cross-sectional; 400 randomly selected women in postnatal wards	26.3%
7.	Nepal	Koirala, 2022 [26]	Hospital cross-sectional; 220 post-natal women (15-45 yrs)	22.7%
8.	Thailand	Boonnate *et al*., 2015 [30]	Hospital cross-sectional; 230 women >18 yrs (32-40 wks)	3.9%
9.	Saudi Arabia	Al Tifi *et al*, 2021 [35]	Community-Based Cross-Sectional: 1,330 women at any gestational age	13.5%

Note: *P indicates the percentage of women reporting sexual IPV during pregnancy, as defined in each original study (e.g., forced sex or sexual acts through coercion). OPD=outpatient department; wks=weeks; yrs=years.*

Across the non-Sri Lankan Asian studies, factors associated with IPV during pregnancy clustered most consistently around structural disadvantage. Lower educational attainment, lower household income and broader socioeconomic deprivation emerged repeatedly as correlates of IPV risk across diverse settings, spanning South Asia, West Asia and East Asia, suggesting that economic insecurity and constrained access to resources may heighten women's vulnerability during pregnancy[16,18-20,22,24,25,29,35]. Several studies also pointed to contextual social stratifiers; including caste/ethnicity and gender preference norms as shaping IPV risk, indicating that social position and gendered expectations can intersect with economic hardship to intensify exposure to violence in some settings [16,18].

A second pattern related to reproductive and life-course vulnerability, where IPV was more frequently reported among women with higher parity/multigravida status, and where maternal age showed context-specific associations (with younger or older age associated depending on setting) [19,20,24,29,35]. In addition, partner characteristics and behaviours were prominent: partner alcohol/substance use and related behavioural risks were recurrently associated with IPV during pregnancy across multiple countries, reinforcing the role of partner risk environments alongside women's socio-economic position [18,20,22,25,30].

Finally, the evidence highlighted relationship and psychosocial pathways. Indicators of reduced relationship support (e.g., low family support), limited autonomy in marital decision-making, gender-inequitable attitudes, and relationship strain (e.g., stress, lower marital satisfaction) were associated with IPV during pregnancy in several contexts [18,25,30]. Taken together, these findings suggest that IPV risk during pregnancy in Asian settings reflects the combined influence of socio-economic disadvantage, reproductive pressures, partner risk behaviours, and gendered relationship dynamics, with the salience of individual correlates varying across countries and study designs [16,18-20,24,25,29,30,35].

Table 5. Factors Associated with IPV during Pregnancy in Selected Countries

Factor	Evidence (country, study, design)
Socio-demographic and economic factors	
Lower education	Sri Lanka — Muzrif *et al*., 2018 [13]; Clinic-based cross-sectional; 1,375 rural/urban and 800 tea-estate women (6-40 weeks)
	Sri Lanka — Moonesinghe *et al*., 2004 [36]; Clinic-based cross-sectional; 1,200 women (15-49 years)
	India — Jungari and Chinchore, 2022 [18]; Community cross-sectional; 550 women who gave birth in the last 2 years
	India — Jain *et al*., 2017 [20]; Hospital prospective observational; 400 women (20-28 weeks)
	India — Samal and Poornesh, 2022 [22]; OPD cross-sectional; 200 women at the first antenatal visit
	Afghanistan/Iran — Dadras *et al*., 2021 [24]; Community cross-sectional; 424 women (18-44 years)

(Continued)

Factor	Evidence (country, study, design)
	Nepal — Sharma and Kaphle, 2023 [25]; Community cross-sectional; 263 postpartum women Pakistan — Shahmir *et al.*, 2023 [16]; Hospital prospective descriptive longitudinal; 105 women (15-49 years) Japan — Maruyama *et al.*, 2023 [29]; Secondary analysis of cross-sectional data; 1,230 women (>34 weeks) Saudi Arabia — Al Taifi *et al.*, 2021 [35]; Community cross-sectional; 1,330 pregnant women (any gestational age)
Lower income	Sri Lanka — Muzrif *et al.*, 2018 [13]; Clinic-based cross-sectional; 1, 375 rural/urban and 800 tea-estate women (6-40 weeks) India — Jungari and Chinchore, 2022 [18]; Community cross-sectional; 550 women who gave birth in the last 2 years India — Samal and Poornesh, 2022 [22]; OPD cross-sectional; 200 women at the first antenatal visit Japan — Maruyama *et al.*, 2023 [29]; Secondary analysis of cross-sectional data; 1,230 women (>34 weeks) Saudi Arabia — Al Taifi *et al.*, 2021 [35]; Community cross-sectional; 1,330 pregnant women (any gestational age)
Lower socioeconomic status	Sri Lanka — Moonesinghe *et al.*, 2004 [36]; Clinic-based cross-sectional; 1,200 women (15-49 years) India — Jungari and Chinchore, 2022 [18]; Community cross-sectional; 550 women who gave birth in the last 2 years India — Nath *et al.*, 2021 [19]; Hospital cross-sectional; 350 women (>18 years; <24 weeks) India — Jain *et al.*, 2017 [20]; Hospital prospective observational; 400 women (20-28 weeks) Pakistan — Shahmir *et al.*, 2023 [16]; Hospital prospective descriptive longitudinal; 105 women (15-49 years)
Women's employment status/ unemployment	Afghanistan/Iran — Dadras *et al.*, 2021 [24]; Community cross-sectional; 424 women (18-44 years) Pakistan — Shahmir *et al.*, 2023 [16]; Hospital prospective descriptive longitudinal; 105 women (15-49 years) Japan — Maruyama *et al.*, 2023 [29]; Secondary analysis of cross-sectional data; 1,230 women (>34 weeks)
Ethnicity / caste	Sri Lanka — Muzrif *et al.*, 2018 [13] (reported as: Muslim ethnicity (Ctx)); Clinic-based cross-sectional; 1,375 rural/urban and 800 tea-estate women (6-40 weeks) India — Jungari and Chinchore, 2022 [18]; Community cross-sectional; 550 women who gave birth in the last 2 years
Birth of a girl child	Pakistan — Shahmir *et al.*, 2023 [16] (reported as: Gave birth to girls (Ctx)); Hospital prospective descriptive longitudinal; 105 women (15-49 years)
Reproductive and biological factors	
Higher parity / multigravida	India — Nath *et al.*, 2021 [19]; Hospital cross-sectional; 350 women (>18 years; <24 weeks) India — Jain *et al.*, 2017 [20]; Hospital prospective observational; 400 women (20-28 weeks)

(Continued)

Factor	Evidence (country, study, design)
	Afghanistan/Iran — Dadras *et al*., 2021 [24]; Community cross-sectional; 424 women (18-44 years) Japan — Maruyama *et al*., 2023 [29]; Secondary analysis of cross-sectional data; 1,230 women (>34 weeks) Saudi Arabia — Al Taifi *et al*., 2021 [35]; Community cross-sectional; 1,330 pregnant women (any gestational age)
Early marriage	Sri Lanka — Moonesinghe *et al*., 2004 [36]; Clinic-based cross-sectional; 1,200 women (15-49 years)
Maternal age - younger	Sri Lanka — Muzrif *et al*., 2018 [13]; Clinic-based cross-sectional; 1,375 rural/urban and 800 tea-estate women (6-40 weeks) Japan — Maruyama *et al*., 2023 [29]; Secondary analysis of cross-sectional data; 1,230 women (>34 weeks) Saudi Arabia — Al Taifi *et al*., 2021 [35]; Community cross-sectional; 1,330 pregnant women (any gestational age)
Maternal age - older (Age >20)	India — Nath *et al*., 2021 [19]; Hospital cross-sectional; 350 women (>18 years; <24 weeks)
Previous miscarriage/stillbirth	Japan — Maruyama *et al*., 2023 [29]; Secondary analysis of cross-sectional data; 1,230 women (>34 weeks)
Partner-related and behavioural factors	
Partner occupation	India — Nath *et al*., 2021 [19] (reported as: Husband semi-/skilled occupation (Emp)); Hospital cross-sectional; 350 women (>18 years; <24 weeks)
Partner education	Afghanistan/Iran — Dadras *et al*., 2021 [24]; Community cross-sectional; 424 women (18-44 years)
Partner alcohol use	Sri Lanka — Moonesinghe *et al*., 2004 [36]; Clinic-based cross-sectional; 1,200 women (15-49 years) India — Jungari and Chinchore, 2022 [18]; Community cross-sectional; 550 women who gave birth in the last 2 years India — Samal and Poornesh, 2022 [22]; OPD cross-sectional; 200 women at the first antenatal visit Nepal — Sharma and Kaphle, 2023 [25]; Community cross-sectional; 263 postpartum women Thailand — Boonnate *et al*., 2015 [30]; Hospital cross-sectional; 230 women (>18 years; 32-40 weeks)
Partner substance use / addiction (alcohol/tobacco/smoking)	India — Jain *et al*., 2017 [20]; Hospital prospective observational; 400 women (20-28 weeks) Nepal — Sharma and Kaphle, 2023 [25]; Community cross-sectional; 263 postpartum women Pakistan — Shahmir *et al*., 2023 [16]; Hospital prospective descriptive longitudinal; 105 women (15-49 years)
Marital and psychosocial factors	
Nuclear family setting	Sri Lanka — Moonesinghe *et al*., 2004 [36]; Clinic-based cross-sectional; 1,200 women (15-49 years)
Unmarried status	Japan — Maruyama *et al*., 2023 [29]; Secondary analysis of cross-sectional data; 1,230 women (>34 weeks)

(Continued)

Factor	Evidence (country, study, design)
Low family support	Nepal — Sharma and Kaphle, 2023 [25]; Community cross-sectional; 263 postpartum women
Husband decision-maker (patriarchal dynamics)	Sri Lanka — Moonesinghe *et al*., 2004 [36]; Clinic-based cross-sectional; 1,200 women (15-49 years)
Husband's prior marriage	Sri Lanka — Moonesinghe *et al*., 2004 [36]; Clinic-based cross-sectional; 1,200 women (15-49 years)
Poor sexual relationship	Sri Lanka — Moonesinghe *et al*., 2004 [36]; Clinic-based cross-sectional; 1,200 women (15-49 years)
Low autonomy in marriage decision	Nepal — Sharma and Kaphle, 2023 [25]; Community cross-sectional; 263 postpartum women
Traditional male gender role attitudes	India — Jungari and Chinchore, 2022 [18]; Community cross-sectional; 550 women who gave birth in the last 2 years
Stress	Thailand — Boonnate *et al*., 2015 [30]; Hospital cross-sectional; 230 women (>18 years; 32-40 weeks)
Lower marital satisfaction	Thailand — Boonnate *et al*., 2015 [30]; Hospital cross-sectional; 230 women (>18 years; 32-40 weeks)

Pregnancy Outcomes among Women Experiencing IPV

Across the reviewed Asian studies, IPV during pregnancy was associated with adverse pregnancy continuation and birth outcomes, with a recurrent pattern of pregnancy loss and impaired foetal growth/gestational duration (Table 6). Miscarriage/abortion and stillbirth were reported across multiple settings, including South and South-East Asia and the Afghanistan/Iran context, indicating that IPV exposure during pregnancy may compromise pregnancy viability through both stress-related pathways and direct physical harm [22,24,26,28]. Similarly, low birth weight and preterm birth were repeatedly identified across diverse countries and study designs, reinforcing a consistent signal that IPV is linked to restricted foetal growth and shortened gestation [16,17,21,26,28,35,37].

A second pattern concerns maternal and obstetric complications, where IPV exposure was linked with haemorrhagic and placental complications (e.g., placental abruption, antepartum and intrapartum haemorrhage) and membrane rupture, alongside broader maternal morbidity such as anaemia and genital/gynaecological infections [16,21,24]. Although outcome profiles varied by setting, these findings collectively suggest that IPV may contribute to clinical risk through a combination of physiological stress responses, reduced care-seeking, and trauma-related obstetric sequelae, with some studies reporting substantial burdens of complications among exposed women [16,24,37].

Finally, the evidence indicates that IPV during pregnancy has a marked psychological impact, with clinically significant depressive morbidity documented among women experiencing IPV [20]. Taken together, the reviewed studies show a coherent pattern in which IPV during pregnancy is not confined to psychosocial harm, but aligns with multi-domain adverse outcomes; pregnancy loss, foetal/neonatal compromise, maternal/obstetric complications, and maternal mental health [16,17,20,21,24,26,28,35,37].

Table 6. Pregnancy Outcomes among Women Experiencing IPV during Pregnancy

Pregnancy outcome	Evidence (country, study, design)
Miscarriage / abortion	India — Samal and Poornesh *et al*., 2022 [22]; OPD cross-sectional; 200 women at first antenatal visit; miscarriage/abortion reported Afghanistan/Iran — Dadras *et al*., 2021 [24]; Community cross-sectional; 424 women (18-44 years); miscarriage/abortion 5.7% Nepal — Koirala, 2022 [26]; Hospital cross-sectional; 220 postnatal women (15-45 years); miscarriage/abortion 35% Vietnam — Hoang *et al*., 2016 [28]; Community prospective cohort; 1,276 women (<24 weeks; 30-34 weeks), miscarriage/abortion 13.2%
Stillbirth	Afghanistan/Iran — Dadras *et al*., 2021 [24]; Community cross-sectional; 424 women (18-44 years); stillbirth 7.5% Nepal — Koirala, 2022 [26]; Hospital cross-sectional; 220 postnatal women (15-45 years); stillbirth 2.8% Vietnam — Hoang *et al*., 2016 [28]; Community prospective cohort; 1,276 women (<24 weeks; 30-34 weeks); stillbirth 9.7%
Low birth weight	India — Garg *et al*., 2020 [17]; Community prospective observational; 1,500 women (<20 weeks); LBW 47.2% Nepal — Koirala, 2022 [26]; Hospital cross-sectional; 220 postnatal women (15-45 years); LBW 36% Bangladesh — Ferdos and Rahman, 2017 [37]; Hospital cross-sectional; 400 postnatal women; LBW 69.5% Vietnam — Hoang *et al*., 2016 [28]; Community prospective cohort; 1,276 women (<24 weeks; 30-34 weeks; 48 h post-delivery); LBW 2.4% Saudi Arabia — Al Taifi *et al*., 2021 [35]; Community cross-sectional; 1,330 pregnant women (any gestational age); percentage not reported
Preterm birth	India — Garg *et al*., 2020 [17]; Community prospective observational; 1,500 women (<20 weeks); PTB 12.7% India — Devineni *et al*., 2018 [21]; Hospital prospective observational; 200 admitted women; PTB 6.14% Nepal — Koirala, 2022 [26]; Hospital cross-sectional; 220 postnatal women (15-45 years); PTB 24% Pakistan — Shahmir *et al*., 2023 [16]; Hospital longitudinal; 105 women (15-49 years); PTB 63.8% Vietnam — Hoang *et al*., 2016 [28]; Community prospective cohort; 1,276 women (<24 weeks; 30-34 weeks; 48 h post-delivery); PTB 2.7% Saudi Arabia — Al Taifi *et al*., 2021 [35]; Community cross-sectional; 1,330 pregnant women (any gestational age); percentage not reported
Placental abruption	India — Devineni *et al*., 2018 [21]; Hospital prospective observational; 200 admitted women; placental abruption 6.14%
Antepartum haemorrhage	Pakistan — Shahmir *et al*., 2023 [16]; Hospital longitudinal; 105 women (15-49 years); APH 55.2%
Pre-labour rupture of membranes	Afghanistan/Iran — Dadras *et al*., 2021 [24]; Community cross-sectional; 424 women (18-44 years); PROM 11.3%

(Continued)

Pregnancy outcome	Evidence (country, study, design)
Intrapartum haemorrhage	Afghanistan/Iran — Dadras *et al.*, 2021 [24]; Community cross-sectional; 424 women (18-44 years); intrapartum haemorrhage 12.7%
Anaemia	Pakistan — Shahmir *et al.*, 2023 [16]; Hospital longitudinal; 105 women (15-49 years); anaemia 71.4%
Maternal illness	India — Samal and Poornesh *et al*., 2022 [22]; OPD cross-sectional; 200 women at first antenatal visit; maternal illness reported
Obstetric complications	Bangladesh — Ferdos and Rahman, 2017 [37]; Hospital cross-sectional; 400 postnatal women; obstetric complications 44.3%
Clinical depression	India — Jain *et al*., 2017 [20]; Hospital prospective observational; 400 women (20-28 weeks); clinical depression 46.3%

Discussion

The findings of this review clearly establish that IPV during pregnancy is a substantial and under-recognised public health concern in many Asian countries, including Sri Lanka. The synthesis of local and regional evidence points to a consistent pattern: women who experience IPV during pregnancy face heightened risks of adverse maternal and perinatal outcomes. These include preterm birth, low birth weight, miscarriage, stillbirth, antenatal complications, and psychological disorders such as antenatal depression.

The implications of IPV during pregnancy extend beyond the clinical sphere. Women subjected to violence often experience delays in seeking antenatal care, reduced compliance with medical advice, and increased stress-related complications, all of which place an additional burden on the healthcare system. Moreover, the intergenerational consequences of IPV, such as compromised early childhood development and a perpetuation of violent norms, underscore its broader societal impact [10]. What makes this issue particularly urgent is that the determinants of IPV during pregnancy are well-established and largely modifiable [6]. Factors such as low maternal education, partner substance abuse, limited autonomy in reproductive decision-making, poor communication within relationships, and inadequate social support consistently appear across studies as key drivers of violence during pregnancy [41]. This recognition presents a critical opportunity for the health system to respond proactively. If these determinants are addressed through integrated, gender-sensitive public health strategies, the prevalence and impact of IPV during pregnancy can be substantially mitigated [42]. Antenatal care platforms offer a unique and strategic entry point for early identification, screening, and referral of women at risk. Strengthening the health sector response by building capacity, revising protocols, and enhancing referral pathways could play a pivotal role in breaking the cycle of violence and safeguarding the well-being of both mothers and their unborn children [10].

Despite Sri Lanka's recognised maternal health achievements, research on IPV during pregnancy remains sparse and largely overlooked in the national reproductive health agenda. Available studies, such as Senanayake (2011) and Moonesinghe & Barraclough (2018), highlight the existence and implications of IPV among pregnant women, yet comprehensive prevalence data at national and subnational levels remain limited. Much of the existing literature is concentrated in small-scale, hospital-based, or regional studies (e.g., in the Badulla district or plantation sector settings), which lack representativeness across diverse ethnic, geographical, and socio-economic contexts. Moreover, these studies often focus on physical violence, with less attention to emotional, sexual, and controlling behaviours, and rarely explore the intersecting vulnerabilities of marginalised populations such as adolescents, disabled women, or estate-sector workers [11]. Furthermore, limited research has been conducted on the longitudinal impact of IPV on maternal and neonatal outcomes in Sri Lanka, and the voices of pregnant women themselves regarding their help-seeking behaviours, coping mechanisms, and barriers to care are underrepresented. This evidentiary gap restricts the formulation of context-specific interventions and undermines the integration of IPV screening within maternal health programmes.

Sri Lanka's policy framework increasingly embeds IPV response within maternal health services. National guidance for first-contact providers supports IPV enquiry in antenatal and postnatal care settings where privacy and referral mechanisms are in place, including use of the four-item HITS tool, while the accompanying SOPs direct PHMs to conduct sensitive enquiry, provide first-line support (L.I.V.E.S.), and refer survivors to dedicated services such as Mithuru Piyasa/Natpu Nilayam, with follow-up through routine field systems [43-45]. However, recent evidence from the World Bank-supported GBV costing study (2025) suggests an implementation gap: IPV during pregnancy may remain under-identified and inconsistently managed due to limited practical capacity, variable uptake of protocols, and missed opportunities to integrate IPV assessment across ANC/PNC contacts, including postnatal and immunisation settings. These gaps are further compounded by low awareness and limited usability of the 24/7 helpline, resulting in delayed identification, fragmented referral pathways, and uneven access to specialised support [46].

Conclusion

IPV during pregnancy remains a substantial and preventable public health concern across Asia, with prevalence varying widely by setting and study design. In this review's quantitative synthesis, the pooled prevalence was approximately 14.4% (95% CI: 10.3%-19.9%), with very high heterogeneity and a broad prediction interval, indicating that prevalence can differ markedly across populations and contexts. Psychological violence was reported more frequently than physical or sexual violence, and commonly identified correlates included low maternal education, younger maternal age, poverty, limited partner support, partner alcohol use, and restrictive gender norms. IPV exposure during pregnancy was consistently associated with adverse maternal and pregnancy outcomes, including depression and psychological distress, anaemia, miscarriage, preterm delivery, and low birth weight.

In Sri Lanka, policy and service frameworks increasingly support IPV enquiry and first-line response within antenatal and postnatal care, including guidance for PHMs on sensitive enquiry, first-line support, and referral to Mithuru Piyasa/Natpu Nilayam. However, recent system assessments indicate implementation gaps: national protocols are not uniformly applied, GBV screening is often absent from routine maternal and child health contacts, and PHMs are not yet fully integrated into early identification and referral pathways. Strengthening routine, privacy-assured IPV enquiry and referral across ANC/PNC (including postnatal and immunisation contacts), alongside practical capacity-building, supportive supervision, and stronger monitoring and intersectoral coordination, is essential. Parallel priorities include more standardised and nationally representative research particularly longitudinal and qualitative studies to better characterise trajectories, service uptake, and outcomes, and to guide context-specific, survivor-centred interventions.

Author Contribution

MSS conceptualized the literature review, conducted the synthesis and meta-analysis, and drafted the manuscript. PK conducted the literature search, screening, and data charting. LS led the overall study, formulated recommendations, and critically reviewed the manuscript. JD, CB, AD, PS and CR contributed to conceptualize the research design, interpretation and critical review. All authors approved the final manuscript.

Use of Artificial Intelligence Assisted Technologies

During the preparation of this work, the authors used OpenAI (version GPT-5.2) to improve the language and readability. The authors reviewed and edited the content as needed and take full responsibility for the final publication.

Conflict of Interest

The authors declare that there are no conflicts of interest.

Ethical Approval

Ethical approval for this study was obtained from the Ethical Clearance Committee of the Faculty of Medicine, General Sir John Kotelawala Defence University, Sri Lanka. The application (Reference No: RP/2025/09) was reviewed and approved at the ERC meeting held on 23rd April 2025. The official approval letter was issued on 25th April 2025.

