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Your Voice, Your Rights

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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.

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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

Reproductive Futures in Transition: Adolescent Agency, Reproductive Choice and Resilient Sexual and Reproductive Health Systems

Sanath Lanerolle[1]

Co-Editor-in-Chief, ReproSex: International Journal on Sexual and Reproductive Health; Consultant Obstetrician and Gynaecologist.

Editorial

Sexual and reproductive health (SRH) is often encountered through separate doors: a school lesson, a contraceptive consultation, an antenatal visit, an infertility clinic, a legal debate, or a public-health response after a disaster. Yet these are not separate concerns. They are connected moments in a reproductive life course, shaped by knowledge, autonomy, relationships, social conditions, and the capacity of institutions to respond. The papers in Volume 2, Issue 1 bring these links into focus. Taken together, they suggest a central theme for contemporary SRH: reproductive futures are being reshaped by rapid demographic, technological, environmental and social change, and health systems must remain both clinically safe and firmly anchored in dignity and choice. This direction is consistent with the ethical framework advanced in the previous issue of ReproSex, in which autonomy, justice, beneficence and non-maleficence were presented as practical foundations for reproductive healthcare [1].

This issue opens with Professor Iqbal H. Shah's