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Disclaimer

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Botulinum toxin as a Newer Treatment Modality for Vaginismus: A Systematic Review and Meta-analysis

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Review Article

Abstract

Introduction: Vaginismus, now classified under Genito-Pelvic Pain/Penetration Disorder, is a multifactorial psychosexual condition defined by involuntary pelvic floor muscle contraction, penetration-related fear, avoidance behaviours and substantial psychological distress. First-line management centres on conservative modalities; including cognitive behavioural psychotherapy (CBT), sex therapy, pelvic floor physiotherapy and graded dilator programmes. Botulinum toxin type A (BoNT-A) has emerged as a targeted adjunct, particularly for severe or refractory presentations, by inducing rapid neuromuscular relaxation that facilitates early penetration. A critical evidence gap remains regarding the comparative effectiveness of BoNT-A in vaginismus as a newer treatment modality.

Objectives: To compare the effectiveness and safety of BoNT-A injections and psychotherapy (including CBT, sex therapy and multimodal psychological approaches) for the treatment of vaginismus.

Methods: A systematic review and meta-analysis were conducted according to PRISMA 2020 guidelines and the Cochrane Handbook v6.4. Searches were performed in MEDLINE (PubMed), Scopus, Web of Science, CENTRAL, Google Scholar, WHO ICTRP, and ClinicalTrials.gov upto 01 November 2025. Primary outcome is successful vaginal penetration after treatment. Secondary outcomes are Pain scores (VAS), anxiety scores, Female Sexual Function Index (FSFI), treatment satisfaction, recurrence and adverse events. Risk of bias was assessed using the RoB 2 tool and the certainty of evidence was evaluated using GRADE.

Results: Twelve studies (n=826) were included. Overall treatment success was high across modalities, with exposure-based and desensitization protocols demonstrating the strongest outcomes (up to 97.7% intercourse success). CBT produced limited immediate penetration success (14%) but improved broader sexual functioning. BoNT-A demonstrated favourable results in uncontrolled cohorts (75–100% success), although the only direct comparative RCT showed physiotherapy to be superior (92.9% vs 66.7%, P=0.014). Multimodal interventions incorporating counselling and dilation also achieved high success rates.

Conclusion: Psychotherapeutic interventions and BoNT-A are both used in treatment of vaginismus where psychotherapy remains the first-line approach while BoNT-A offers an additional benefit in selected severe or refractory cases.

Key Words: Vaginismus, Botulinum toxin, Psychotherapy, Cognitive Behavioural Therapy, Sex Therapy, Genito pelvic Pain–penetration Disorder

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Introduction

Vaginismus is a complex, biopsychosocial disorder classified under the DSM-5 category of Genito-Pelvic Pain/Penetration Disorder (GPPPD) [1,2]. Although population-based estimates suggest a prevalence of 1–6% among women of reproductive-age, the true prevalence rates are likely higher due to under-reporting and inconsistent diagnostic practices [3,4]. The condition is defined by involuntary contraction of the pelvic floor musculature, most notably the bulbospongiosus, pubococcygeus, puborectalis, and iliococcygeus, perpetuated by heightened anticipatory anxiety and sympathetic activation [5-7]. This neuromuscular hypertonicity produces pain, tissue hypersensitivity and marked difficulty tolerating any penetration, including digital examinations and intercourse. Psychogenic and cognitive drivers further reinforce the disorder: fear-conditioning from prior painful experiences, avoidance behaviors, high rates of anxiety and specific phobias, with nearly 80% of lifelong vaginismus patients demonstrating psychiatric comorbidity and phobic traits approaching 64% [8,9]. This impacts sexual functioning and relationship dynamics. Effective therapeutic approaches must therefore interrupt both the neuromuscular contractions and its psychological reinforcement loop [9,10].

Psychotherapy, encompassing cognitive behavioural psychotherapy (CBT), graded exposure and sex therapy has remained the foundational treatment for vaginismus, targeting the fear-avoidance cycle and pelvic floor hypervigilance that sustain the condition [11]. Across evidence-based modalities, the therapeutic architecture focuses on restructuring catastrophic cognitions, extinguishing conditioned fear responses and improving relationship dynamics [12]. CBT is the mostly evaluated modality, with meta-analytic success rates around 82% and therapist-aided exposure trials achieving up to 90% intercourse success at 12 months [11-13]. Graded exposure progressing from digital examination to dilators and ultimately intercourse, yields durable gains, particularly when catastrophic pain beliefs are effectively reframed [12]. Sex therapy and couple-focused interventions further enhance outcomes by addressing communication deficits, performance anxiety and partner avoidance, demonstrating 70–80% success across observational studies [14]. Despite these performance indicators, 10-40% of patients remain refractory, underscoring the need for adjunctive or combination strategies in complex cases [11-14].

Botulinum toxin A (BoNT-A), a neuromuscular-blocking agent, has emerged as a high-impact interventional therapy for vaginismus over the past decade, particularly for women with severe pelvic floor hypertonicity [15]. Its mechanism of action is driven by temporary chemodenervation of overactive pelvic floor muscle fibers through acetylcholine blockade at the neuromuscular junction, supplemented by suppression of neurogenic inflammatory mediators such as glutamate and substance P [16,17]. This creates a reversible "muscle-tone reset" lasting approximately 3-6 months [16]. Standard clinical protocols administer 150-200 U of BoNT-A across three to four key muscles, often with adjunctive bupivacaine for analgesia and delivered under local anesthesia, sedation or general anesthesia [17,18]. Immediate, supervised dilator insertion post-injection has become a best practice, accelerating functional progress [18]. Clinical effectiveness is significant where pooled success rates approach 85%

and large prospective cohorts consistently report >90% cure, including intercourse success rates up to 97% in pivotal series [15,18]. Safety data from over 200 patients demonstrate an excellent profile, with only minor transient effects like temporary stress incontinence or vaginal dryness occurring in fewer than 5% of individuals and normal subsequent pregnancies and vaginal deliveries documented [15,18].

Combined psychotherapy–physiotherapy pathways address both fear conditioning and pelvic floor dysregulation, with dilators serving as the operational platform for graded exposure, yielding 78–86% success [11-14,19]. BoNT-A is warranted early for severe hypertonicity and failure of prolonged conservative therapy.

Current evidence is limited by few head-to-head RCTs, heterogeneous diagnostic and outcome measures, short follow-up periods and minimal representation from LMIC settings [3,9,12].

Methods

Aim of the Review

To compare the effectiveness and safety of BoNT-A injections and psychotherapy (including CBT, sex therapy and multimodal psychological approaches) for the treatment of vaginismus.

Protocol and Reporting

This review followed PRISMA 2020 guidelines [20] and the Cochrane Handbook for Systematic Reviews of Interventions [21] and registered with PROSPERO (ID: CRD420251236239). A review protocol was prospectively defined with eligibility, outcomes, and analysis plan.

Search Strategy

The search of electronic databases includes PubMed, Web of Science, MEDLINE, Cochrane CENTRAL, Science Direct, Google Scholar, ClinicalTrials.gov and WHO ICTRP.

Search terms included: “vaginismus,” “genito pelvic pain penetration disorder,” “botulinum toxin,” “BoNT A,” “psychotherapy,” “cognitive behavioral therapy,” “CBT”, “sex therapy,” and “randomized controlled trial.”

Example of PubMed strategy is shown below:

(“Vaginismus”[Mesh] OR vaginismus OR “genito-pelvic pain penetration disorder” OR GPPPD OR “penetration disorder*” OR “sexual pain disorder*” OR “Dyspareunia”[Mesh]).

AND (“Botulinum Toxins”[Mesh] OR “Botulinum Toxins, Type A”[Mesh] OR botulinum OR “botulinum toxin” OR “botulinum toxin A” OR BoNT-A OR botulinum OR “pelvic floor BoNT-A”).

AND (“Psychotherapy”[Mesh] OR “Cognitive Behavioral Therapy”[Mesh] OR “Sex Counseling”[Mesh] OR psychotherapy OR “cognitive behavioral therapy” OR CBT OR “sex therapy” OR “psychosexual therapy” OR “behavioral therapy” OR “exposure therapy”).

Selection Criteria

The Rayyan software was used to conduct the screening process of the literature. We included RCTs based on PICO model as below:

Population: Women diagnosed with vaginismus (DSM IV/DSM 5). Interventions: BoNT-A injections, Psychotherapy (CBT / exposure / hypnotherapy).

Comparators: Placebo, waiting-list, alternative therapy. Outcomes: Penetration success, pain (VAS), sexual function (FSFI), psychological outcomes and adverse effects.

Studies were eligible for inclusion if they involved adult women aged ≥18 years; diagnosed with vaginismus or Genito-Pelvic Pain/Penetration Disorder (GPPPD) confirmed through clinical interview or validated diagnostic instruments; had any psychosexual or medical intervention, including CBT, pelvic floor physiotherapy, BoNT-A, or structured dilator programmes; employed an RCT design or non-randomized comparative design and were available in English.

Exclusion criteria comprised case reports, narrative reviews, conference abstracts without full-text availability and studies that did not report quantitative outcome data.

Study Selection

Two independent reviewers screened titles/abstracts, retrieved full texts, and applied eligibility. Disagreements were resolved by a third reviewer. A PRISMA 2020 flow diagram was generated (Figure 1).

Data Extraction

A piloted extraction form captured study characteristics, participant demographics, intervention details (concentration, frequency), comparator formulation, follow-up, outcomes, and adverse events. Where SDs were missing, they were imputed from CIs or P values per Cochrane guidance. The quality of the studies in the systematic review was assessed by the Cochrane risk of bias -2 tool for each outcome domain.

Effect Measures and Synthesis

The ratio of treatment responders to total sample size was extracted for each study, and variances were calculated assuming a

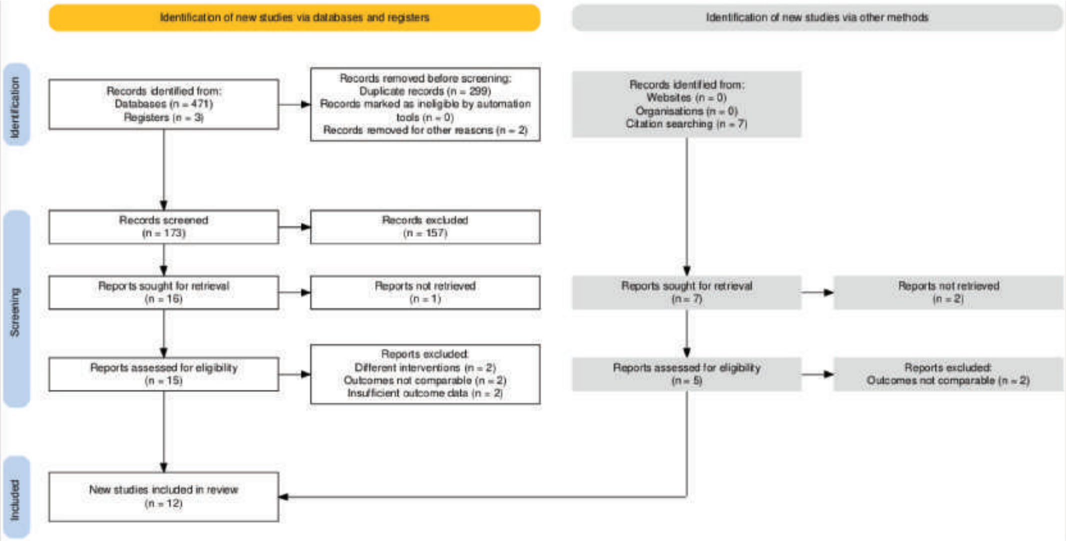

Figure 1. PRISMA 2020 flow diagram for new systematic reviews which included searches of databases, registers and other sources.

binomial distribution. Study heterogeneity was assessed using Cochran's Q statistic and the I² index. Given the presence of heterogeneity, pooled effect estimates were generated using a random-effects model. A forest plot was constructed to visually present individual study effects and the aggregated outcome. Publication bias was evaluated using the Egger regression asymmetry test, complemented by a funnel plot. Statistical significance for all analyses was set at the 0.05 level. The data were input into statistical software, and analyses were conducted with MetaAnalysisOnline.com [22].

GRADE Assessment

We applied GRADE to primary and secondary outcomes. We downgraded for risk of bias (lack of blinding), imprecision (small sample sizes) and inconsistency (heterogeneity) [23].

RESULTS

Study Characteristics

Age and duration of complaint

Across the included studies, participants were predominantly in their mid-20s to early 30s. The Dutch CBT RCT (N=117) reported a mean female age of 28.6 years (SD 6.9), while the largest multimodal cohort (N=241) recorded a mean age of 30 years (range 17–72; SD 8.2). Iranian studies demonstrated comparable age profiles, with mean ages of 25 years (range 19–34) in the BoNT-A cohort and approximately 30 years (30.8 ± 3.9 and 28.8 ± 5.8) in the Functional Electrical Stimulation (FES)/BoNT-A RCT.

Duration of symptoms varied widely. Women in the Dutch CBT trial reported a prolonged mean duration of 11.0 years (SD 7.0), mirrored by the therapist-aided exposure study (10.41 ± 6.54 years). In contrast, Saudi participants undergoing hypnotherapy had a shorter mean duration of 9.52 months (SD 10.32), while the large U.S. multimodal cohort reported an average symptom duration of 7.8 years (SD 6.2). (Table 1)

Geographic and sociocultural context

Research was conducted across multiple European centres (The Netherlands, Germany, Switzerland, Italy and Australia for pelvic pain/spasm cohorts), key Middle Eastern and North African settings (Iran, Egypt and Saudi Arabia) and North America. The studies span a broad geographic footprint, underscoring that vaginismus is a clinically significant condition across diverse cultural and health-systems (Table 1).

Vaginismus type and severity

Most studies targeted women with primary vaginismus who had never achieved penetrative intercourse, although the German internet-based trial was more heterogeneous, with 55.8% reporting acquired vaginismus. Severity profiles were typically high, reflecting treatment-resistant populations. The Iranian BT trial enrolled women with moderate to severe (third- to fourth degree) refractory vaginismus, while the large U.S. multimodal cohort (N=241) reported that 70% of participants were classified as Lamont level 4 or Pacik level 5, indicating severe, longstanding disease (Table 1).

Relationship and sexual history

In the Dutch CBT trial, 70% of participants lived with their partners, whereas the German internet-based trial comprised predominantly unmarried women

(77.9%), though all were required to be in heterosexual relationships for at least three months. In the cohort with vaginismus secondary to vestibulodynia, participants included married (18/39), single (11/39), and cohabiting (9/39) women, reflecting a more mixed relational profile.

Treatment Modalities

I. Cognitive Behavioral Therapies & Psychotherapy

The five RCTs collectively demonstrate that psychotherapeutic and behavioral interventions produce meaningful but variable improvements in penetration outcomes among women with lifelong or severe vaginismus. The earliest CBT trial by van Lankveld *et al*. (2006) [8] showed modest intercourse success (14% vs 0% in WLC) but durable gains in desire, arousal and satisfaction over 12 months. **Desensitization-based dilation training** (Schnyder *et al*., 1998) [24] delivered near-universal success (97.7%) with no difference between physician-delivered and self-directed formats. **Internet-guided self-help** (Zarski *et al*., 2017) [25] generated moderate benefits, with 34% vs 21% intercourse success at 6 months and significant improvements in non-intercourse penetration. **Therapist-aided exposure** (ter Kuile *et al*., 2013) [26] produced the most rapid and substantial effect, with 89% achieving intercourse at 6 weeks and large reductions in fear, distress, and vaginismus severity. **Hypnotherapy** (Al-Sughayir, 2005) [27] outperformed behavior therapy on sexual anxiety reduction, couple satisfaction and treatment efficiency. Together, these trials confirm that structured psychotherapeutic, exposure-based and hypnotic modalities are effective, with intensity and mechanistic alignment driving differential treatment yield.

II. Pharmacological and Multimodal Interventions

These six studies provide a cohesive evidence base demonstrating that BoNT-A—based and multimodal procedural interventions offer substantial therapeutic benefit for women with severe, refractory, or secondary vaginismus.

BoNT-A monotherapy showed strong clinical potential in multiple refractory cohorts. Ghazizadeh & Nikzad (2004) [28] reported a 75% intercourse-success rate following levator ani injections in women with severe vaginismus, demonstrated potential utility for moderate-to-severe disease. Shafik & El-Sibai (2000) [29] similarly demonstrated a 100% response in eight women treated with bulbospongiosus injections, compared with no improvement in controls, highlighting a strong mechanistic response.

The role of BoNT-A in pelvic floor dysfunction was further supported by Abbott *et al*. (2006) [30], where BoNT-A significantly reduced resting pelvic floor pressure compared with placebo, although pain outcomes did not differ between groups, suggesting physiological efficacy but limited symptom translation in chronic pelvic pain.

Multimodal programmes integrating BoNT-A with dilation and counselling generated the highest real-world performance. Pacik & Geletta (2017) [31], in a large cohort of 241 women with predominantly severe vaginismus and multiple failed prior treatments, achieved 71% pain-free intercourse within five weeks, alongside significant gains in FSFI scores. Pacik (2015) [32] reported an even higher success rate (90.3%) in an open-label trial using the same multimodal protocol in primary vaginismus.

For secondary vaginismus linked to vestibulodynia, Bertolasi *et al*. (2009) [33] showed that **repeated BoNT-A cycles** led to full recovery in 63.2% of patients, with sustained reductions in EMG hyperactivity, pain and sexual-function impairment.

III. Comparative Treatment Studies

Yaraghi *et al*. (2018) [34], conducted a head-to-head RCT in 74 women with severe primary vaginismus, comparing comprehensive physiotherapy, comprising **functional electrical stimulation, relaxation training and desensitization,** to a single-dose BoNT-A injection. Physiotherapy demonstrated clear superiority, achieving significantly higher intercourse success (92.9% vs 66.7%; P=0.014) and delivering greater improvements across all six FSFI domains.

PICO characteristics and key findings of the above studies were depicted from Table 1 and Table 2 respectively.

Quantitative Data Analysis

Figure 2 shows the pooled estimate for psychotherapy interventions.

The pooled evidence indicates a strong directional advantage for psychotherapeutic interventions in improving successful penetration, but overall certainty is limited by small sample sizes and methodological variability. Across three RCTs, one study (Ter Kuile *et al*., 2013) demonstrated a large, precise effect, whereas the other two generated smaller, less-significant estimates. The random-effects model produced a pooled odds ratio of 10.27 with a wider confident interval (95% CI 0.79-133.51), signaling a substantial estimated benefit but with considerable imprecision and a borderline p-value (0.075) (Figure 2).

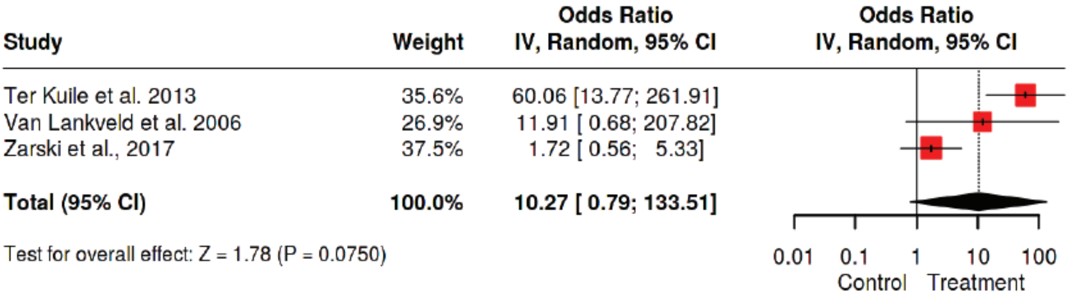

Figure 2. Forest Plot showing the Odds ratio and 95% CI of psychotherapy interventions for the treatment of vaginismus.

Table 1. PICO characterization of the selected studies

Cite	Year	Country	Population	Intervention	Control	Outcomes
van Lankveld *et al*.	2006	The Netherlands	Women with lifelong vaginismus. Mean age 28.6 yrs. Mean duration of complaint 11.0 yrs.	CBT in two formats: Group Therapy (GT) (ten 2-hr sessions) OR Bibliotherapy (BB) (manual + 6 biweekly, 15-min telephone contacts).	Waiting List Control (WLC)	Primary: Successful penile–vaginal intercourse (PEQ). Secondary: Noncoital penetration (SNP/PEQ), sexual functioning (FSFI) and marital dissatisfaction (MMQ).
Ghazizadeh & Nikzad	2004	Iran	Women with moderate and severe refractory vaginismus. Mean age 25 yrs.	BoNT-A injection (150–400 IU) into the levator ani performed under light sedation.	None.	Satisfactory intercourse. Vaginal examination findings (resistance) 1 week post-op.
Abbott *et al*.	2006	Australia	Chronic pelvic pain (>2 years) and pelvic floor muscle spasm. Mean age 30.5 yrs.	BoNT-A injection (80 units)	Normal Saline injections (Placebo).	Pain reduction (VAS), Pelvic floor pressures via vaginal manometry Quality of life (SF-12, EuroQOL-5D), Sexual Activity Questionnaire.
Shafik & El-Sibai	2000	Egypt	Women with vaginismus resistant to previous treatments. Mean age 26.6 yrs.	Botulin toxin injection (25 IU) into each of the two bulbospongiosus muscles.	Normal Saline injections (Placebo).	Ability to achieve satisfactory intromission. Recurrence and complications.
Schnyder *et al*.	1998	Switzerland	Vaginismus (DSM-III-R criteria). Mean age 28 yrs. 43.2% primary vaginismus.	Desensitization exercises with dilators in two variations: In Vivo (physician introduces dilator) OR In Vitro (physician provides verbal instruction). Max 6-7 sessions.	Comparison between two active treatment modalities.	Ability to have sexual intercourse. Secondary: Sexual desire, orgasmic capacity, recommendation rate.
Bertolasi *et al*.	2009	Italy	Vaginismus secondary to Vulvar Vestibulitis Syndrome (VVS) and EMG-documented pelvic floor muscle dysfunction. All had failed prior standard CBT. Mean age 33.2 yrs.	Repeated cycles of BoNT-A injected under EMG guidance (20 IU) per session. Followed by pelvic muscle training/molds.	None (Open-label study).	Primary: Possibility of sexual intercourse and reduction of levator ani EMG hyperactivity. Secondary: Lamont scores, VAS pain. FSFI (sexual function), QoL (SF-12), bowel (Wexner) and bladder symptoms.
Yaraghi *et al*.	2018	Iran	Primary vaginismus (DSM-5 criteria), grade III or IV Mean age 30 yrs.	BoNT-A injection 150–400 U into levator ani (one session).	Physiotherapy (Standard treatment, FES), Sensation focus (12 sessions over 12 weeks).	Primary: Successful intercourse. Secondary: FSFI total and 6 domains

(Continued)

Cite	Year	Country	Population	Intervention	Control	Outcomes
Zarski *et al*.	2017	Germany	Women with vaginismus (lifelong 44% and acquired 56%). Mean age 27.32 yrs.	Internet-based guided self-help (IG) (Vaginismus-Free) consisting of 10 sessions, cognitive restructuring, sensate focus. Guided by eCoach (written feedback).	Waitlist Control Group (WCG).	Primary: Successful sexual intercourse (PEQ item), Secondary: Non-intercourse penetration (PEQ), fear of coitus (FSQ), sexual functioning (FSFI), dyadic coping (DCI).
Pacik & Geletta	2017	USA	Severe vaginismus (70% Lamont 4/Pacik 5) who had failed prior treatments (mean 4 ± 2.7 failures). Average age 30 yrs.	Multimodal program: Intravaginal injections of BoNT-A and bupivacaine, progressive dilation under conscious sedation and post-treatment counseling/support.	None.	Dilation progression, pain/anxiety scores, time to achieve pain-free intercourse. Post-treatment FSFI score
ter Kuile *et al*.	2013	The Netherlands	Women with lifelong vaginismus Average duration 10.41 yrs. Mean age 28.9 yrs.	Therapist-aided exposure: Participant self-performed vaginal penetration exercises (fingers, dilators) facilitated by a female therapist and partner.	Waiting-List Control (WLC) for period of 3 months	Primary: Intercourse ability Secondary: Vaginismus symptoms (GRISS), coital pain (FSFI pain), coital fear (FSQ), sexual distress (FSDS).
Pacik	2015	USA	Primary vaginismus, failed some form of prior treatment. Mean age 27.3 yrs.	Multimodal program: Intravaginal injections of BoNT A and bupivacaine, progressive dilation under anesthesia and post-treatment counseling and support.	None.	Ability to achieve pain-free intercourse or use large dilator (Primary Endpoint). FSFI scores, Recurrence and safety.
Al-Sughayir	2005	Saudi Arabia	Vaginismus (DSM-IV criteria). Mean age 21.4 yrs. Average duration 9.52 months.	Hypnotherapy (HT) (using mental imagery reprograming) OR Behavior Therapy (using Masters and Johnson techniques, desensitization).	Comparison between two active treatment modalities.	Achievement of satisfactory sexual intercourse. Wife's sex-related anxiety (BISF-W scale) and both spouses' sexual satisfaction (BISF-W/BSFI modified scale)

Table 2. Key findings of the selected studies

Cite	N (Total)	Results	Conclusions
van Lankveld *et al*.	117 couples	Successful intercourse at post treatment: 14% of treated participants (9% GT, 18% BB) vs. 0% WLC. At 12-month follow-up: 21% GT, 15% BB achieved intercourse. GT reported more successful noncoital penetration than WLC at post-treatment.	CBT of lifelong vaginismus was efficacious, but the effect size was small. Bibliotherapy is justified from a cost-effectiveness perspective due to equal results with less therapist time.
Ghazizadeh & Nikzad	24 women	75% (18/24) achieved satisfactory intercourse after the first injection. 95.8% showed little or no vaginal resistance 1 week post-op. No cases of recurrence observed.	BoNT-A injection is effective in treating moderate and severe cases of vaginismus.
Abbott *et al*.	60 women	BoNT-A group showed highly significant reduction in resting pelvic floor pressure (49 vs 32; P<.001). Significant intragroup reduction in dyspareunia (VAS 66 vs 12; P<.001). No significant intergroup differences for individual pain scores.	BoNT-A reduces pressure in the pelvic floor muscles more than placebo. It may be useful for women with pelvic floor muscle spasm and chronic pelvic pain who do not respond to conservative physical therapy.
Shafik & El-Sibai	13 women	All 8 BT patients improved and achieved satisfactory intromission on the 2nd day. None of the 5 control subjects improved. No recurrence or need for re-injection.	BoNT-A injection effected cure in all treated patients, proving to be a simple, easy, rapid, and cost-effective treatment.
Schnyder *et al*.	44 women	97.7% (43/44) were treated successfully and were able to engage in coitus after an average of 6.3 therapeutic sessions. No significant differences between In Vivo and In Vitro groups in success or duration.	Desensitization with dilators is an effective method for treating vaginismus, achieving high success rate in a short time. The choice of procedure can be left to the patient.
Bertolasi *et al*.	39 patients	63.2% completely recovered (sexual intercourse normalized after mean 2.7 +/- 1.5 cycles). Sustained improvement in vaginal resistance (Lamont), vulvar pain, dyspareunia, and urination pain. FSFI and SF-12 scores improved.	BoNT-A neurotoxin type A effectively reduced spasms and pain for VVS secondary vaginismus, normalizing sexual life and improving quality of life for most patients.
Yaraghi *et al*.	74 patients	Successful Intercourse: 92.9% in Physiotherapy vs 66.7% in BoNT-A group (P=0.014). Physiotherapy was significantly more effective in improving all 6 FSFI domains than BoNT-A injection.	Standard physiotherapy (with FES and desensitization) showed higher efficacy than BoNT-A treatment and should be considered the first-line treatment of vaginismus.

(Continued)

Cite	N (Total)	Results	Conclusions
Zarski *et al*.	77 participants	Intercourse: IG vs WCG odds ratio 2.02, not statistically significant. IG showed significant within-group increase T1 to T3 (d=0.65). Non-intercourse penetration: Significant between-group effects favoring IG at T3 (d=0.56). Adherence completers showed significantly greater improvement (d=1.34).	Internet-based intervention (IG) showed promising effects, increasing participants' ability to have intercourse and non-intercourse penetration, with high satisfaction. Could be a first step in stepped care.
Pacik & Geletta	241 women	71% (171/241) achieved pain-free intercourse. FSFI mean score increased significantly (P<.001). Few minor temporary AEs reported.	The multimodal programme appears safe and effective, successfully treating the physical and psychologic aspects of vaginismus, demonstrating a high success rate and low recurrence.
ter Kuile *et al*.	70 couples	89% (31/35) Exposure participants reported sexual intercourse at 6 weeks vs. 0% WLC. Clinically relevant reductions in vaginismus symptoms, coital pain, coital fear, and sexual distress. No effect on overall sexual function.	Therapist-aided exposure therapy is efficacious for women with lifelong vaginismus, providing a rapid and substantial treatment response. Focusing explicitly on exposure enhanced effectiveness dramatically compared to CBT.
Pacik	31 patients	90.3% (28/31) achieved pain-free intercourse. Median time to intercourse: 3.5 weeks. FSFI median score increased significantly. No adverse events or recurrence noted within 1 year follow-up.	The multimodal programme appears safe and effective for treating both physical and psychologic aspects of vaginismus.
Al-Sughayir	36 women	Hypnotherapy resulted in a significantly greater reduction in wife's sex-related anxiety and greater satisfaction for both spouses than behavior therapy.	Hypnotherapy can achieve rapid emotional cognitive and attitudinal positive constructs that rapidly reflect on sexual behavior.

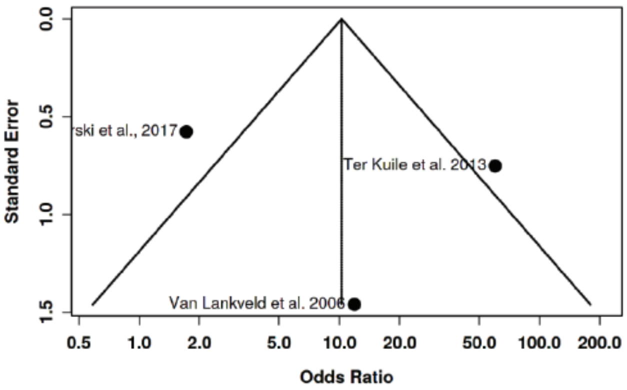

Figure 3. Funnel plot depicting the publication bias.

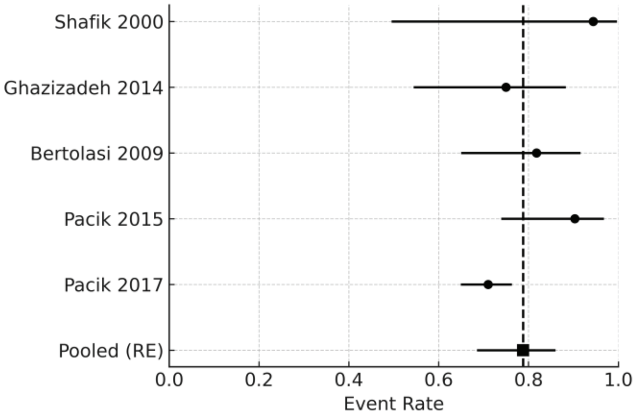

Figure 4. Forest Plot showing the effects of BoNT-A on the ability to have painless and satisfactory intercourse. Pooled Event Rate (RE): 0.788 and 95% CI: 0.685 – 0.864 Funnel plot depicting the publication bias.

The funnel plot (Figure 3) shows no visual evidence of publication bias and Egger's test does not indicate significant asymmetry (intercept 2.84; 95% CI: 8.99-14.67; t=0.47; p=0.72). However, because the dataset includes fewer than 10 studies, the diagnostic power of funnel-plot-based tests is inherently limited.

The above forest plot demonstrates a consistent, relatively high-magnitude treatment effect for BoNT-A-based interventions in vaginismus. Event rates across studies range from 0.71 to 0.94, with all confidence intervals positioned to the right of the null, confirming a uniformly positive therapeutic signal. Shafik (2000) reports the highest success rate (0.94) with wider uncertainty due to small sample size, whereas Ghazizadeh (2014), Bertolasi (2009) and Pacik (2015) show tightly clustered estimates in the 0.75-0.90 range, reflecting stronger internal precision. Pacik (2017) demonstrates a slightly lower rate (0.71) but stands within the positive-effect spectrum.

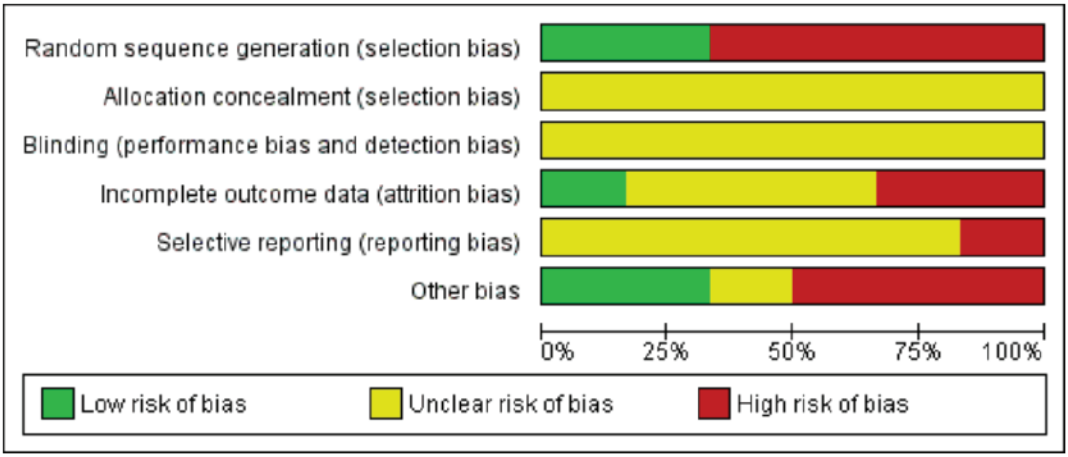

Figure 5. Methodological quality graph: review authors' judgements about each methodological quality item presented as percentages across all included studies.

The pooled random-effects estimate of 0.788 (95% CI=0.685–0.864) confirms a statistically significant and clinically meaningful improvement in pain-free penetration following BoNT-A. Overall, the findings indicate a pooled success rate of 79%, with minimum contradictory effects, supporting BoNT-A as a therapeutic option (Figure 4).

Some studies used different diagnostic criteria, which do not define the condition in the same way. Changes in diagnosis may affect patient inclusion, symptom severity and treatment response, contributing to high heterogeneity in pooled results.

Risk of Bias

Overall risk of bias exceeded the 50% threshold, with consistent vulnerabilities across sequence generation, allocation concealment, blinding, incomplete outcome data, and other sources of bias (Figure 5). Given the clinical realities of vaginismus, including its chronic trajectory, prior treatment failures and the impracticality of masking behavioural or procedural interventions, such methodological constraints are largely intrinsic to conducting RCTs. Authors believe that this bias exists as an inherent component of vaginismus clinical scenarios.

Discussion

Summary of Key Studies

Across 12 studies, penetrative-success outcomes varied by therapeutic intensity, with exposure-based and desensitization protocols delivering the highest performance (90-98% success) [24], while CBT-based RCTs demonstrated more modest effects (14% vs 0% in controls). Multimodal programs integrating BoNT-A, dilation and counselling achieved strong returns (71% in severe cases) [31], though controlled comparisons show physiotherapy/ CBT/ BoNT-A, out-performing BoNT-A monotherapy (93% vs 67%) [34]. Early small trials reported high BoNT-A response rates, including 75-100% in refractory cohorts, but evidence remains heterogeneous. BoNT-A also reported favorable outcomes for vaginismus secondary to vestibulodynia and pelvic floor spasm, with significant reductions in resting pelvic floor pressure.

Secondary endpoints showed improvements across psychological and physiological domains. CBT and exposure therapy enhanced noncoital penetration behavior, sexual desire, arousal and satisfaction, with durability up to 12 months. Exposure therapy also reduced vaginismus severity, coital pain, fear and sexual distress [8].

Pharmacological interventions produced measurable physiological gains, such as significant reductions in pelvic floor tone and improvements in Lamont grade, VAS pain, FSFI scores and pelvic symptoms; while multimodal BT cohorts demonstrated meaningful FSFI improvements (16 to 25; P<0.001) [31]. Physiotherapy outperformed BoNT-A in global sexual-function domains [34] and hypnotherapy showed superior reductions in sexual anxiety and enhanced couple satisfaction compared with behavior therapy [27].

Although both modalities; BoNT-A and CBT/ psychotherapy are established interventions for vaginismus, each offers differentiated clinical utility [11]. Psychotherapy aims to treat fear, avoidance and maladaptive sexual cognitions [8–11], while BoNT-A delivers rapid neuromuscular down-regulation that is particularly impactful in severe or refractory cases [15–17]. Optimising treatment requires stratified, patient-centred decision-making anchored to severity, chronicity and comorbidity.

Overall, the evidence demonstrates broad multidimensional benefit across modalities, with highest performance (>90%) achieved through integrated care pathways rather than single-modality interventions [18,33].

As vaginismus varies in severity, treatment outcomes are likely to depend on baseline grade. However, baseline severity was inconsistently reported across included studies. This lack of standardised reporting is an important limitation and differences in reported success rates between interventions may reflect variation in baseline severity rather than true treatment effects.

Moreover, non-randomized and uncontrolled cohort studies were included to better align the systematic review with the clinical context, however, causal inference remains anchored in RCT evidence.

Sri Lankan and South-Asian Applicability

In some countries with conservative cultures, women may seek help only after many years of unconsummated marriage due to stigma and poor sexual-health knowledge [35]. In Sri Lanka, limited access to trained psychosexual therapists, less established counselling services and existing misdiagnoses leads to suboptimal treatments [36]. Although psychotherapy works, it is not widely available or easy to access in the local setting.

Importantly, there is very little Sri Lanka-specific evidence, and current practice mostly relies on findings from other countries. This limits confidence in the local applicability of these approaches and underscores the need for context-specific research conducted in Sri Lanka.

Strengths and Limitations

This review is underpinned by a consistent evidence framework, incorporating randomized controlled trials, a multi-database search strategy, prespecified outcomes and standardized analytic frameworks including Cochrane methods, RoB 2 and GRADE.

Non-randomised and uncontrolled studies provide useful real-world information but carry a higher risk of bias and cannot prove causal relationship. In addition, there is limited evidence from low- and middle-income countries, especially in Sri Lanka, which restricts how widely the findings can be applied.

GRADE Summary of Findings

Psychotherapy (CBT, exposure-based interventions, hypnotherapy) demonstrates moderate-certainty evidence with large, durable gains in penetration success and sexual functioning. BoNT-A delivers similarly large effect sizes, but overall certainty remains low- moderate given limited RCT data and protocol variability. Safety signals for BoNT-A are favorable, supported by moderate-certainty evidence with consistently low adverse-event rates. Psychotherapy remains the first-line treatment, while multimodal BoNT-A programmes represent a high-value second-line option, particularly for severe, refractory cases (Table 03).

Table 3. GRADE recommendations for Psychotherapy and BoNT-A in treating vaginismus

Outcome	Intervention	Effect	Certainty
Penetration success	Psychotherapy	Large benefit (OR 8.67)	Moderate
Fear of intercourse	Psychotherapy	Moderate benefit	Moderate
Sexual function (FSFI)	Psychotherapy	Small–moderate benefit	Low–Moderate
Penetration success	BoNT-A	Moderate benefit. No superiority to physiotherapy.	Low–Moderate
Adverse events	BoNT-A	Rare, mild	Moderate

Conclusion

Psychotherapeutic interventions and BoNT-A are both used in treatment of vaginismus where psychotherapy remains the first-line approach and BoNT-A offering additional benefit in selected severe or refractory cases.

Based on current evidence, it is recommended that clinicians adopt a multi-model and multidisciplinary approach when treating vaginismus. Optimising treatment requires stratified, patient-centred decision-making anchored to severity, chronicity and comorbidity. Regular follow-up and individualized care plans should be emphasized to address both ongoing physical and psychological components.

Future research is encouraged to prioritize large, multicentered RCTs with standardized diagnostic criteria and harmonized outcome frameworks, particularly in LMIC contexts where disease burden is high.

Author Contribution

Randomabge PJS. Herath R and Akurugodagama MS contributed equally to this work.

R. P.: Conceptualization, methodology, project administration, supervision, writing original draft, writing review and editing.

H. R.: Methodology, project administration, supervision, writing review and editing.

A. M. S.: Data curation, investigation, writing original draft, writing review and editing.

Credit Taxonomy

R. P.: Conceptualization-lead, data curation-equal, investigation-equal, methodology-equal, project administration-lead, resources-equal, software-equal, supervision-lead, visualization-equal, writing original draft-lead, writing review and editing-lead.

Use of Artificial Intelligence Assisted Technologies

While preparing this work, the authors used OpenAI ChatGPT (version 5.2) solely to improve language clarity and readability. All data extraction, interpretation and analyses were performed entirely by the authors, who take full responsibility for the content and the final publication.

Data Availability Statement

All data analysed in this systematic review and meta-analysis are derived from published studies and are available in the public domain. The datasets generated and analysed during the current study, including extracted data and analytic code, are available from the corresponding author on reasonable request.

External Funding

Authors declare that no external funding received.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

Ethical Approval

This study was conducted utilising secondary data and existing literature, with no involvement of human or animal subjects. As such, ethical approval is not deemed necessary.

Acknowledgment

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The efficacy and safety of plant-based interventions in improving mental health outcomes among women during menopause – A systematic review

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Review Article

Abstract

Introduction: Menopause is often accompanied by psychological disturbances such as Anxiety, Depression and Stress, which can adversely affect a woman's quality of life. Plant based interventions are increasingly explored as alternatives to hormonal therapies due to their perceived safety and accessibility.

Objective: This study aims to examine the potential therapeutic benefits and safety of herbal interventions for menopause associated psychological symptoms such as Depression, Anxiety, Stress and Overall Quality of Life.

Methods: A systematic search was conducted in PubMed, Web of Science and Google Scholar for studies published between 2020 and 2025 using the keywords Menopause, Depression, Anxiety and Plant Medicine. PRISMA guidelines were followed. Of 1380 records screened, 25 studies met the inclusion criteria. All included studies were human clinical studies, with no in vivo (animal) or in vitro studies identified. Exclusion criteria included Insufficient Data, Irrelevance and Lack of Full Text Access.

Results: Eighteen plant-based interventions were identified, including *Crocus sativus* (Saffron), *Rosa damascena* (Damask Rose), *Vitex agnus-castus* (Chaste tree), *Salivia officinalis* (Sage), *Lavandula angustifolia* (Lavender), *Matricaria chamomilla* (Chamomile), *Panax ginseng* (Ginseng), *Melissa officinalis* (Lemon Balm), *Nigella sativa* (Black seed) and several polyherbal formulations. The human clinical evidence demonstrated reduction in Depression, Anxiety and Stress with improvements in quality of life. *Crocus sativus* (Saffron) demonstrated the most consistent improvements in both Anxiety and Depression with favorable safety profiles. Conversely, *Elaegnus angustifolia* (Russian olive) and *Rheum ribes* (Rhubarb) showed no significant psychological benefits. Additional promising effects were reported for *Cimicifuga racemosa* (Black Cohosh), *Trigonella foenum-graecum* (Fenugreek), *Humulus lupulus* (Hops), *Valeriana officinalis* (Valerian), *Passiflora species* (Passion Flower) and *Glycine max* (Soy isoflavines) which improved mood and Anxiety symptoms with minimal adverse effects.

Conclusion: Evidence from human clinical studies suggests that several plant-based therapies may alleviate menopause related psychological symptoms, particularly Anxiety and Depression. However, interpretation of the findings is hindered by modest sample sizes and variability in methodological heterogeneity. More rigorous clinical trials are required to confirm efficacy, establish standardized dosages and ensure safe clinical use.

Key Words: Menopause, Anxiety, Depression, Plant Medicine, Mental Health

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Introduction

Menopause represents a significant and unavoidable psychological transition in women's lives [1], most commonly occurring between 45 and 55 years of age. It is characterized by the decline in ovarian function and the gradual or sudden reduction in estrogen production, leading to hormonal imbalance within the hypothalamic-pituitary-ovarian axis. This transition results in irregular menstrual cycles, ultimately culminating in the permanent cessation of menstruation [1]. The interplay between reduced levels of estradiol and compensatory increases in Follicle Stimulating Hormone (FSH) and Luteinizing Hormone (LH) underlies the physiological and psychological changes experienced during this phase [2]. The symptomatic burden of menopause can be substantial, with over 80% of women experiencing symptoms for 1 year, 50% reporting persistence for 4-5 years, and approximately 10% enduring them for more than 15 years [3].

The spectrum of menopausal symptoms encompasses vasomotor disturbances, sleep disruptions, mood fluctuations, anxiety, depressive episodes, cognitive impairment, and sexual dysfunction. Among these, mental health concerns such as anxiety and depression are particularly significant, as they can profoundly impair quality of life, interpersonal relationships, occupational performance, and long-term physical health. Depressive symptoms in post-menopausal women often involve difficulties in social engagement, loss of pleasure in daily activities, disrupted sleep patterns, altered appetite, fatigue and extreme situations, thoughts of self-harm [4]. Furthermore, mood disorders during this stage have been linked to sexual dysfunction [5], while the hormonal changes of menopause particularly Estrogen deficiency, is recognized as the major contributor to Osteoporosis and reduced bone mineral density [6]. Thus, the diagnosis and effective management of mental health challenges in menopausal women remain a pressing priority for healthcare systems worldwide [7].

Conventional management strategies, particularly Hormone Replacement Therapy (HRT) [1], have been widely utilized to mitigate menopausal symptoms by compensating for declining estrogen levels. HRT has demonstrated substantial efficacy in reducing vasomotor symptoms, improving sleep quality, alleviating genitourinary syndrome of menopause and preserving bone mineral density. Several large scale observational studies and reanalysis have suggested that, when initiated in early menopause and prescribed at appropriate doses, HRT may confer a favorable benefit-risk profile, including potential reductions in all-cause mortality and cardiovascular risk in selected populations. Moreover, estrogen therapy has been shown to exert beneficial effects on mood and overall wellbeing in some postmenopausal women. However, concerns regarding the long term safety of HRT persist, particularly following reports linking its use to increased risk of breast cancer, cardiovascular disease, thromboembolism and other adverse effects on hormone dependent cancers in certain subgroups [1]. Subsequent studies have challenged the generalizability of these findings, emphasizing the importance of factors such as age at initiation, duration of therapy, formulation and route of administration. This evolving and sometimes contradictory body of evidence highlights the need for individualized risk-benefit assessment and underscores that HRT may not be suitable or acceptable for all women, especially those with contraindications or personal preferences against its use. This has fueled a global search for safer, evidence-based alternatives capable of addressing both the physical and psychological dimensions of menopause [1].

Plant-based interventions, particularly herbal medicines and phytoestrogen-rich formulations, have gained increasing attention as promising alternatives. Phytoestrogens such as flavonoids, isoflavonoids, stilbenes, lignins [5] and phytosterols share a structural resemblance to endogenous estrogens, allowing them to interact with estrogen receptors and produce effects similar to Selective Estrogen Receptor Modulators (SERMs) [5]. Historically, ancient civilizations across Iran, China, India, Greece, Rome, and Egypt recognized the therapeutic properties of botanicals derived from roots, seeds, flowers, leaves, and barks in restoring balance to the mind and body [2]. Modern research continues to explore these traditional remedies, with the World Health Organization (WHO) formally acknowledging the role of complementary and herbal medicine in alleviating menopausal symptoms [5].

Given the high prevalence of mental health concerns among postmenopausal women and the limitations of conventional therapies, evaluating the role of plant-based interventions in improving psychological well-being is of critical importance. This systematic review therefore aims to synthesize current evidence on the efficacy and safety of plant-derived therapies in managing mental health outcomes, including Depression, Anxiety, Stress, and overall Quality of Life, during the menopausal transition.

This study aims to systematically review and synthesize existing evidence on the effectiveness and the role of plant-based interventions in improving mental health outcomes among women during menopause.

The specific objectives are to identify plant-based interventions including herbal medicines, phytoestrogens and dietary supplements that have been investigated for their role in managing mental health during menopause and to examine the effectiveness of specific interventions in improving mental health outcomes, including Depressive symptoms, Anxiety and Mood Disturbances in women undergoing menopause.

Methods

A systematic review was conducted in accordance with the PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis) guidelines. Randomized Controlled Trials (RCTs), Clinical Trials, Review Articles, Case Study and Observational Studies that assess the role of herbal medicine interventions in mental health during menopause were included in the review.

The studies with insufficient data and Lack of full text access, Irrelevance, Animal studies, Editorials, Commentaries and non-English publications were excluded. The selected studies described a variety of interventions such as herbal medicine-based interventions including whole plant or plant part extracts, standardized herbal preparations and phytoestrogen containing formulations administered in any form. (Oral, Topical, Fumigation)

Selection Process

A rigorous study selection and screening process was performed in line with PRISMA 2020 standards. All identified records were searched in hand for duplicates and removed prior to screening. Two reviewers independently assessed all titles and abstracts to determine which studies were relevant to the research focus.

Full text articles were further scrutinized against pre-defined eligibility criteria, which included RCT's, Clinical Trials, Review Articles, Case studies and Observational Studies that assessed the role of herbal medicine based interventions in mental health during menopause. Studies were excluded if they involved duplication, insufficient data and lack of full text availability, irrelevance to the study objectives, non-human/pre-clinical research, animal models, editorials and commentaries.

During both screening stages discrepancies between reviewers were resolved through consensus or by consulting a third reviewer. The total number of studies included is illustrated in a PRISMA flow diagram (Figure 1), showing records identified, screened, excluded and incorporated into the qualitative analysis.

Outcomes:

Primary – Mental health concerns such as Depression, Anxiety, Mood disturbances are measured using validated subjective self-report and clinician administered instruments including, Menopause Rating Scale (MRS) questionnaires, Beck Depression Inventory (BDI), Greene Climacteric Scale (GCS), Positive and Negative Affect Schedule (PANAS), Short Form Survey (SF-36), State-Trait Anxiety Inventory (STAI), Edinburgh Postnatal Depression Scale (EPDS) assessment tool, Depression, Anxiety, Stress Scale-21 (DASS-21), Hamilton Depression Rating Scale (HDRS), Blatt-Kupperman Index, Treatment Satisfaction Questionnaire (MS-TSQ) and other structured questionnaires.

Where applicable clinician-rated assessment tools such as HDRS and Blatt-Kupperman Index were considered as objective or semi-objective measures, as they are administered and scored by trained professionals using standardized criteria.

Secondary – Quality of life and functional well-being assessed using validated instruments such as Cervantes Scale, Menopause Specific Quality of Life Questionnaire (MENQOL), Utian Quality of Life Scores, Female Sexual Function Index (FSFI) and menopause symptom severity assessed by structured Likert-based scales. Reported adverse events and safety outcomes related to herbal interventions were also extracted and analyzed.

Nature of outcome assessment giving a psychological focus on the review, the majority of included studies relied on validated subjective and clinician-assessed outcome measures, which are widely accepted and recommended for evaluating mental health outcomes in menopausal populations. No laboratory-based biomarkers or neuroimaging outcomes were consistently reported across studies.

Language and timeframe: Studies published in English 2020-2025.

For dichotomous outcomes (presence or absence of clinically significant symptoms, treatment response rates), Risk Ratio (RR) with 95% CI was planned for use. If adequate data were unavailable for pooled statistical synthesis, a narrative synthesis approach was applied and results were presented in descriptive form.

3. Information Sources

A thorough literature search was performed using PubMed/MEDLINE, Web of Science and Google Scholar.

4. Search Criteria

A structured search strategy was developed using free text terms related to "menopause", "plant medicine", and "anxiety", "depression "with Boolean operators (AND, OR). Also, the same terms put into each database and hand searching manually the references of publications were performed.

5. Data Extraction

A standardized data extraction method was employed to systematically collect relevant information from each included study. Extracted data comprised study characteristics (author, year of publication, country, and study design), participant characteristics (sample size, age, and menopausal stage), and intervention details (type of herbal formulation, dosage, duration, and mode of administration). Additionally, data were gathered on assessed mental health outcomes and the measurement tools used, along with the main findings and any reported adverse effects.

6. Data Quality Assurance

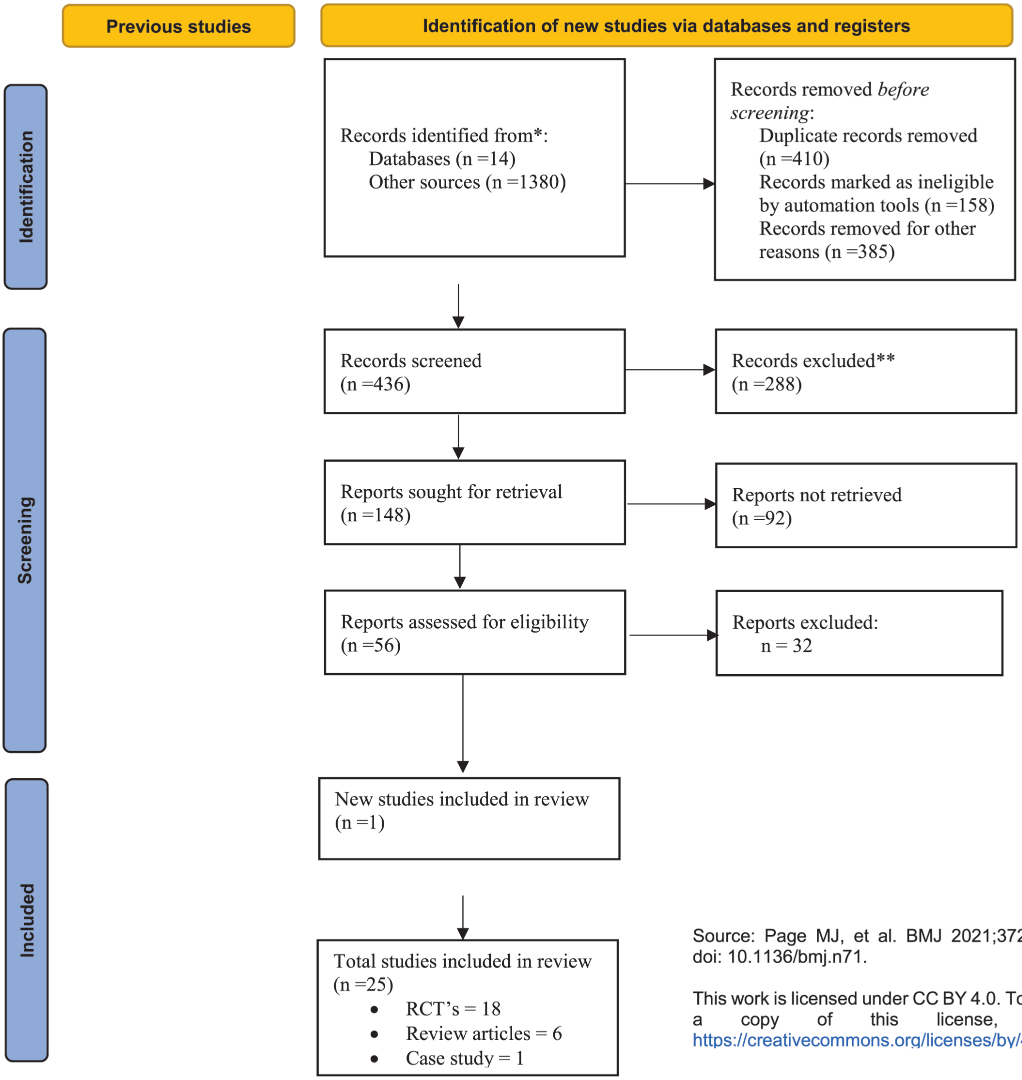
To ensure data accuracy and reliability, several quality assurance measures were implemented. All data extractors received prior training to maintain consistency in the extraction process. A double data entry approach was used and entries were cross verified to identify and correct discrepancies. Data cleaning procedures including checks for missing values, duplicates and inconsistencies were conducted before analysis. Validation rules were applied within the database to prevent entry errors and ensure logical consistency. Inter-rater reliability checks were performed to confirm agreement between reviewers. Additionally, extract data were crossed checked with the original source to ensure correctness and completeness.

7. Ethical Considerations

Ethical approval was not required because the study utilized only data already available in published sources.

8. Risk of Bias Assessment

Risk of bias for randomized controlled trials (RCTs) was evaluated using the Cochrane Collaboration Risk of Bias 2 (RoB 2) tool across four domains: (1) the randomization process; (2) deviations from intended interventions; (3) measurement of outcomes; and (4) selection of the reported results. Each domain was independently assessed by two reviewers and rated as "Low Risk," "Some Concerns," or "High Risk," with disagreements resolved through discussion. Non-randomized evidence (e.g., case series) and review articles were appraised separately using appropriate methodological considerations. Risk-of-bias judgments were based on the information available in the included study reports and corresponding trial publications.



Source: Page MJ, et al. BMJ 2021;372:n71. doi: 10.1136/bmj.n71.

Figure 1. The PRISMA flow diagram represents the study selection process as per PRISMA 2020 guidelines.

Results

A total of 25 studies were included in this systematic review after the screening and eligibility process. Among them, 18 were RCT's, 6 were review articles, and one was a case study. The predominance of RCTs provides a relatively strong evidence base, although the presence of review articles and a single case study highlight the diversity of available literature.

Risk of Bias Assessment

Of the 18 RCT's included, the majority were randomized and placebo-controlled and used validated psychometric instruments to measure mental health outcomes, which reduced measurement bias. However, reporting of key trial methods (sequence generation, allocation concealment, blinding procedures, and attrition details) was inconsistent across studies; therefore most RCTs were judged to have 'Some Concerns' overall. One trial using an open 'no-intervention' control was judged at 'High' risk due to likely performance and detection bias.

In conclusion, the risk of bias for the RCT's included in this review was systematically assessed using the Cochrane RoB 2 tool, with two independent reviewers evaluating each domain and resolving discrepancies through consensus. The majority of RCT's were rated as having "Some Concerns", mainly because of incomplete details regarding randomization and blinding, whereas several trails were considered "Low Risk" overall and one study was classified as "High Risk" due to deviations from intended interventions and insufficient blinding.

For the six review articles and the single case study included, formal RoB 2 assessment was not applicable. Instead, these sources were narratively appraised based on clarity of methodology, transparency in evidence synthesis, and relevance to the review question. Although these studies contributed valuable contextual information, they were considered lower in methodological rigor compared with the RCTs. Together, these evaluations ensured a transparent and comprehensive assessment of study quality and helped contextualize the strength of the evidence synthesized in this review.

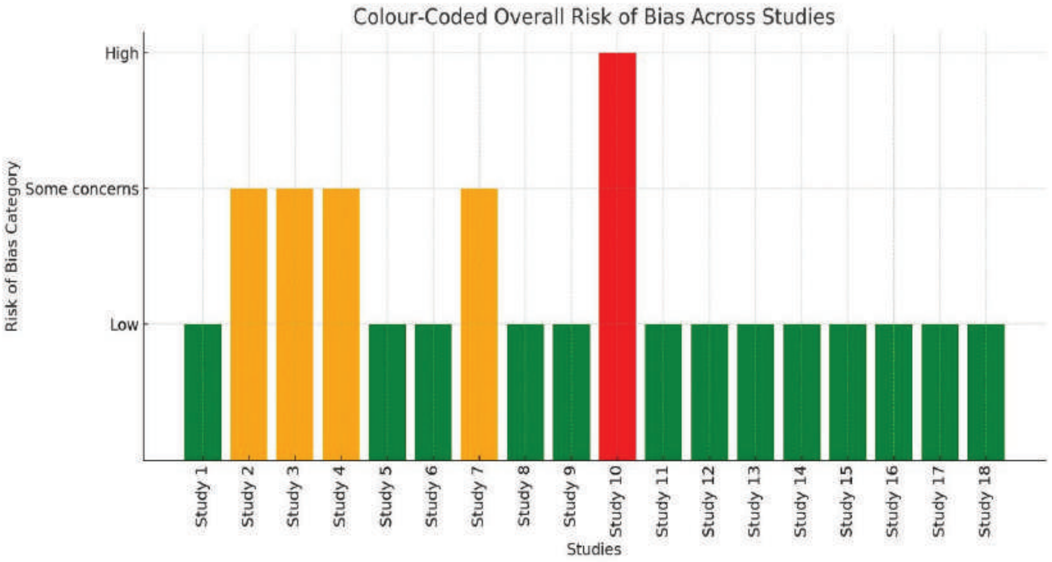


Figure 2. Risk of Bias Assessment Summary (Cochrane RoB 2.0).

Table 1. The overall summary of the RCT's

Serial No.	Study (Author, Year)	Brief Methodology (Type of intervention, Duration, No. of Participants, Measurement Tools)	Key Findings
1.	Emamminia F, Arezou R, Badehnoosh B, Ramezani R, Shabani M. (2020, Jan)	14mg of standardized *Crocus sativus* (Saffron) extract derived from stigmas administered twice daily for 12 weeks. 86 GCS, PANAS, SF-36	33% reduction in Anxiety 32% reduction in Depression CI 95% GCS (p=0.032) PANAS (p=0.043) No major adverse effects.
2.	Gudise VS, Dasari MP, Kuricheti SS (2024 April)	250mg of *Asparagus racemosa* (Asparagus) aqueous root extract administered twice daily for 8 weeks. 70 Utian Quality of Life Scores, DASS-21, Menopausal Symptoms by five-point Likert Scale, Serum Estradiol and Progesterone, MS-TSQ.	Anxiety, Depression, Quality of Life improved CI 95% P<0.0001 No reported adverse effects.
3.	Bagheriani N, Bahrami M, Kamalinejad M, Rampisheh Z, Kashanian M, Akhtari E. (2023)	15g of *Elaeagnus angustifolia* whole fruit (dried and powdered) administered twice daily 10 weeks. 58 Serum Estradiol, Progesterone, FSH and LH hormones	No significant effect on improving mental health during menopause CI 95% P>0.05 No Reported Adverse Effects
4.	Kamalifard M, Farshbaf Khalili A, Namadian M, Herizchi S, Ranjbar Y. (2017 July)	500mg of the root of *Rheum ribes* (Rhubarb) dried, powdered and encapsulated administered twice daily for 8 weeks. 90 Blatt- Kupperman Index.	No significant effect on improving mental health during menopause. CI 95% P<0.0001 No Reported Adverse Effects
5.	Gholinezhad Z, Karimi FZ, Rakhshandeh H, Mazloum SR. (2025 Aug)	500mg of *Rosa damascena* (Damask rose) aqueous extract administered twice daily for 8 weeks. 82 DASS-21	Depression, Anxiety, Stress improved. CI 95% P>0.05 No Reported Adverse Effects
6.	Sharifpour Z, Hasanpoor S, Mirghafourvand M. (2025 June)	Leaves of *Ocimum basillicum* grinded into a fine powder and soaked in 70% of hydroalchoholic solution for 3-5 days to obtain the leaf extract. After removing solvent and filtering a powder is made. (500mg) administered twice daily for 4 weeks. 60 MRS, Personal Characteristics Questionnaire	Depression, Quality of life improved. CI 95% P<0.05 No Reported Adverse Effects
7.	López-Ríos L, Barber MA, Wiebe J, Machín RP, Vega-Morales T, Chirino R. (2021 July)	Combination of isoflavine extract (100mg), *Aframomum melegueta* seed dry extract (50mg), *Punica granatum* dry skin (100mg) administered twice daily for 8 weeks. 57 Cervantes Scale	Quality of life improved. CI Not Reported P=0.05 No Adverse Effects Reported.

8.	Kamalifard M, Farshbaf Khalili A, Namadian M, Herizchi S, Ranjbar Y. (2017 July)	500mg of dried and powdered Lavender flower and 500mg of dried and powdered Bitter orange skin administered twice daily for 8 weeks. 156 Beck Depression Inventory	Depression improved. CI 95% $P<0.001$ Nausea (4.2%), Palpitations (4.2%), Headache (2.1%) Caused by bitter orange, Nausea (8.2%), Palpitations (4.4%), Headache (4.4%) Caused by Lavender flower.
9.	Sharifpour Z, Hasanpoor S, Mirghafourvand M. (2025 June)	250mg of dried and powdered Ginseng capsules twice daily for 8 weeks. 66 FSFI, GCS, BDI	Depression improved. CI 95% $P<0.001$ No Adverse Effects Reported
10.	Bazrafshan MR, Masmouei B, Soufi O, Delam H. (2022 July)	2g of dried Lavender leaves and 2g of dried Chamomile leaves boiled in 300ml of water for 10-15min. twice daily for 2 weeks. 96 BDI, STAI, Demographic Characteristic Checklist	Depression and Anxiety improved. CI 95% $P<0.001$ No Adverse Effects Reported
11.	Tayebi N, Emamghoreishi M, Akbarzadeh M. (2021)	3.2-4.8mg of dried fruit extract of *Vitex agnus-castus* powder as capsules thrice daily for 3 months. 60 EPDS	Depression improved CI Not Reported $P<0.05$ No Adverse Effects Reported.
12.	Jokar M, Delam H, Bakhtiari S, Paki S, Askari A, Bazrafshan MR, Shokrpour N. (2020)	2% Lavender essential oil per night for 20min. to inhale for 4 weeks. 46 BDI, STAI	Depression and Anxiety improved. CI Not Reported $P=0.001$ No Adverse Effects Reported
13.	Tayebi N, Emamghoreishi M, Akbarzadeh M. (2025 April)	250mg of *Salvia officinalis* extract thrice daily for 8 weeks. 60 EPDS, Demographic Characteristic Questionnaire, MRS	Depression improved. CI 95% $P<0.001$ No Major Adverse Effects
14.	Mahdavian M., Mirzaii Najmabadi K. Hosseinzadeh H., Mirzaeian S, Badiee Aval S, Esmaeeli H. (2019 Sept.)	Herbal aqueous extract of Fennel (120ml), Chamomile (1000mg), Saffron (60mg) orally daily for 12 weeks. 108 MRS	Depression and Anxiety improved. CI Not Reported $P<0.001$ No Adverse Effects Reported.
15.	Kenda M, Kočevar Glavač N, Nagy M, Sollner Dolenc M; (2021 Dec)	500mg of *Melissa officinalis* L. aqueous extract capsules once daily for 8 weeks. 60 MENQOL	Quality of life improved. CI 95% $P<0.001$ No Adverse Effects Reported.
16.	Sharifpour Z, Hasanpoor S, Mirghafourvand M. (2025 June)	30mg of dried stigmas of Saffron boiled on 300ml water for 10-15min. as herbal tea daily for 6 weeks. 72 Oxford Happiness questionnaire	Depression improved. CI 95% $P=0.053$ No Adverse Effects Reported.

17.	Li J, Li H, Yan P, (2020 July)	1000mg of Nigella sativa oil capsule at night after meals daily for 8 weeks. 72 Demographic Characteristic Questionnaire, GCS	Anxiety, Depression improved. CI 95% P=0.019 Vaginal bleeding, Stomachache, Enlargement of breasts, Increased libido as adverse effects.
18.	Karalis S, Karalis T, Malakoudi F, Thanasas I, Kleisiari AS, Tzeli Z, Papavasiliou E, Karalis DT (2023 April)	Combination of *Hypericum perforatum* (500mg) and *Vitex agnus-castus*(500mg) powder once daily for 16 weeks. 93 GCS, Hamilton Depression Inventory Scores, Utian Quality of Life Scale	Depression improved. CI 95% P<0.001 No Adverse Effects Reported.

The included studies examined a wide range of plant-based interventions such as phytoestrogens, herbal extracts, dietary supplements, herbal capsules, herbal combinations, herbal teas, essential oils and traditional medicinal plants for their potential impact on mental health outcomes during menopause. The most frequently studied outcomes were Mood Disturbances, Anxiety, Depressive symptoms and overall Quality of Life.

Overall, the findings indicate that plant-based interventions may provide beneficial effects in alleviating menopausal mental health symptoms, particularly in reducing anxiety and depressive manifestations. However, the extent of efficacy varied depending on the type of plant intervention, dosage, control group, no. of participants, key findings, adverse effects, duration of administration and methodological quality of the studies. Some RCTs reported significant improvements compared to placebo, while others demonstrated only modest or non-significant effects, suggesting heterogeneity across interventions.

1. Study Characteristics

The included RCT's evaluated a range of plant-based interventions for mental health outcomes among menopausal women. The duration of interventions varied from 2 weeks to 16 weeks, with participant numbers ranging from 46 to 156. Control groups were most often given placebo (capsules, powders, or liquids), while one study used tablet "Citalopram" as an active comparator. The primary outcomes assessed included Depression, Anxiety, Stress, and Quality of Life, measured using standardized psychometric scales.

2. Interventions with Positive Mental Health Outcomes

Several interventions demonstrated statistically significant improvements in mental health outcomes: Saffron extract (12 weeks, n=86) showed a 33% reduction in Anxiety and 32% reduction in Depression, with no major adverse effects. Rosa damascena extract (8 weeks, n=82) significantly improved Depression, Anxiety, and stress scores. Ocimum basilicum leaf extract (1 month, n=60) led to improvements in Depression and Quality of Life. Vitex agnus-castus capsules (3 months, n=60) reduced Depressive symptoms, measured by EPDS. Salvia officinalis extract (8 weeks, n=60) improved Depression, with no significant adverse effects. Lavender essence (inhalation) (1 month, n=46) and lavender–chamomile herbal tea (2 weeks, n=96) improved both Depression and Anxiety.

Polyherbal formulations such as, Fennel Chamomile-Saffron extract (12 weeks, n=108) improved Depression and Anxiety. *Hypericum perforatum* + *Vitex agnus-castus* (16 weeks, n=93) improved Depression. *Isoflavone* + *Aframomum melegueta* + *Punica granatum* (8 weeks, n=57) improved Quality of Life.

Ginseng powder (8 weeks, n=66) and *Melissa officinalis* extract (8 weeks, n=60, compared with tablet "citalopram") were associated with improved Quality of Life and reduced Depressive symptoms. *Nigella sativa* oil capsules (8 weeks, n=72) demonstrated improvement in Anxiety and Depression but were associated with hormonal and gastrointestinal side effects. Saffron tea (stigmas) (6 weeks, n=72) improved Depression scores.

3. Interventions with No Significant Effect

Not all interventions were found to be effective, *Elaeagnus angustifolia* whole fruit (10 weeks, n=58) did not improve Depression, Anxiety, or overall mental health outcomes. Encapsulated *Rheum ribes* (Rhubarb) powder (8 weeks, n=90) also failed to show significant benefits for mental health symptoms.

4. Measurement Tools

Across the trials, a variety of validated measurement tools were used, including: Depression/Anxiety: Beck Depression Inventory (BDI), Depression Anxiety Stress Scale-21 (DASS-21), Edinburg Postnatal Depression Scale (EPDS), Positive and Negative Affect Schedule (PANAS), State-Trait Anxiety Inventory (STAI), Treatment Satisfaction Questionnaire (MS-TSQ), Demographic Characteristic Questionnaire Female Sexual Function Index(FSFI), Hamilton Depression Inventory Scores. Quality of Life: Utian Quality of Life Scale, MENQOL, Cervantes Scale, SF-36. Menopausal Symptoms: Greene Climacteric Scale (GCS), Blatt-Kupperman Index, Oxford Happiness Questionnaire, Five-point Likert Scale, Personal Characteristics Questionnaire. The heterogeneity of tools limits direct comparability but confirms consistent improvements across multiple validated scales for certain herbal interventions.

5. Safety and Adverse Effects

Most interventions were well tolerated, with no major adverse effects reported. However, some adverse effects were noted: Lavender and Bitter orange combination: mild side effects such as nausea (4–8%), palpitations (4%), and headache (2–4%). Nigella sativa oil: reported vaginal bleeding, stomachache, breast enlargement, and increased libido. For the majority of other interventions (*Saffron, Rosa damascena, Vitex, Salvia, Melissa officinalis*), no significant adverse effects were reported.

6. Synthesis of Findings

Overall, the evidence suggests that Saffron, *Rosa damascena, Vitex agnus-castus, Ocimum basilicum, Salvia officinalis,* Lavender (oral and inhalation), Chamomile, and certain polyherbal formulations are effective in reducing Depression, Anxiety, and stress in menopausal women. Several other herbs (e.g., *Ginseng, Melissa officinalis, Shatavari*) showed more pronounced effects on Quality of Life rather than specific Mental Health symptoms. Conversely, *Elaeagnus angustifolia* and *Rheum ribes* did not demonstrate significant benefits.

Although these results suggest that herbal medicine may help manage psychological symptoms in menopause, differences in study design, sample size, duration and outcome measures reduce comparability. Larger, longer-term, and methodologically rigorous RCTs are required to strengthen the evidence base and establish standardized clinical recommendations.

The review articles contained details on following plant based interventions during menopause.

1. **Black Cohosh (*Actaea racemosa L. / Cimicifuga racemosa L.*)**

   Black Cohosh, a perennial plant native to eastern North America and a member of Ranunculaceae family [10] has a rhizome used for medicinal purposes. Previous studies report that treatment with an isopropanol extract of Black Cohosh significantly reduces psychological symptoms associated with menopause [10]. Higher doses appear more effective, particularly when combined with St'John's Wort (*Hypericum perforatum*). Reported side effects are minimal and non-hepatotoxic [10].

2. **Fenugreek (*Trigonella foenum*)**

   Fenugreek, a member of the Fabaceae family, is cultivated across the Mediterranean, Northern Africa and the Indian Subcontinent and is used as a herb, spice or in traditional medicine. A recent Randomized, double blind, placebo controlled trial in perimenopausal women reported that 500mg of Fenugreek extract daily for 42 days led to over a 30% reduction in depressive symptoms [10]. While Fenugreek is generally considered safe, individuals taking Anti-Diabetic medications should monitor blood glucose levels closely [10].

3. **Hops (*Humulus lupulis L.*)**

   Hops, native to Central Europe [10], were evaluated in a trial in which participants received 500mg daily in tablet form. Compared with placebo, this intervention led to a statistically significant reduction in menopausal symptoms, including Depression and Anxiety [10]. Depression scores decreased significantly in the Hops groups in week 4, 8, and 12 relative to placebo, with no reported side effects [10].

4. **Valerian (*Valeriana officinalis L.*)**

   Naturally grown in Europe, Western Asia and was introduced to North America [10]. A double blind clinical trial was performed on 48 women aged 45-62 years, who were randomly divided into two groups [10], 29 in the Valerian group and 19 in the placebo group [10], intervention group was treated with 350mg of capsules of Valerian every 12 hrsf for 2 months [10]. Measuring tools such as Demographic Characteristic Scale, Hamilton Anxiety Scale, and BDI were used [10]. The results showed that the Anxiety and Depression scale after the intervention significantly reduced [10]. Also, scientists have studied about the efficacy of Valerian Root indicating the significant reduction in Anxiety and Depression scales after the usage of Valerian root [11].

5. **Lemon balm (*Melissa officinalis*)**

   In a clinical trial carried out with menopausal women, the efficacy of the balm of non-monomeric lemons are used to treat Anxiety [11].

6. **Flower of Passion (*Passiflora incarnata*)**

   The studies have showed the effect of the flower of Passion as tea has given significant reduction in Anxiety Scores in menopause [11].

The consecutive case series study shows the role of phytoestrogen in menopausal women with depressive symptoms. This was a six months follow up which was conducted in a private consultant Endocrinologist's clinic in Trikala, Greece. The phytoestrogen tablets contained 54.4.mg of Soy isoflavines and was administrated to 108 eligible women aged from 45 and above experiencing Depressive symptoms. The BDI was measured at 3 points (t=0, t=3months, t=6months). The results showed a gradual decrease in Depressive symptoms among menopausal women over time.

Discussion

This systematic review highlights the growing body of evidence supporting the role of plant-based interventions in improving mental health outcomes during menopause. A diverse range of herbal preparations including Saffron, *Rosa damascena, Vitex agnus-castus, Ocimum basilicum, Salvia officinalis,* Lavender (oral or inhaled), Chamomile, Ginseng, *Melissa officinalis, Nigella sativa,* and several poly-herbal formulations were found to significantly reduce Depression, Anxiety, and Stress or to improve Quality of Life. Among these, saffron extract demonstrated some of the most consistent and marked improvements in both Anxiety and Depression, with favorable safety outcomes.

Conversely, some interventions such as *Elaeagnus angustifolia* and *Rheum ribes* showed no significant benefits, suggesting that not all botanicals confer psychological relief in menopausal women. Additional promising findings were reported for Black Cohosh, Fenugreek, Hops, Valerian, Passion flower, and Soy isoflavones, which demonstrated improvements in Mood and Anxiety symptoms, often with minimal or no side effects. These complementary findings, although based on a limited number of studies, expand the spectrum of potentially effective plant-derived therapies for menopause-related psychological symptoms.

Proposed Biological and Psychobiological Mechanisms of Herbal Interventions

The beneficial effects of plant-based interventions on menopause related psychological symptoms observed in this review maybe attributed to several biological, psychobiological and endocrinal mechanisms reported in the primary clinical studies.

Several herbs including *Crocus sativus* (Saffron), *Lavandula angustifolia* (Lavender), *Melissa officinalis* (Lemon Balm), *Matricaria chamomilla* (Chamomile), *Passiflora species* (passionflower) and *Valeriana officinalis* (Valerian) have been reported to exert neurotransmitter-modulating effects, particularly through enhancement of Serotonergic and Gamma-Aminobuyric acid (GABAergic) pathways. These mechanisms are closely associated with reduction in Anxiety, Depressive symptoms and Stress and are consistent with their observed clinical benefits in menopausal women.

Phytoestrogen containing plants such as *Vitex agnus-castus, Glycine max* (Soy Isolflavines), *Trigonella foenum-graecum* (Fenugreek), *Humulus lupulus* (Hops) and *Cimicifuga racemosa* (Black Cohosh) are believed to influence estrogen receptor activity or modulate Hypothalamic-Pituitary-Ovarian axis signaling. Such as endocrinal effects may contribute indirectly to improvements in mood, emotional stability and quality of life during estrogen deficient states such as menopause.

Other botanicals including *Rosa damascena, Ocimum basillicum, Nigella sativa* and *Panax ginseng* have demonstrated anti-inflammatory, antioxidant and adaptogenic properties which may reduce neuro-inflammation, oxidative stress and dysregulation of the Hypothalamic-Pituitary-Adrenal (HPA) axis. These psychobiological effects have been linked to improvements in stress resilience, fatigue and emotional well-being.

In contrast, herbs such as *Elaeagnus angustifolia* and *Rheum ribes* which did not show significant psychological benefits in clinical outcomes, may lack sufficient central nervous system activity or endocrinal modulation relevant to mood regulation as suggested by the limited mechanistic evidence available in the included studies.

Overall, while these mechanisms provide biological plausibility for the observed clinical effects, the majority of evidence is derived from secondary mechanistic explanations reported within clinical trials rather than direct biomarker assessments. Further studies incorporating hormonal, neurochemical and inflammatory biomarkers are warranted to confirm these proposed pathways.

The safety profile of most interventions was generally favorable, with mild and reversible side effects reported in a small number of studies. However, isolated cases such as those involving *Nigella sativa* oil and bitter orange-lavender combinations underscore the importance of safety monitoring and careful patient selection.

Taken together, the findings suggest that plant-based therapies represent a valuable complementary approach for managing psychological symptoms during menopause, particularly for women seeking alternatives to conventional pharmacological treatments such as hormone replacement therapy or antidepressants. Nevertheless, the review also highlights key limitations: heterogeneity in trial design, small sample sizes, short intervention durations, and variability in outcome measurement tools. These factors restrict the comparability of findings and limit the ability to draw firm clinical recommendations.

Future studies should prioritize large scale, long duration, rigorously designed RCT's employing standardized doses, validated outcome measures and comprehensive safety monitoring and also studies should integrate objective biological markers, including hormonal profiles, inflammatory mediators and neurotransmitter related biomarkers to better elucidate the mechanism pathways underlying the psychological benefits of herbal interventions during menopause. Such studies will be essential to establish the efficacy, safety, and clinical applicability of specific herbal interventions.

Conclusion

In conclusion, while evidence indicates that certain plant-based interventions, particularly saffron, *Vitex agnus-castus, Rosa damascena,* lavender, and polyherbal formulations hold promise for alleviating menopausal Depression, Anxiety, and Stress, further confirmatory trials are required. These findings reinforce the potential role of integrative and plant-based medicine in improving the Quality of Life and mental well-being of menopausal women.

Ethical Approval

Ethical approval was not required because the study utilized only data already available in published sources.

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Conflicts of interest

The authors declare no conflicts of interest.

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Data Availability Statement

This study is based exclusively on data obtained from previously published literature. All data analyzed are included in the published articles cited in the references. No original datasets were generated for this study.

Disclaimer

The views and conclusions expressed in this article are solely those of the authors and do not necessarily reflect the official policies or positions of their affiliated institutions.

Statement on the Use of Artificial Intelligence

During the preparation of this work, the authors utilized AI tools such as ChatGPT, version 5 to assist with language editing. The authors reviewed and edited the content as necessary and take full responsibility for the content of the publication.

Author Contribution Statement

All authors contributed equally to this work.

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Sexuality Education at Risk: Implications of the Proposed Swedish School Reform

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Commentary

Abstract

Sexual and reproductive health (SRH) is a central component of Sweden's public health objectives and its international commitments under Agenda 2030. Since 1955, sexuality education has been compulsory in Swedish schools to promote SRH, and is today embedded within the school's overarching goals and mission through a cross-curriculum approach. In 2025, the Swedish government proposed a new curriculum reform that would remove sexuality education from these goals and discontinuing the principal's coordinating responsibility. This commentary analyzes the reform from a public health perspective, with particular attention to its implications on young people's access to SRH. The analysis indicates that sexuality education contributes to improved SRH outcomes, a safer and more inclusive school climate, and more favorable conditions for learning. Conversely, the reform risks weakening structural coherence and coordinated implementation, thereby reintroducing disparities in teaching quality between schools. Such a development would undermine equal access to high-quality sexuality education and its associated SRH benefits. Repositioning sexuality education may also weaken Sweden's international credibility as an SRH advocate and hinder global efforts to achieve objectives outlined in Agenda 2030. To safeguard young people's access to SRH and enable schools to continue fulfilling this essential role, this commentary suggests that any revision of the Swedish curriculum should prioritize strengthened coordination, clarify the allocation of responsibilities, and align with international guidance on sexuality education.

Key Words: Sexual and Reproductive Health, Comprehensive Sexuality Education (CSE), Curriculum Reform, Swedish School System, Health Equity

ReproSex
Your Voice, Your Rights
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Introduction

Sexual and reproductive health (SRH) is defined as a state of complete physical, mental, and social well-being in relation to sexuality and reproduction. It also implies the ability to engage in safe and satisfying sexual relationships, while exercising autonomy over reproductive decisions [1]. In Sweden, the promotion of SRH through sexuality education has long been recognized as a prerequisite for young people's healthy development [2]. Admittedly, according to the Swedish Association for Sexuality Education (RFSU), sexuality education has on several occasions encountered resistance, particularly from religious actors criticizing its approach to sexuality and the inclusion of topics such as condom use and homosexuality [3]. Nevertheless, others have argued that schools have a responsibility to provide sexuality education that meets students' needs. For instance, it has been suggested that when schools fail to provide such education, young people tend to rely on peers or mass media as primary sources of knowledge, the latter of which are alleged to provide information shaped by commercial interests rather than by young people's needs for reliable guidance [2]. At the same time, recurring calls to improve sexuality education have emerged over the years, often driven by concerns about the quality of teaching in relation to societal challenges linked to sexuality [4]. As a result, the curriculum has been revised several times to strengthen teaching [5].

In September 2025, the Swedish government announced a proposal of a new school reform, set to take effect in the autumn semester of 2026. Presented as the most extensive school reform in more than three decades, the reform includes proposals for a new grading system, a reformed teacher education programme, and a new curriculum. According to the government, the initiative aims to ensure a school of high quality and address growing concerns related to bullying, insecurity, and declining reading proficiency [6]. However, the proposed curriculum has been strongly criticized by RFSU, describing it as the worst attack on sexuality education in modern times. RFSU also argues that the reform risks undermining decades of progress and failing to meet young people's needs, thereby endangering their health and leaving them more vulnerable to sexual violence and abuse [7].

Good and equal SRH forms part of the Swedish national public health objectives [8] and is also embedded in several Sustainable Development Goals (SDGs) under the United Nations' Agenda 2030, including Good Health and Well-being (SDG 3), Quality Education (SDG 4), and Gender Equality (SDG 5) [9]. The importance of such efforts is further underscored by the Convention on the Rights of the Child, ratified by Sweden in 1990 and incorporated into national law in 2020 [10], and which emphasizes children's right to access information and education that support their health and well-being [11]. Examining the proposed curriculum is therefore essential to ensure that changes do not inadvertently undermine these objectives and commitments and compromise young people's access to SRH. Despite strong reactions [7], however, this has not yet been fully reviewed. This commentary aims to address this gap by analyzing the proposal from a public health perspective, drawing on government investigations, national school inspection reports, peer-reviewed research, and international guidance on sexuality education.

The commentary first situates sexuality education within the Swedish educational context and briefly outlines the proposed curriculum reform. It then analyzes the proposed curriculum's implications for equal access to high-quality sexuality education as a determinant of SRH, both within and beyond Sweden's national context. Finally, it provides recommendations for reform efforts that could help ensure young people's access to SRH while enabling schools to continue fulfilling this essential role.

Sexuality Education in Sweden Today

Sexuality education has been part of the Swedish school system for over a century [5]. In 1955, Sweden became the first country in the world to introduce compulsory sexuality education for all students. Today, Sweden is described as one of the countries working most extensively with sexuality education [12] and has established a strong international role in advocating for SRH. For example, Sweden is actively engaged within the United Nations systems, including programs that promote sexuality education [13]. Sweden has also contributed financially to the development of the International technical guidance on sexuality education (Guidance), which provides evidence-based recommendations for the design and implementation of comprehensive sexuality education programmes aimed at supporting the objectives of Agenda 2030 [14]. Since sexuality education became compulsory, considerable differences in teaching quality have been observed both within and between schools. To address these disparities, the National Agency for Education recommended clearer objectives and a more integrated cross-curriculum approach. These recommendations were implemented in 2011 through the introduction of a new curriculum [4,5]. As part of this reform, sexuality education was integrated into the school's over-arching goals and mission and incorporated into a broader range of courses than previously, ensuring that all students encounter sexuality education issues repeatedly and from multiple perspectives throughout their schooling. This reform also assigned principals responsibility for ensuring cohesion and coordination, while designated subjects contribute to sexuality education from their respective areas of expertise. The content has also expanded from a primary focus on reproduction, sexually transmitted infections, and contraceptives to include broader themes such as sexuality, consent, and relationships. In addition, teaching is expected to follow a norm-conscious approach, ensuring that the language and content is relevant and inclusive for all students, regardless of gender identity or sexual orientation. Moreover, in 2022, the designation of sexuality education was changed from “Sex and Cohabitation” to “Sexuality, Consent and Relationships” to better emphasize communication, mutuality, and consent, while also providing students with a broader understanding of sexuality and relationships [4,5].

The Proposed Curriculum Reform

The proposed curriculum reform is informed by a government inquiry that has examined shortcomings in the structure and implementation of the 2011 curriculum. In its report, the inquiry argues that the curriculum contains extensive repetitions of objectives and content across subjects and sections, resulting in overlapping responsibilities and lack of clarity in implementation which makes it difficult for teachers to assume clear responsibility. The inquiry further claims that the integration of sexuality, consent, and relationships, alongside other themes, has reinforced these repetitions and thereby contributed to an overload of the school's mandate. On this basis, it connects sexuality education to the declining reading proficiency and recommends removing it from the school's overarching goals and mission. Instead, it contends that the curriculum should more clearly define the school's academic focus, explained as teaching students to read, write, and count. It also expresses skepticism toward the cross-curriculum organization and advocates a return to the pre-2011 structure. Additionally, it proposes that responsibility for coherence and coordination should no longer rest with principals, leaving each teacher individually responsible for implementation in their own course [15].

Why Sexuality Education Matters

The inquiry might be right, perhaps the integration of sexuality education into the school's overarching goals and mission has contributed to an overload of the school's mandate. If so, this could help explain why inspections report that Swedish schools still struggle to provide sexuality education that is coherent, well-coordinated, and continuous, as well as why several key themes, such as honour-related violence and oppression, are insufficiently addressed and rarely revisited. It has also been reported that the teaching is often perceived as superficial. For example, students have stated that consent is emphasized as an important principle, but without being given concrete or practical meanings [16].

However, in contrast to the governmental inquiry's reasoning, researchers have highlighted that health and learning are closely interconnected, emphasizing that healthier students generally achieve better academic outcomes than less healthier students. Conversely, they argue that health-related problems may limit motivation and learning capacity, resulting in poorer academic performance [17]. This perspective aligns with documented challenges within Swedish schools, where aspects of the school climate have been reported to negatively affect students' safety, mental health, and learning outcomes. For example, sexual offences and physical sexual violations occur to a significant extent, alongside derogatory language, jokes, and jargon linked to sexism and homophobia. Bullying and degrading treatments are also common causes of school absence, thereby limiting students' opportunities to complete their schooling successfully [16,18]. At the same time, research indicates that sexuality education can contribute to reduced homophobic attitudes, lower levels of bullying and harassment, and increased safety in the school environment [19]. Yet, despite this, schools' effort to integrate these issues into sexuality education are often reported as limited and insufficient [16].

Beyond its potential to improve the school climate, research also demonstrates that sexuality education is associated with a broad range of positive SRH outcomes among young people. For instance, it has been associated with increased knowledge of consent and sexual rights, fewer unintended pregnancies, and a lower prevalence of sexually transmitted infections. It has also been linked to more equal and healthy relationships, reduced use of alcohol and drugs in sexual contexts, and reductions in sexual violence and harassment [19].

Potential Implications of the Curriculum Reform

Ensuring that all students can benefit from the positive outcomes associated with sexuality education requires equal access to high-quality teaching [17,19]. Variation in the quality of sexuality education between schools was, in fact, a central reason why it was originally integrated into the school's overarching goals and mission [4,5]. By altering this governance structure, the proposal therefore risks reintroducing these disparities, thereby weakening the conditions for equal access. In addition, evidence from Sweden indicates that teaching quality tends to be higher when principals have clear responsibility for coordination and organizational conditions [5,16], suggesting that removing these responsibilities from principals could undermine the quality of teaching even further. Within this context, it is also important to note that the absence of a comprehensive approach has previously been shown to leave students with insufficient knowledge, limiting their ability to recognise or respond to unsafe or sexually violent situations [16]. As students already perceive the teaching as superficial [16], this development clearly fails to meet their needs. Consequently, this may lead them to seek information from alternative sources, increasing the risk of exposure to inaccurate or non-evidence-based information [2].

If implemented, the proposed curriculum reform may also have implications beyond Sweden's national context. As Sweden has historically positioned itself as a strong international advocate for SRH [13,14], it functions as a key actor in shaping international norms and standards in this field. Repositioning sexuality education away from the school's overarching goals and mission may therefore raise questions regarding the coherence between Sweden's international commitments and its national educational governance. If this appears to diverge from the principles Sweden promotes internationally, it could create a perception that its rights-based rhetoric is not fully reflected in practice, potentially weakening its credibility as a global advocate for SRH.

At the same time, sexuality education is not yet universally accepted or implemented worldwide [20]. Although approximately 85 percent of countries report having policies supporting sexuality education, significant gaps remain between these commitments and what is actually reflected in national curricula. Furthermore, 71 percent of young people aged 15–24 actively seek sexuality education and related information online [21], indicating both a substantial demand for such knowledge and shortcomings in education systems. If other countries were to interpret Sweden's reform as a signal that the structural prioritization of sexuality education is negotiable, this could risk slowing global progress toward strengthening equal access to SRH as well as the achievement of the objectives outlined in Agenda 2030 [9].

A More Appropriate Curriculum Reform

That said, this commentary does not argue that the curriculum should be immune to revision. The documented shortcomings in sexuality education clearly indicate a need for improvement. Also, if the challenges within the school environment are not adequately addressed, they can over time, contribute to increased risk of mental ill health, unemployment, substance abuse, and other risk behaviors [16]. However, weakening the structural position of sexuality education and discontinuing the principal's coordinating responsibility is unlikely to be the most appropriate response, as such changes risk jeopardizing young people's equal access to high-quality sexuality education [4,5,16] and, consequently, the positive outcomes associated with it [17,19]. In addition, these changes could undermine national and international objectives and commitments [8,9,10]. Instead, a more appropriate reform would be to focus on strengthening structural cohesion and clarifying the allocation of responsibilities, thereby addressing the documented challenges related to lack of coherence and superficial implementation [16] and helping to safeguard the positive outcomes associated with effective sexuality education [17,19].

Moreover, in order to fulfill the commitments under Agenda 2030 and ensure that Sweden follow the principles it promotes internationally, any revisions to the curriculum should be guided by the Guidance. The Guidance emphasizes that sexuality education should be delivered through structured curriculum-based programmes with clearly defined health objectives grounded in research. It further stresses that curriculum development should draw on multidisciplinary expertise in areas such as human sexuality, pedagogy, public health, and human rights, and, where such expertise is limited, involve consultation with specialists in child and adolescent development [14]. Reviews likewise highlight that political decision-makers need to understand the significance of sexuality education, and that clear national guidelines are crucial for ensuring quality and equal implementation [20].

Limitations

This commentary is based on secondary sources and presents an interpretative and exploratory analysis and do not provide original empirical research. In addition, the analysis focuses on the Swedish educational context, which may limit the generalizability to other educational systems or policy environments. Since the proposed curriculum has not yet been implemented, this commentary only discusses expected rather than observed implications. Empirical research will be needed to evaluate its actual effects.

Conclusion

This commentary analyzes the proposed curriculum reform from a public health perspective, focusing on young people's access to SRH. The analysis shows that sexuality education promotes improved SRH outcomes, healthier and more inclusive school climate, and more favorable conditions for learning. The proposed curriculum reform, however, risks reintroducing disparities in access to high-quality sexuality education, thereby weakening the conditions for young people to benefit equally from the positive SRH outcomes associated with it. It may also weaken Sweden's role as an international advocate for SRH and hinder global efforts to ensure equal access worldwide. To safeguard young people's access to SRH, this commentary suggests that any revisions of the Swedish curriculum should prioritize strengthening structural cohesion and clarifying the allocation of responsibilities, while remaining fully aligned with international guidance on sexuality education. By doing so, reform efforts can support, rather than compromise, equal access to high-quality sexuality education, while also enabling schools to continue fulfilling this essential role. This, in turn, would reinforce Sweden's credibility as a global advocate for SRH and contribute to the achievement of the objectives outlined in Agenda 2030.

*Comprehensive sexuality education in Sweden has had different designations over time. For the sake of simplicity, sexuality education has been used as the designation in this text.

Data Availability Statement

This commentary does not report new research data. All information discussed is derived from publicly available sources, previously published literature, or the author's own perspectives and analysis. Relevant references have been cited within the manuscript.

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Ethical Approval

Ethical approval was not needed for this commentary, as it does not involve human participants, identifiable personal data, or experimental interventions. The manuscript is based on literature, publicly available information, and the author's analysis and commentary.

Statement on the Use of Artificial Intelligence

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Disclaimer

The views expressed in this article are those of the author and do not necessarily reflect the views of the author's affiliated institution.

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My Voice, My Choice: A Unique European Citizen's Initiative to Make Safe Abortion Accessible for All Women within the European Union

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Commentary

Abstract

Over 20 million women in the European Union (EU) still face restricted autonomy over their reproductive choices. While some EU countries have liberalised abortion policies in the last decade, disparities remain: Malta and Poland prohibit abortion on request, and other countries impose legal, financial or procedural barriers. The regression of abortion rights in Poland catalysed the feminist movement *My Voice, My Choice*. This commentary examines how the European Citizens' Initiative (ECI) *My Voice, My Choice* represents a unique step towards improving reproductive rights in the EU and explores its potential implications for women's health, autonomy and cross-border solidarity. It also situates the initiative within broader issues of gender inequality and public health and contributes to ongoing debates on legal access to safe abortion. Using a human rights-based perspective, this commentary discusses the implications of the ECI for women's health, autonomy and reproductive rights in the EU. The initiative proposes an EU-fund to provide women in restrictive countries access to legal abortion services in Member States where abortion is permitted. Potential benefits include improved health outcomes, enhanced autonomy and strengthened European solidarity. Challenges involve resource allocation in providing countries, limitations in addressing socio-economic disparities and the risk of reducing pressure on restrictive countries to reform domestic abortion laws. *My Voice, My Choice* is an example of citizen-driven advocacy that could expand safe abortion access across the EU while protecting women's rights and health. By promoting voluntarism and solidarity among Member States, a potential legislation could position the EU as a global leader in reproductive rights. The movement highlights that choice is the core of reproductive autonomy.

Key Words: Abortion policy, European Union, Women's reproductive rights, Women's health, Access to healthcare

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Your Voice, Your Rights
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Introduction

Autonomy over their own bodies and the right to decide for themselves when or if to start a family still remains an unfulfilled right for over 20 million women in the European Union (EU) [1].

During the last decade, many EU countries have seen progress in the context of abortion policies and laws, among others France, which firmly embedded the right to abortion in their constitution. In addition, Northern Ireland has experienced the most drastic change during the last decade: being completely criminalised before, the access to abortion was legalised in 2020 up until week 12, as well as after the gestational limit under specific reasons. Yet, abortion laws in the EU differ massively in their legal grounds.

While abortion on request during early pregnancy is permitted in 25 of the 27 Member States, access in practice is often limited by gestational limits, the availability of health care professionals and facilities, and legal restrictions. Women are still facing criminal penalties in 11 Member States if they seek abortion services outside the scope of law whilst eight EU nations impose mandatory waiting periods and nine require mandatory counselling. In contrast, Malta and Poland are the only EU countries that prohibit abortion on request, whereas Malta allows abortion only when the woman's life is at risk [2]. Poland implemented a near-total ban of abortion in 2020 and removed the legal ground for abortion access in cases of severe and irreversible fetal defects or diseases [3]. This change was driven by the Law and Justice Party, a socially conservative party closely aligned with Catholic values [3,4]. With that, Poland is one of four countries worldwide that experienced a regression in abortion laws by eliminating a legal ground for abortion during the last 30 years [2]. This regression caused protests and demonstrations not only in Poland, but in various European countries, which later resulted as a catalysator for the Feminist movement *My Voice, My Choice* .

This commentary examines why the European Citizen's Initiative (ECI) *My Voice, My Choice* marks a unique step towards more liberal reproductive rights for women in Europe and also discusses its further implications. The text is based on a review of existing literature, including policy documents, EU legal texts and reports from international organisations, and applies a human rights and public health perspective to assess the potential implications of the ECI for women's autonomy and health.

The Movement

My Voice, My Choice is an EU citizens' movement that originally started in spring 2024 to promote women's rights, their autonomy and solidarity across Europe [1]. The main goal of the movement is to provide legal access to abortion for all women in the EU by submitting the proposal of an EU financial mechanism. This mechanism aims to facilitate access to legal abortion on request in the EU, so that women from Member States with restrictive abortion laws or abortion bans can terminate their pregnancy in Member States with legal abortion laws, while the abortion costs will be covered by an EU fund. The movement collected over one million signatures and submitted an ECI to the European Commission [5]. Most recently, on December 17th 2025, the European Parliament voted in favour of a non-binding resolution and backed the initiative. Now, there is an increased political pressure on the European Commission, which has time until March 2026 to respond and decide whether to propose legislation or other policy measures [6]. On 26 February 2026, the European Commission adopted its formal communication in response to the ECI. Rather than proposing a new dedicated funding instrument, the Commission clarified that existing EU funds (notably the European Social Fund Plus (ESF+)) may be mobilised by Member States, on a voluntary basis and in accordance with national law, to support cross-border access to safe abortion [13]. While this response represents an important acknowledgement of the initiative's objectives, it falls short of a dedicated funding mechanism, leaving the financial commitment to Member States and their allocation of existing ESF+ resources.

The United Nations (UN) highlights that state-imposed barriers should not drive women to seek unsafe abortion when terminating an unwanted pregnancy. [7]. *My Voice, My Choice* directly targets these barriers: an implementation of the proposal could provide free access to abortion in the EU, regardless of the woman's country of origin. This cross-border cooperation aims to be based on voluntarism: Member States which choose to participate will receive EU financial support intended to cover abortion service costs to women seeking abortion from other countries. The legal basis for this approach lies in Article 168 of the Treaty on the Functioning of the European Union, which grants the EU competence to support, coordinate or supplement national health policies, but not to synchronise national health systems or laws [5]. The uniqueness of the ECI *My Voice, My Choice* is that it does not seek direct harmonisation of national abortion laws. Instead, it proposes a voluntary financial mechanism to facilitate access to safe abortion across borders within the framework of existing Member States competences. The proposal therefore provides a practical solution for women in restrictive countries without waiting for domestic legal reforms [5].

Besides addressing the initiative's implications, the commentary discusses how a potential legislation created by the European Commission could affect the health and life of millions of women, as well as possible unintended consequences. It further examines legal, public health and human rights perspectives, and highlights important considerations for policy-making in understanding the potential impact and challenges of cross-border reproductive health initiatives.

Importance for Women's Health

Abortions will continue to occur, and no law or restrictive policy can eliminate them entirely. However, if a country prohibits abortion or restricts access, women are forced to seek unsafe abortions which can lead to preventable maternal deaths [8]. Worldwide, 8% of all maternal deaths are due to unsafe abortions, and 45% of all abortions are unsafe because of restrictive legislation and stigma. These figures only reflect the known statistics on abortion, as stigma and underreporting mean that not all abortions and related deaths are captured in official statistics. The significantly higher risk of death to which women are exposed in unsafe abortions has been clearly highlighted by the World Health Organization (WHO): the risk of dying during an unsafe abortion is more than 200 times higher than dying when an abortion is conducted in a safe manner [8]. The organisation classifies comprehensive abortion care as an essential health care service, not only because unsafe abortion itself is highly threatening women's lives, but because the physical health risks that are associated with unsafe abortion are preventable as well. These include, among others, heavy bleeding, uterine perforation, damage to the genital tract and internal organs, not to mention the psychological consequences [8]. This indicates that access to safe abortion is not only a medical issue, but also a public health concern. Access to safe abortions protects women's lives and well-being and thereby reduces health costs for society as a whole. In developing countries, this could lead up to an estimated US$553 million saved per year [8]. The *My Voice, My Choice* movement sets a remarkable step towards a EU where no woman should be exposed to these life threats and health risks. Although abortions may be illegal in some EU countries, women will then still have the option to seek safe abortion, free of charge, in another EU country.

Importance for Women's Autonomy and Rights

Women face structural disadvantages and discrimination in society, while the severity differs from country to country. The Executive Director of UN Women, Sima Bahous, states that women's reproductive and economic choices are shaped by inequalities, since "women and girls bear the brunt of a turbulent, often unjust world" [9]. Nonetheless, the right to equality, privacy, as well as psychological and physical integrity, is a fundamental human right and implies that all people, including women, have the right to decide autonomously over their bodies [7].

Especially concerning the right to health, which is firmly anchored in the WHO Constitution, women face discrimination not only in medical research and treatment, but also in availability and accessibility of reproductive health services which include contraception, abortion and sexual education [7]. The UN elaborates further how health equality contains the accessibility of reproductive health care without discrimination, the availability of high-qualitative contraception and the legal option of emergency contraception or termination of pregnancy [7]. Data from WHO supports this claim: countries show lower rates in abortion when contraception is widely accessible [7]. Despite this, 225 million women worldwide do not have access to modern contraception, and while access may be formally available, the actual use of contraception can be limited due to lack of education and/or information, inadequate health systems or religious beliefs [7,10]. As a consequence, these persistent barriers contribute to unintended pregnancies, unsafe abortions and a continuous undermining of women's autonomy.

Besides arguments concerning women's rights, access to safe abortions enhances women's ability to decide whether childbearing fits into their life circumstances. Research shows how access to legal abortion has a positive impact on women's education, thereby improving the chance of employment, thus contributing to the country's workforce [8]. This can be applied to the born or unborn child as well: there is evidence that legal abortions and a reduction of unwanted pregnancies lead to children raised in more protected and safer circumstances, both financially and mentally [8]. If implemented, a new EU fund based on the *My Voice, My Choice* proposal will allow all women within the EU to claim their equal right of health and autonomy, setting out a remarkable step forward in women's rights worldwide.

Potential Benefits and Challenges for Providing Countries

Although participation is voluntary, providing countries can set an example for reproductive rights across borders and strengthening European solidarity on women's health issues. With the initiative, the EU could act as a global leader in women's health, thereby signaling commitment to universal reproductive health care and setting a new milestone for women's rights. However, concerns can be raised regarding the allocation of health system resources in providing countries. Europe is already experiencing a shortage in health care professionals with a deficit of 1.2 million doctors and nurses in 2022 [11]. Since the participation of a providing country is voluntary, there is a risk of only a few countries taking part. Women seeking an abortion in the same providing countries could then place an additional strain on their health systems, a challenge EU funding cannot resolve alone. Therefore, the legislation is likely to increase demand for national health care services, placing additional pressure on an already strained workforce and potentially limiting the system's capacity to provide care to women from outside the country. Nonetheless, the potential benefits such as improved health outcomes and strengthened solidarity could provide a convincing incentive for participation, particularly if the EU fund will be used to support the health care workforce.

Implications for Women in Restrictive Settings

For women in restrictive EU countries, the greatest change involves access to abortion in another country without a financial burden and facing less stigma. Although unsafe abortions will still occur, EU legislation will lead to an increase of knowledge about access to safe abortions which could enhance the use of these services [8]. Despite this, a new EU fund does not replace the need for reforms of national abortion laws. A legislation enabling women to seek abortion in countries where it is legalised may reduce the pressure on restrictive countries to reform their abortion policies. Therefore, the social and political pressure on restrictive EU nations must be maintained, even if the European Commission decides for legislation.

Furthermore, *My Voice, My Choice* argues in their legal addendum [5], that abortion is a privilege of rich people in countries where access is restricted, which leads to women with a lower socioeconomic status to seek unsafe abortion. Although this argument is supported by the UN [7], the new fund may not solve these disparities either. While accessing abortion abroad may not require service fees, it is unclear who is responsible for covering the expenses associated with travel to a provider country, as well as post-abortion care. Research indicates that socio-economic factors and lack of support in and after pregnancy represent the most cited reasons for abortion [12] which suggests that women with lower socio-economic status already have a greater need for accessible abortion services. Building a scenario where a woman already has three children at home and does not face support from her family and her community, but experiences stigma, she is most likely not able to travel to another country, even if the costs for the abortion itself are covered. Although the fund offers increased access to abortion free of charge, it does not erase the existing disparities in countries with restrictive laws. In practice, it could risk excluding precisely those women who would benefit most, since access will continue to depend on resources such as the financing of mobility, time and social support [7]. A legislation should therefore ensure that the EU funding also covers travel costs and post-abortion care for women seeking abortion in the context of this cross-border cooperation.

Opponents of the movement argue that EU legislation should address the issues of social and financial support in childbearing and raising, instead of legalising or extending access to abortion. It is acknowledged, there is a need for better support and addressing financial barriers for women who decide to bear and raise a child as well. Nonetheless, this argument frames the problem within a wider societal context and highlights the structural inequalities that women experience. Not only inadequate support and financial barriers lead women to consider abortions, but also the underlying factors related to these: gender inequality in the workplace, unequal distribution of caregiving responsibilities, limited access to affordable childcare, together with broader social and economic barriers that systematically disadvantage women throughout their lives [9]. Women must have the right to choose because they face these structural barriers. In sum, it is of great importance that women have the right to decide about their own bodies, paired with support mechanisms at the EU level for women and their families.

Limitations

The commentary is based exclusively on existing literature, including policy documents, legal texts and reports from international organisations. Consequently, the analysis is interpretative and normative in nature. While the commentary aims to provide a comprehensive discussion of the *My Voice, My Choice* initiative and its implications, future research will be necessary to assess the real-world effects of any resulting EU legislation on access to abortion, health system capacity and health equity. Nevertheless, this commentary provides timely and policy-relevant insights into an unprecedented EU-level initiative and contributes to the ongoing debate on cross-border reproductive health governance and women's rights in Europe.

Conclusion

The ECI submitted a unique proposal that provides a direct protection of women concerning their health, rights and lives. It not only allows women in the EU to independently make decisions over their bodies, career pathway and family planning, but also reduces health risks due to unsafe abortions. Since it proposes solidarity on voluntarism, it respects national laws at the same time as it makes safe abortion accessible for women living in restrictive countries. A potential legislation will position the EU as an international leader in solidarity on reproductive rights and mark a significant step for women's rights and their bodily integrity worldwide. Although broader social and financial support for pregnant women is still essential, the core issue remains: choice. Women must have the right to decide whether to continue or terminate a pregnancy.

My Voice, My Choice proves that reproductive rights can be realised through citizens' action: Women's voices and their choices must be heard and protected.

Conflicts of Interest

The author declares no conflicts of interest. There are no financial, personal or professional relationships that could be perceived to influence the content of this work.

Ethical Approval

Ethical approval was not needed for this commentary, as it does not involve human participants, identifiable personal data or experimental interventions. The manuscript is based on literature, publicly available information, and the author's analysis and commentary.

Data Availability Statement

This commentary did not involve the generation or analysis of new data. All information and references used are publicly available and cited within the manuscript.

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Statement on the Use of Artificial Intelligence

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From Shame to Support: Rethinking Menopause Conversations in South Asia

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Commentary

Abstract

In South Asian societies, menopause is a natural biological transition that is often shrouded in silence and stigma. This lack of awareness and support leaves women to cope with symptoms such as emotional distress, hot flashes, insomnia, and mood swings. This commentary examines menopause and related issues across South Asia, where women experience early onset around age 47 years, compared with the global average of 51 years. This commentary draws on Bronfenbrenner's ecological model and intersectionality theory to explain why conversations about menstruation are taboo, and menopause is treated with even deeper secrecy. For personalized care, symptom monitoring, remote consultations, and culturally tailored digital menopause care initiatives have gained momentum in healthcare systems in developed countries; however, their potential adaptation in another context remains largely overlooked. Therefore, this commentary discusses how technology can bridge the existing socio-cultural barriers to empower women experiencing menopause and facilitate open conversations without shame and stigma. Grounded in an ecological framework, it advocates for integrating menopause-related concerns into existing healthcare systems, workplaces, and communities. In South Asian healthcare systems, the focus on women's reproductive health largely neglects menopausal care, a gap further compounded by limited provider training and the absence of supported workplace policies. To shift perspectives from silence to dignity, hormone replacement therapy (HRT) may play an important role in improving the mental well-being of mid-life women.

Key Words: Menopause, stigma, South Asia, AI healthcare, digital health, reproductive health

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Your Voice, Your Rights
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Introduction

The end of reproductive years of a woman is called "menopause," which is accompanied by various physical and emotional symptoms. During this significant transition, South Asian women face challenges enveloped in cultural taboos and silence. Reportedly, women from this region experience menopause earlier (46.7 to 47.16 years) compared with the global average, 51 years [1,2]. Despite this earlier onset of premenopausal symptoms, healthcare services addressing related conditions such as mental health issues, osteoporosis, and cardiovascular diseases are needed. [3] remained limited. This commentary addresses menopause across South Asian countries (Pakistan, Sri Lanka, India, Nepal, Bangladesh, Afghanistan, Bhutan, Maldives). However, within this region, Afghanistan faces major health gaps due to conflict, Bhutan has limited highland data, and the Maldives lacks island-specific research, highlighting the need for an inclusive framework addressing the SAARC context. These regional disparities highlight that menopause is not only a biological milestone but is also influenced by geographical location and unequal healthcare infrastructures across South Asia.

Theoretically, stigmas around menopause are shaped by multiple socio-ecological factors, including restrictive community norms, a neglected healthcare system, and discomfort with open conversation [4]. Cultural perspective of menopause as the "end of womanhood" can lead to emotional isolation and low self-esteem [5]. To address these cultural and healthcare service barriers, this commentary evaluates the need to reframe menopause through "holistic support", sociocultural sensitivity, and AI-assisted innovative healthcare solutions.

Stigma and Socio-Cultural Barriers

South Asian culture often takes a conservative approach towards conversation about female reproductive health, particularly menopause [6]. A study highlighted that the 3Ms (maternity, menstruation, and menopause) are interconnected stages in a woman's life that deeply influence emotional, physical, and social well-being, and are often stigmatized and silenced [7]. Even menstruation is often treated as a taboo subject in many communities, while menopause is even more stigmatized [7]. This cultural silence, combined with the lack of clear terminology in local languages to characterize menopausal symptoms, makes it difficult for many women to express their symptoms, further complicating communication and care [8]. Theoretically, Goffman's concept of stigma highlights why menopause may become a "discredited identity" associated with fears of ageing, and exclusion from social roles, often leading women to emotional exhaustion [9]. Additionally, for many South Asian women, employment can be a double-edged sword; the expectations of caregiving limit the ability to practice self-care during menopause [6], as women frequently balance workplace responsibilities, motherhood, and, in some cases, taking full responsibilities of managing a household and finances. Studies from Pakistan and India further indicate that menopausal symptoms are often framed as "suffering to be endured," which develops a culture that discourages women from seeking health services [6].

Healthcare System Gaps

Women's healthcare is primarily focused on fertility and maternal health issues, often giving limited attention to menopausal symptoms and related interventions

[2,10,11]. Why is this considered to be a cultural norm, and an absence of fragmented care services in the South Asian healthcare system? To answer this question, insights from various studies indicate that healthcare professionals usually lack adequate training in managing the biological and psychosocial factors of menopause [2,6,8]. Due to cultural misconceptions and provider hesitance in treating menopausal symptoms, treatment uptake remains low; for example, the prescribing rate of "hormone replacement therapy" among South Asian women is notably limited [8]. Incorporation of menopause care in primary care to minimize long-term morbidity is crucial. The gender-sensitive care GSC+ (which addresses women's specific socio-cultural needs) model and the biopsychosocial care model (which includes integration of psychological, social, and biological factors) require contextualization of provider education and the biopsychosocial care model, respectively, to enhance patient outcomes [12,13].

Workplace Impact and Policy Needs

In recent decades, South Asian women's workforce participation has accelerated; however, the gap remains critical in addressing menopause-related challenges in workplaces [6,10]. Menopausal symptoms impair women's productivity and well-being, yet support at the workplace and structured policies for menopause-related needs remain scarce [3,8]. The stigma associated with open dialogue limits the development of support mechanisms in workplaces. A change in organizational policies, guided by intersectionality theory [14], can foster a culturally-sensitive and gender driven workplace environment tailored to menopausal needs, including peer support, flexible hours, and health benefits [8].

AI and Digital Health Innovations: Western Models

Rapid integration of AI-driven systems shows promise in how digital health solutions can detect early symptom patterns in the premenopausal and menopausal phases. An exemplary case is the women's health clinic in the UK, which not only detects symptoms but also analyzes patterns to provide customized support and mentoring in reducing menopause related stigma [8-15]. Such initiatives help women to identify early symptoms by combining biomedical information (e.g., hormone levels, sleep patterns, occurrence of hot flashes, blood pressure, or any other conditions) with lived experiences of how symptoms affect daily life. This combined approach supports early risk identification and facilitates virtual consultations, which are particularly valuable in societies where menopausal stigma and shyness with open conversation limit help-seeking. In Australia, another digital initiative with special features to track menopausal symptoms offered customized behavioral interventions to enhance women's career retention and productivity at workplaces [16]. These AI-empowered initiatives maintain confidentiality, which helps gain women's trust in sharing their emotional and health concerns with healthcare professionals. They also help overcome traditional barriers related to communication, stigma, and access to menopause related services.

South Asian Digital Divide (Women 45+)

Women aged 45 and above experience one of the widest digital divides in the region, with only 21% owning smartphones, alongside limited digital literacy, and restricted autonomy in accessing online health services [17]. These limitations make it harder for women to access reliable menopause information or telehealth support, reinforcing silence around symptoms. Therefore, any AI-enabled model designed for the region must account for literacy gaps, shared device use, and gendered restrictions on technology access.

Adapting AI-Enabled Menopause Care for South Asia

South Asia faces unique challenges, including entrenched cultural norms, limited healthcare services and infrastructure, digital divide, and significant language diversity [6,17]. These barriers, such as the gender-specific digital divide among women aged 45+ with low or no internet connectivity, limited access to smart devices, and a lack of knowledge to use online-health services [11]. These challenges hinder women's accessibility to reliable menopause information and tele-health support, encouraging silence around menopausal experiences. However, AI offers potential opportunities in low-resource settings by enabling tailored, culturally sensitive telemedicine services and educational programmes that protect privacy and help reduce stigma [11]. Before large-scale implementation, AI-enabled solutions in the South Asian context must account for gendered restrictions on technology access and literacy gaps. Adherence to socio-ecological and intersectional frameworks ensures that interventions are context-specific to diverse communities and are tailored to the institutional needs [4-18]. Such platforms and digital communities offer unique spaces for peer support and lived experiences through fostering an open dialogue culture among women and reducing the stigma and shame associated with menopause [2]. Additionally, real-time data generated through such platforms can inform culturally appropriate healthcare policies, including workplace-focused inter-ventions.

This article is a commentary based on secondary literature and theoretical frameworks; therefore, ethical approval was not required.

Conclusion and Call for Action

In South Asia, menopause remains an unacknowledged health priority marked by early onset, limited clinical care, and social stigma. Socio-ecological and intersectional approaches highlight that women's menopausal experiences are shaped by family, community, workplace, and society, as well as by intersecting factors, such as age, occupation, and socio-economic status. AI-enabled platforms in the UK and Australia demonstrate how digital technologies can enhance symptom monitoring, communication, and access to care, and provide a low-cost framework; however, the implications of these models remain challenging if not adapted to the South Asian cultural context. Unlike in developed regions, women aged 45 and above in South Asia face multiple challenges, including unequal access to technology and inadequate workplace policies for addressing midlife health issues. AI-enabled adaptation must therefore consider these challenges, such as resource constraints, urban-rural disparities, and localization to cultural norms. Failure to address these factors risks undermining women's inclusivity and access. As a future course of action, a phased implementation approach is recommended:

1. **Introduce culturally sensitive AI solutions** – Develop open, secure,

and regionally relevant AI-enabled platforms that build trust and support early symptoms reporting, and raise awareness of appropriate clinical interventions, i.e., hormone replacement therapy (HRT).

2. **Strengthen digital literacy among midlife women** – Implement target digital literacy programmes to enable women to confidently use technology and access AI-supported health services and telehealth platforms.
3. **Integrate menopause into workplace well-being policies** – Encourage supportive organizational policies, inspired by UK and Australia models, to address menopause related productivity loss, absenteeism, and job retention challenges.
4. **Foster international collaboration and co-development** – Foster partnerships to co-create digital health solutions to enhance efficiency, knowledge exchange, and regional outreach.

Future research should evaluate the cultural acceptability, equity, and effectiveness of AI-enabled menopause care, particularly in addressing psychosocial stigma, workplace challenges, and intersectional identities. By integrating international evidence with local contexts and theoretical frameworks, South Asia has the potential to transform menopause care into a supportive, dignified, and digitally inclusive experience, enabling women to navigate this life stage with autonomy, self-confidence, and well-being.

Author Contribution Statement

The commentary, conceptualization, and manuscript development were undertaken by Sana Naz under the academic supervision of Dr. Malathie Dissanayake.

Ethical Approval

This article is a commentary derived from secondary literature and theoretical analysis. As it does not involve human or animal participants, primary data collection, or the use of confidential or identifiable data, formal ethical approval was not required in accordance with standard research guidelines.

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The authors declared they have no conflicts of interest relevant to this study.

Statement on the Use of Artificial Intelligence

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Data Availability Statement

This commentary does not present any new research data. All information discussed is based on publicly available sources, previously published literature, and the author's own analysis and perspectives. Relevant references have been appropriately cited throughout the manuscript.

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Navigating the Grey Zones of Abortion Law in Sri Lanka: Clinical Case Narratives at the Intersection of Law, Ethics, and Reproductive Health

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Policy Paper

Abstract

Introduction: In Sri Lanka, abortion is legally permitted only to preserve the life of the woman. In routine obstetric and gynaecological practice, clinicians frequently encounter ethically complex and clinically high-risk situations that fall outside this narrow legal exception. Although unsafe abortion is no longer a leading direct cause of maternal mortality, it continues to contribute substantially to preventable maternal morbidity, psychological harm, and ethical distress within a highly restrictive legal framework.

Objectives: To describe recurrent clinical situations not accommodated by Sri Lanka's abortion law and to explore how clinicians navigate ethical decision-making under legal constraint using experience-based clinical case narratives.

Methods: Five anonymised clinical case narratives were purposively selected from long-term government obstetric and gynaecological practice to illustrate commonly encountered but legally unaddressed scenarios. A qualitative descriptive approach using thematic framework analysis was applied. Cases were examined across predefined grey-zone domains, including sexual violence, severe or lethal fetal anomalies, pregnancy in minors, impaired decisional capacity, and significant psychosocial vulnerability. Analysis was situated within statutory law, ethical principles, national clinical guidance, and relevant international human rights standards.

Results: Cross-case analysis revealed a consistent pattern of legal-ethical conflict arising from the absence of lawful options beyond the single ground of preserving the woman's life. Recurrent challenges included the inability to intervene even in the cases with despite lethal fetal prognosis, lack of legal recourse following rape or in minors, uncertainty in best-interest decision-making where decisional capacity was impaired, and constrained or delayed care in situations of profound psychosocial distress. Across all cases, the undefined legal threshold generated clinician uncertainty, moral distress, and a reliance on defensive or temporising management strategies.

Conclusion: These narratives illustrate how restrictive abortion law translates into ethical conflict and constrained clinical care in everyday practice. Clarification of legal standards and evidence-informed reform particularly in cases involving rape, severe fetal anomalies, minors, and marked vulnerability would better align law with ethical clinical practice, reduce preventable harm, and support clinicians in providing compassionate, professionally accountable care.

Key Words: Abortion law, unsafe abortion, clinical ethics, reproductive rights, qualitative case narratives, Sri Lanka

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Introduction

Sri Lanka's primary legal framework governing abortion is contained in Sections 303–306 of the Penal Code [1]. Under these provisions, abortion is criminalised except when performed in good faith to save the life of the woman. The law further criminalises causing miscarriage, supplying or obtaining drugs or instruments for abortion, and self-induced abortion. Notably, the legislation does not define the scope of "saving the life of the woman," nor does it provide guidance for situations involving serious threats to mental well-being, severe fetal anomaly, sexual violence, or social vulnerability. As a result, Sri Lanka retains one of the most restrictive abortion laws globally.

Despite this restrictive legal environment, abortions continue to occur in Sri Lanka, largely outside the formal legal framework, reflecting unmet reproductive health needs [2]. While earlier national guidance, including the National Guidelines on Post-Abortion Care (2015), attributed a notable proportion of maternal deaths to unsafe abortion [3], more recent national surveillance data indicate a continued overall decline in maternal mortality in Sri Lanka. Unsafe abortion is no longer identified as a leading direct cause of maternal death, although abortion-related morbidity continues to place a burden on obstetric services [4]. Complications such as haemorrhage, sepsis, anaemia, genital tract injury, prolonged hospitalisation, and long-term reproductive morbidity remain well recognised in routine clinical practice following unsafe abortion.

These realities point to a persistent public health and ethical challenge that is insufficiently addressed by the current legal framework. Clinicians working in obstetrics and gynaecology frequently encounter situations in which ethically appropriate, patient-centered care is constrained by the narrow legal exception permitting abortion only to save the woman's life. In such circumstances, healthcare professionals must navigate legal uncertainty while attempting to uphold core ethical principles, including autonomy, beneficence, non-maleficence, and justice.

In this article, the term "grey zones" refers to recurrent clinical situations that are not explicitly accommodated within Sri Lanka's abortion law but arise commonly in practice. These include pregnancies resulting from sexual violence, severe or lethal fetal anomalies, pregnancy in minors, pregnancy in women with significant intellectual disability or impaired decisional capacity, and situations of profound psychosocial or socio-economic vulnerability. Although these circumstances may carry substantial psychological, ethical, or clinical harm, they fall outside the sole legal ground of saving the woman's life.

This article aims to explore these grey zones through experience-based clinical case narratives, illustrating how legal restrictions shape clinical decision-making, generate ethical conflict, and contribute to moral distress among healthcare professionals. By situating these cases within the broader legal, ethical, and reproductive health context, the paper seeks to highlight gaps between law, clinical reality, and ethical practice, rather than to quantify prevalence or establish causality.

An established body of peer-reviewed scholarship has examined abortion law and policy in Sri Lanka, with particular attention to the Penal Code's narrow life-saving exception and its public health consequences. Prior analyses have documented the persistence of unsafe abortion in a legally restrictive setting and the continued burden of post-abortion morbidity managed within the formal health system, despite Sri Lanka's overall decline in maternal mortality [5-7]. Other academic work has approached abortion restriction through ethical and human-rights frameworks, highlighting its impact on women's autonomy, vulnerability, and access to reproductive healthcare, as well as ongoing debates around legal reform in cases such as rape, incest, and severe fetal anomaly [8-10]. Taken together, this body of work has clarified the legal architecture governing abortion in Sri Lanka and its broader public health and rights-based implications.

However, comparatively less attention has been paid to how this legal framework and its inherent ambiguities are translated into everyday clinical decision-making within obstetric and gynaecological practice. Much of the existing scholarship operates at the level of law, policy, population-based outcomes, or normative ethical analysis, with limited examination of how clinicians navigate ethically complex cases under legal constraint at the bedside. This article supplements existing work by using experience-based clinical case narratives to illustrate recurrent "grey zones" encountered in routine practice and to analyse the mechanisms through which restrictive abortion law shapes clinical choices, generates ethical conflict, and contributes to moral distress among healthcare professionals. By foregrounding clinicians' perspectives, the paper provides a practice-level lens that complements legal, public health, and human-rights analyses.

Methodology

Study Design

This study adopts a qualitative descriptive design using experience-based clinical case narratives. The purpose of this analysis is to illustrate recurrent clinical and ethical dilemmas ('grey zones') encountered in obstetric and gynaecological practice that are not accommodated within Sri Lanka's current abortion law.

Case Source and Clinical Context

The case narratives are drawn from the lead author's longitudinal clinical experience spanning over two decades in government obstetric and gynaecological services in Sri Lanka, including ward-based care, outpatient clinics, and emergency presentations. Cases were not drawn from a defined time-bound cohort or from medical records, but from accumulated professional experience of recurrent clinical scenarios encountered in routine practice.

Case Selection Strategy

Cases were selected using purposive sampling, appropriate for qualitative descriptive inquiry. Selection was guided by the study objective: to identify clinical situations that repeatedly generate legal ambiguity or ethical conflict under the sole legal exception of saving the woman's life. Cases were included if they illustrated one or more of the following predefined grey zones: (1) Ambiguity in applying the legal threshold of "saving the life of the woman", (2) Pregnancy resulting from sexual violence, (3) Severe or lethal fetal anomalies, (4) Pregnancy in minors, (5) Pregnancy in women with significant intellectual disability or impaired decisional capacity,

(6) Situations of profound psychosocial or socio-economic vulnerability Cases that did not raise a legal or ethical dilemma related to abortion law were excluded. Because cases were selected purposively from experiential recall rather than identified through systematic record screening, a formal screening log or flow diagram was not applicable.

Case Construction and Data Sources

The narratives were constructed retrospectively from clinician recall, informed by typical clinical encounters. No Bed Head Tickets, hospital records, electronic databases, referral letters, imaging reports, or patient interviews were accessed for the purpose of this manuscript. The cases are therefore illustrative rather than documentary and are intended to represent common patterns rather than specific patient trajectories.

To enhance clarity and consistency, each case was summarised using a structured narrative format describing clinical context, legal constraints, ethical considerations, and decision-making challenges.

Analytic Approach

A thematic framework analysis was applied. Case narratives were examined across predefined analytic domains corresponding to the identified grey zones. Cross-case comparison was used to identify recurrent patterns in: (1) Legal ambiguity and uncertainty, (2) Ethical conflict and moral distress, (3) Constraints on clinical decision-making, (4) Reliance on temporising or defensive management strategies. The analysis focused on mechanisms by which legal restriction shapes clinical practice, rather than on outcome measurement or causal inference.

Ethical Considerations and Governance

The manuscript is based on anonymised, experience-based clinical narratives and does not involve identifiable patient data, record extraction, or direct patient participation. No interventions were performed for research purposes, and no additional information was sought from patients. Because the narratives are derived from professional experience rather than from identifiable medical records or human-participant research, formal institutional ethics review and individual patient consent were not sought. This approach is consistent with accepted standards for reflective clinical scholarship and experience-based qualitative analysis. Safeguards were applied to protect confidentiality, including omission or alteration of non-essential demographic details. The case narratives are the intellectual work of the authors and are based on professional clinical experience. No third-party datasets or unpublished institutional data were accessed or used.

Results

Case Narratives

Case 1: Lethal Fetal Anomaly in an Adolescent

A young adolescent primigravida was diagnosed during the second trimester with a severe congenital anomaly incompatible with postnatal survival. Despite clear counselling regarding the uniformly fatal prognosis and the expressed wish of the patient to end the pregnancy, the prevailing legal framework offered no lawful option for abortion in the absence of an immediate threat to preserve the life of the woman. The pregnancy therefore continued under legal constraint, and the patient subsequently developed significant psychological distress requiring mental health support.

Case 2: Pregnancy Resulting from Sexual Violence in a Minor

A young minor presented during pregnancy with a history of sexual violence resulting in conception. The pregnancy arose from an act constituting statutory rape under Sri Lankan law. Given the patient's age and physical immaturity, the pregnancy required careful obstetric management, including operative delivery. At no stage was a lawful option for abortion available to clinicians, despite the circumstances of sexual violence and the patient's vulnerability.

Case 3: Pregnancy in a Woman with Significant Intellectual Disability

An adult woman with a longstanding intellectual disability, requiring substantial support for daily living, was identified during routine clinical assessment to be pregnant. She was assessed as lacking decisional capacity to understand pregnancy, childbirth, or the responsibilities of parenthood. Under the prevailing legal framework, no lawful option for abortion existed in the absence of an immediate threat to her life. The pregnancy therefore continued under legal constraint, with postnatal arrangements necessitating involvement of social protection services.

Case 4: Pregnancy in the Context of Social Vulnerability

A young woman experiencing significant social and economic vulnerability presented with an unplanned pregnancy in early gestation. The pregnancy occurred in the context of unstable living arrangements, limited social support, and financial insecurity. Concern regarding social stigma, loss of employment, and future economic hardship led her to repeatedly request an abortion. Following counselling regarding the legal limitations on abortion, she developed significant emotional distress requiring supportive intervention.

Case 5: Pregnancy in the Context of Financial and Caregiving Burden

A multiparous woman with substantial caregiving responsibilities presented with an unplanned pregnancy despite prior use of contraception. She described significant financial strain, limited family support, and concern regarding her capacity to meet the needs of her existing children. She repeatedly requested an abortion; however, in the absence of an immediate threat to preserve the life of the woman, clinicians were unable to offer abortion within the current legal framework.

Table 1. Summary of Clinical Case Narratives Illustrating Legal-Ethical Grey Zones in Abortion Care in Sri Lanka

Case	Grey-zone domain	Presenting context	Core legal-ethical dilemma	Clinician response under legal constraint	Observed pathway / immediate impacts
1	Lethal fetal anomaly	Prenatal diagnosis of a lethal congenital anomaly incompatible with postnatal survival	No legal provision for abortion despite uniformly fatal fetal prognosis and significant psychological harm	Continuation of pregnancy mandated; counselling and mental health referral	Prolonged psychological distress; reactive mental health support rather than preventive intervention

(Continued)

Case	Grey-zone domain	Presenting context	Core legal-ethical dilemma	Clinician response under legal constraint	Observed pathway / immediate impacts
2	Sexual violence in a minor	Pregnancy following rape/ statutory rape	Absence of lawful abortion option and lack of a best-interests framework for minors	Pregnancy continued under legal constraint; social services engaged	Psychological trauma; reliance on social protection mechanisms rather than reproductive healthcare
3	Impaired decisional capacity	Limited capacity to consent or make reproductive decisions	No legal mechanism for substituted or best-interest decision-making in abortion care	Conservative management; involvement of caregivers without legal clarity	Ethical uncertainty; delayed or non-definitive care; caregiver burden
4	Socio-economic vulnerability	Severe socio-economic hardship with foreseeable psychosocial harm	Socio-economic and psychosocial harms excluded from legal grounds for abortion	Counselling and surveillance only; no definitive intervention	Ongoing distress; social disruption; delayed mitigation through non-medical pathways
5	Financial and caregiving burden	Existing caregiving responsibilities and financial strain	Non-recognition of contraceptive failure and cumulative burden as legally relevant factors	Continuation of pregnancy mandated; supportive counselling	Increased economic stress; psychological strain; absence of preventive reproductive choice

Thematic Analysis

Analysis of the five clinical case narratives (Table 1) revealed a consistent pattern of legal-ethical conflict arising from the narrow statutory ground permitting abortion solely to preserve the life of the woman. Each case corresponded to a distinct but overlapping "grey zone" in which clinically and ethically significant circumstances were not accommodated within the legal framework.

Across cases, four recurrent analytic themes were identified.

Legal ambiguity and uncertainty

The undefined threshold of "preserving the life of the woman" created uncertainty regarding when, if ever, clinicians could lawfully intervene. In all cases, the absence of explicit legal guidance resulted in conservative, risk-averse decision-making.

Ethical conflict and moral distress

Clinicians experienced tension between ethical obligations to respect autonomy, prevent harm, and act in patients' best interests, and the requirement to comply with restrictive legal provisions. This conflict was particularly pronounced in cases involving minors, women lacking decisional capacity, and pregnancies complicated by lethal fetal anomalies.

Constraints on clinical decision-making

Legal restriction translated into constrained clinical options, including the inability to offer abortion despite foreseeable psychological, social, or clinical harm. Management strategies were frequently limited to counselling, surveillance, or supportive interim measures rather than definitive intervention.

Translation of legal restriction into patient harm

In all cases, the legal framework indirectly contributed to patient distress, prolonged suffering, or secondary harms, including psychological morbidity and social disruption, with reliance on reactive social protection or mental health interventions rather than timely, preventive healthcare.

Taken together, these findings demonstrate how recurrent and predictable grey zones, sexual violence, lethal fetal anomaly, impaired decisional capacity, and socio-economic vulnerability fall outside Sri Lanka's sole legal ground for abortion. The analysis illustrates how legal constraints shape clinical practice, generate ethical conflict, and contribute to moral distress among healthcare professionals, thereby directly addressing the stated objectives of the study.

Discussion

This study demonstrates how Sri Lanka's restrictive abortion law generates recurrent and predictable legal-ethical grey zones in routine obstetric and gynaecological practice. Using reconstructed clinical case narratives, the analysis illustrates how the narrow statutory ground permitting abortion solely to preserve the life of the woman fails to accommodate a range of clinically and ethically significant circumstances. These situations, lethal fetal anomaly, sexual violence in minors, impaired decisional capacity, and profound socio-economic vulnerability are not exceptional, but arise systematically at the intersection of law, ethics, and clinical care.

Legal Ambiguity and Clinical Uncertainty

Sri Lanka's Penal Code permits abortion only when performed in good faith to preserve the life of the woman, yet provides no definition of what constitutes such a threat. The absence of statutory or judicial clarification creates substantial uncertainty for clinicians managing pregnancies in which harm is foreseeable but not immediately life-threatening. As illustrated by cases involving lethal fetal anomaly and impaired decisional capacity, clinicians are often compelled to adopt conservative interpretations of the law, defaulting to continuation of pregnancy despite profound ethical concern [1].

Although Sri Lankan law criminalises sexual violence and recognises the need for child protection, it offers no reproductive remedies for pregnancies resulting from rape, including statutory rape. Similarly, fetal anomalies, contraceptive failure, and severe socio-economic hardship remain legally invisible. The absence of appellate jurisprudence interpreting these provisions further entrenches defensive practice, leaving clinicians without authoritative guidance in complex cases [1,11,12].

Ethical Conflict and Moral Distress

The findings highlight persistent tension between clinicians' ethical obligations and legal constraints. Professional standards emphasise respect for autonomy, beneficence, non-maleficence, and acting in the patient's best interests. However, the legal framework frequently prevents clinicians from honouring these principles. In cases involving minors, women lacking decisional capacity, or those facing profound psychosocial harm, clinicians are required to acknowledge foreseeable suffering while being legally prohibited from offering termination unless the woman's life is imminently threatened.

This misalignment generates moral distress, erodes professional autonomy, and encourages risk-averse decision-making. Rather than supporting ethical deliberation, the legal framework constrains clinical judgment and places healthcare professionals in ethically untenable positions [15,22].

Constrained Clinical Decision-Making and Systemic Contradictions

Legal restriction translates directly into constrained clinical options. National maternal care guidelines recognise adolescent pregnancy, pregnancy following sexual violence, mental health vulnerability, and social instability as high-risk conditions requiring careful management. Yet these clinical classifications do not confer legal authority to permit termination. Consequently, clinicians are often limited to counselling, surveillance, and supportive interim measures rather than definitive intervention [16].

This contradiction is further underscored by Sri Lanka's endorsement of comprehensive Post-Abortion Care (PAC). While clinicians are authorised to manage complications of unsafe abortion using evidence-based interventions, they are prohibited from using the same tools to prevent harm through timely, safe abortion. This paradox reflects a broader disjunction between public health practice and legal regulation, shifting care from prevention to crisis response [3,22].

Legal Restriction as a Determinant of Patient Harm

Across cases, legal restriction functioned as a structural determinant of harm. Women experienced prolonged psychological distress, social disruption, and secondary harms as a consequence of being compelled to continue pregnancies under adverse circumstances. Rather than preventing harm, the legal framework displaces it onto mental health services, social protection mechanisms, and emergency care.

Sri Lanka's international human rights commitments further illuminate this gap. Treaty bodies have repeatedly expressed concern regarding restrictive abortion laws, particularly in cases involving rape, minors, and severe fetal anomalies. Despite these obligations, domestic abortion law has remained largely unchanged, sustaining a disconnect between global standards and clinical realities [17-21].

Comparative and Policy Implications

Comparative experience from neighbouring India illustrates that a more balanced legal approach is feasible. India's Medical Termination of Pregnancy framework provides clearly defined indications, procedural safeguards, and gestational thresholds that allow clinicians to manage complex pregnancies within a regulated system. This demonstrates that reform need not equate to unrestricted access, but can provide structured pathways that align medical ethics, patient welfare, and public health [25,26].

In Sri Lanka, reform has been impeded by legal ambiguity, fear of prosecution among healthcare professionals, socio-cultural resistance, and political reluctance. These factors have contributed to prolonged stagnation despite sustained evidence of harm and continued professional advocacy.

Conclusion

Sri Lanka's abortion law produces recurrent and predictable grey zones that constrain clinical practice, generate ethical conflict, and translate legal restriction into patient harm. By grounding analysis in clinician-facing case narratives, this study demonstrates how legal rigidity shapes everyday decision-making and contributes to moral distress among healthcare professionals.

Clearer legal guidance and evidence-based reform are urgently needed, particularly in cases involving rape, severe fetal anomalies, minors, women lacking decisional capacity, and profound psychosocial vulnerability. Aligning national law with contemporary clinical realities, ethical principles, and international obligations would improve patient safety while supporting clinicians to deliver compassionate, ethical, and accountable care.

Ethical Approval

The manuscript is based on anonymised, experience-based clinical narratives and does not involve identifiable patient data, record extraction, or direct patient participation. No interventions were performed for research purposes, and no additional information was sought from patients. Because the narratives are derived from professional experience rather than from identifiable medical records or human participant research, formal institutional ethics review and individual patient consent were not sought. This approach is consistent with accepted standards for reflective clinical scholarship and experience-based qualitative analysis. Safeguards were applied to protect confidentiality, including omission or alteration of non-essential demographic details. The case narratives are the intellectual work of the authors and are based on professional clinical experience. No third party datasets or unpublished institutional data were accessed or used.

External Funding

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Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

No datasets were generated or analysed during the current study. The manuscript is based on anonymised, experience-based reconstructed clinical narratives and publicly available legal, policy, and human rights documents.

Use of Artificial Intelligence

Artificial intelligence tools were used to assist with language refinement and editorial clarity during manuscript preparation. All substantive content, analysis, interpretation, and conclusions are the responsibility of the authors.

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Author Contribution Statement

Dr. Dias H G D C was responsible for conceptualisation, drafting of the manuscript, and the legal and ethical analysis.

Dr. J Jeyamaruthy contributed through critical revision of the manuscript, validation of content, editorial input, and final approval of the version to be published.

Disclaimer

The views expressed in this article are those of the authors and do not necessarily reflect the views of their affiliated institutions.

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Pregnancy-Associated Exacerbation of Darier's Disease: A Rare Obstetric Case Report

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Case Report

Abstract

Introduction: Darier's disease is a rare inherited disorder of keratinisation. Reports describing its behaviour and clinical impact during pregnancy are limited, particularly in cases with extensive vulval involvement.

Case: A 39-year-old multiparous woman presented at 32 weeks' gestation with a widespread exacerbation of previously diagnosed Darier's disease, involving the vulva, groin, lower abdomen, submammary region, neck, and face. Severe vulval fissuring and reduced skin elasticity were noted. Obstetric evaluation demonstrated normal fetal growth. The patient was managed conservatively with topical therapy under multidisciplinary care.

Conclusion: Although rare, Darier's disease may worsen during pregnancy and present unique obstetric and perioperative challenges. Early recognition and coordinated management are essential to minimise morbidity and guide delivery planning.

Key Words: Darier's Disease, Pregnancy, Kratinization

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Introduction

Darier's disease, also referred to as keratosis follicularis, is a genetically determined disorder characterised by abnormal epidermal adhesion and keratinisation. It arises from pathogenic variants in the ***ATP2A2*** gene, which encodes a calcium pump essential for keratinocyte integrity and intercellular cohesion [1]. The fundamental defect in Darier's disease lies in impaired calcium signalling within keratinocytes due to dysfunction of the SERCA2 pump. This leads to disruption of desmosomal junctions and premature keratinocyte separation [4]. Histopathological features include suprabasal acantholysis and dyskeratosis, which account for the characteristic clinical appearance [4-6]. The disease follows an autosomal dominant inheritance pattern with variable phenotypic expression.

Population-based estimates suggest that Darier's disease is rare, with reported prevalence ranging from approximately 1 in 30,000 to 1 in 100,000 individuals [2,3]. Both sexes are equally affected, and the condition is non-infectious.

Darier's disease is characterised by malodorous, pruritic, greasy, hyperkeratotic papules and plaques involving seborrhoeic and intertriginous areas such as the scalp, trunk, groin, and perineum. Nail abnormalities and mucosal involvement may also occur [4,5]. Disease activity is known to fluctuate, with exacerbations triggered by heat, friction, infection, stress, and hormonal changes [5,6]. Despite its chronic nature, the behaviour of Darier's disease during pregnancy has not been extensively studied [7-8]. The available literature consists primarily of isolated case reports, and guidance on obstetric management remains limited [9-12].

Disease Course During Pregnancy

Published case reports demonstrate variable disease behaviour during pregnancy [10]. Some patients experience exacerbation of symptoms, while others show partial improvement or no significant change [6,9,11,12]. Hormonal fluctuations, mechanical stress on the skin, and immune modulation during pregnancy are believed to contribute to this variability.

Distribution and Severity

Cases involving the vulva, perineum, and lower abdomen appear to be associated with greater morbidity. Vulval disease may result in fissuring, maceration, and pain, leading to difficulties with ambulation, hygiene, and sexual activity [9,11]. These manifestations are particularly relevant in the obstetric context.

This report describes a rare pregnancy-associated exacerbation and discusses relevant obstetric considerations.

Case Presentation

A 39-year-old woman, gravida 3 para 2, presented at 32 weeks of gestation with progressive worsening of chronic skin lesions. Her obstetric history included one previous vaginal delivery followed by a caesarean section. She had been diagnosed with Darier's disease several years earlier but reported that the current pregnancy was associated with the most severe flare she had experienced.

Cutaneous examination revealed extensive hyperpigmented, verrucous papules and plaques involving the vulva, groin, perineum, perianal region, lower abdomen, submammary folds, neck, and forehead. Vulval involvement was particularly severe,

Figure 1. Figure Showing the lesions on Vulva (A), Submammary region (B), Suprapubic and groin area (C), and Scalp (D).

with marked fissuring, maceration, and reduced tissue elasticity, resulting in pain and functional limitation. No secondary infection was evident.

The uterus was appropriate for gestational age, and fetal movements were normal. Ultrasonographic assessment confirmed normal fetal growth and amniotic fluid volume, with no evidence of fetal compromise.

Following dermatological consultation, a diagnosis of pregnancy-related exacerbation of Darier's disease was made based on characteristic clinical features and prior documentation. Skin biopsy was deemed unnecessary.

Management focused on symptom control and prevention of complications. The patient was treated with regular emollients and topical corticosteroids of appropriate potency. Systemic agents, including oral retinoids, were avoided due to known teratogenic risks. Education regarding skin care, avoidance of friction, and early reporting of infection was provided. The patient reported gradual symptomatic improvement with conservative treatment. There was a significant improvement in the lesions following treatment, and the patient subsequently underwent an uncomplicated caesaran section.

Discussion

This case illustrates an uncommon yet clinically significant exacerbation of Darier's disease during pregnancy. While hormonal influences on keratinocyte function have been proposed as potential triggers, the interaction between pregnancy-related physiological changes and disease severity remains incompletely understood [5,6].

Extensive vulval involvement has particular relevance in obstetric practice. Reduced skin elasticity and fissuring may predispose to traumatic vaginal delivery, impaired wound healing, and postpartum morbidity. Similarly, involvement of the lower abdominal skin may complicate surgical incision healing should caesarean delivery be required. These considerations highlight the importance of anticipatory planning and individualised decision-making regarding mode of delivery.

Anaesthetic implications also merit attention [9]. Widespread cutaneous involvement of the back may complicate neuraxial anaesthesia (Spinal anaesthesia), necessitating early anaesthetic assessment. In addition, disease involvement of the breasts or submammary region may cause pain, fissuring, or secondary infection, potentially interfering with breastfeeding. Supportive care and lactation counselling should be offered when appropriate [6].

Management during pregnancy is largely conservative. Topical therapies remain the cornerstone of treatment, while systemic retinoids are contraindicated. This case underscores the value of multidisciplinary collaboration between obstetricians, dermatologists, and anaesthetists to optimise maternal comfort and obstetric outcomes.

From a genetic standpoint, Darier's disease carries a 50% risk of transmission to offspring. Although prenatal diagnosis is not routinely indicated, affected women should be offered genetic counselling, ideally prior to conception or early in pregnancy, to support informed reproductive choices [1].

Conclusion

Darier's disease is a rare condition that may worsen during pregnancy and pose unique obstetric and perioperative challenges, particularly when vulval and lower abdominal skin are involved. Conservative dermatological management, combined with careful obstetric planning and multidisciplinary care, can minimise morbidity. Awareness of this condition among obstetric clinicians is essential to ensure timely recognition and appropriate counselling.

Conflicts of Interest

The author declares that there are no conflicts of interest.

Ethical considerations and consent for publication

This case report was prepared in accordance with the CARE (CAse REport) reporting guideline. Written informed consent for publication of the patient's clinical information and accompanying images was obtained from the patient after she reviewed the manuscript. All potentially identifying details have been removed from the text and images. Formal ethics committee approval was not required for publication of a single de-identified case report.

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Data Availability Statement

All relevant clinical information supporting this case report is included within the manuscript. No additional datasets were generated or analysed during the current study.

Statement on the Use of Artificial Intelligence

Artificial intelligence tools were used solely to assist with language editing and formatting of the manuscript. The author takes full responsibility for the content, interpretation, and scientific accuracy of the work.

Author Contribution

The author was responsible for the clinical management of the patient, conceptualisation of the case report, literature review, manuscript drafting, and final approval of the manuscript.

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Annex 1

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ReproSex: International Journal on Sexual and Reproductive Health is committed to maintaining the highest standards of editorial integrity, academic quality, and ethical publishing practices. As an international, peer-reviewed, open-access journal, *ReproSex; International Journal on Sexual and Reproductive Health,* seeks to provide a rigorous and inclusive platform that advances the field of sexual and reproductive health and rights (SRHR)

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Annex 3

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Article Types

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2. **Original Research:** Original research presents the results of original, high-quality research that contributes new knowledge to the field of sexual and reproductive health. Manuscripts should be between 3,500 and 4,500 words in length, excluding the abstract, tables, and references, and may contain up to six (6) tables and/or figures. A structured abstract of no more than 300 words is required, summarising the background, objectives, methods, results, and conclusions of the study. The main text should be organised under the following headings: Introduction, Materials and Methods, Results, and Discussion. Authors must provide 5 to 6 keywords or key phrases to facilitate indexing and searchability. All measurements must be reported in SI (International System of Units). Abbreviations should be defined at first mention by writing the term in full, followed by the abbreviation in parentheses. There is no limit to the number of references that can be cited.

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4. **Commentary:** A commentary is a short, focused article that provides a critical or reflective discussion on a specific issue, recent development, published research, or policy relevant

to sexual and reproductive health. Commentaries should offer fresh perspectives, highlight implications for practice or research, or stimulate scholarly debate. The text should be clear, well-argued, and supported by appropriate references where necessary. An unstructured abstract of no more than 250 words, including 5 key words, is required, summarising the purpose, key points, and conclusions. The total manuscript length shall be 1500 to 2,500 words, excluding references, tables, and figures. Authors may cite up to 10 references to support their discussion. Commentaries undergo peer review and should follow the general formatting and referencing style of the journal.

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Annex 4

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The main body of the manuscript should be organised under the following sections: Introduction, Methods, Results, Discussion, Acknowledgements, Conflicts of Interest, and References. Under the subheading "Conflicts of Interest," all authors must disclose any financial or personal relationships with individuals or organisations that could inappropriately influence (or appear to influence) the work presented. If no such conflicts exist, authors should include the statement: *"The authors declare no conflicts of interest."* Authors must adhere to the word count limits specified under each article type. Submissions that exceed the defined limits may be returned for revision prior to peer review.

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Examples:

1. Contraceptive use among unmarried adolescents remains low in many settings [12].
2. High rates of unmet need for family planning have been documented in marginalised populations [9, 13].
3. Studies have shown that comprehensive sexuality education improves knowledge and attitudes towards safe sex practices among adolescents [21-23].
4. There is growing evidence linking access to reproductive health services with reductions in maternal mortality [5, 7-10].

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1. Suranga MSS, *Knowledge and attitudes of adults concerning induced abortion in Colombo City, Sri Lanka.* MPhil thesis. University of Peradeniya, 2016.

III. Report

When citing reports or institutional publications, capitalise the first letter of each major word in the title. Include the author(s) or institutional author, the title of the report (in italics if required by style guide), the place of publication, the publisher, and the year. If the report is available online, provide the direct URL at the end.

Examples:

1. Lwanga SK & Lemeshow *S. Sample Size Determination in Health Studies: a Practical Manual. Geneva:* World Health Organisation, 1991. Available from: https://apps.who.int/iris/handle/10665/40062.
2. Medical Statistical Unit. *Annual Health Bulletin 2019, Sri Lanka*. Colombo: Ministry of Health, 2014. Available from: http://www.health.gov.lk/moh_final/english/public/elfinder/files/publications/AHB/AHS%202019.pdf.
3. Ministry of Health & UNICEF Sri Lanka. *Improving the Practice of Complementary Feeding: Experience from a Community-Based Programme in Hambantota District.* Colombo: Ministry of Health, 2015. Available from: http://www.mri.gov.lk/assets/Nutrition/2014-Complementray-feeding-HMBANTOTA-.pdf.

IV. Book or Book Chapter

When referencing books, capitalize the first letter of each major word in the book title. Include the author(s) or editor(s), the title of the book (in italics), the edition (if not the first), the place of publication, the publisher, and the year. For chapters within edited books, include the chapter title, followed by the editors' names, book title, page range, and publication details.

Examples:

1. Juran J & Godfrey A. *Quality Control Handbook* (6th edition). New York: McGraw-Hill, 2010.
2. Hemingway E. The killers. In J Updike & K Kenison (Eds.). *The Best American Short Stories of the Century* (pp.78-80). Boston, MA: Houghton Mifflin, 1999.
3. Suranga MS & De Silva WI. Induced abortion. De Silva WI [ed.]. Sri Lankan youth: sexual and reproductive health; profile, knowledge, attitude, behaviour & vulnerability (pp. 176-188). Colombo: Child Fund Sri Lanka, 2020. Available from: https://www.researchgate.net/publication/347564804_Induced_Abortion.

V. Conference Proceedings

Use sentence case for the title; only the first word and proper nouns should be capitalized. Include the author's name, title of the presentation, and name of the conference, location, and full date (date range, month, and year).

Example:

1. Harrison P. *Meditation improves the wellbeing of cancer survivors.* 12th Annual Meeting of the American Society of Breast Surgeons (ASBS), Washington, DC, 27 Apr-1 May, 2011.

VI. Referring to a website

When referencing a website, use sentence case for the title; only the first word and proper nouns should be capitalized. Include the author or organization, the year of publication (if available), the title of the webpage, the name of the website or publisher, the full URL and the date of access. End each reference with: Available from: [URL]. Accessed [day month year].

Example:

1. Beckett, Lois. 2020. Armed protesters demonstrate against COVID-19 lockdown at Michigan capitol. Guardian. Available from: https://www.theguardian.com/us-news/2020/apr/30/michigan-protests-coronavirus-lockdownarmed-capitol. Accessed 30 April 2020.

VII. Unpublished article

When citing an unpublished article, manuscript, or report, provide the author's name, title (in sentence case), an indication that it is unpublished, the institution where the work was produced (if applicable), and the year. Use a clear note such as unpublished manuscript, unpublished report, or unpublished data.

Example:

1. MacPhee D. *Manual: Knowledge of Infant Development Inventory* (unpublished manuscript). University of North Carolina, 1981.

For further details, authors are encouraged to consult the official Vancouver referencing guidelines available through the International Committee of Medical Journal Editors (ICMJE) and the U.S. National Library of Medicine.

Available from: https://www.ncbi.nlm.nih.gov/books/NBK7256/

Tables

All tables should be inserted within the main body of the manuscript, immediately following the first mention in the text. Tables must be numbered consecutively using Arabic numerals (e.g., Table 1, Table 2) in the order in which they are cited. Tables must be typed in single spacing and created using the '*Insert Table*' and '*Table Tools*' functions in your word processing program. Tables should not be submitted as images, figures, or embedded spreadsheet files. The title of the table should be placed above the table, and each column and row must be clearly labelled, including units of measurement where applicable.

Avoid using vertical lines within tables. Horizontal lines may be used sparingly to separate key sections, such as headings or summary rows. Do not use colour or shading in tables. If emphasis is required for specific data points, use superscripts, numbering, lettering, symbols, or bold text — with a corresponding explanation provided in a table legend. Numerical values must be formatted consistently: use full stops (periods) for decimal points, and do not use commas to indicate thousands (e.g., 1500 not 1,500).

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All figures must be submitted both as embedded images within the manuscript and as separate high-resolution graphic files. Each figure file should be in an accepted format (e.g., JPEG, PNG, TIFF) and should not exceed 10 MB in size. Figures must be numbered consecutively in the order in which they are cited in the text (e.g., Figure 1, Figure 2). Multi-panel figures (e.g., parts labelled a, b, c, etc.) must be submitted as a single composite file containing all parts of the figure.

The figure title (maximum 15 words) and figure legend (maximum 300 words) must be provided within the manuscript, immediately following the first mention of the figure in the main text. Do not include the title within the graphic file itself. The title should appear below the figure in the manuscript, followed by the legend. Figure keys and labels (such as symbols, colour indicators, or abbreviations) must be incorporated directly into the figure graphic, rather than placed in the legend. Each figure should be tightly cropped to eliminate unnecessary white space and ensure clarity.

Authors are responsible for obtaining written permission from copyright holders to reproduce any figure or table that has been previously published elsewhere. Such permissions must be clearly indicated in the figure legend, and the original source should be cited in the reference list.

Annex 5

Advertising Policy

ReproSex: International Journal on Sexual and Reproductive Health is a biannual journal published by The Family Planning Association of Sri Lanka (FPASL). The *Journal* upholds the highest ethical and professional standards in advertising. This policy outlines the principles and procedures governing the acceptance, placement, and management of advertisements in both print and online versions of the *Journal*. All advertisements must align with the *Journal's* mission, maintain editorial independence, and comply with applicable laws and ethical guidelines.

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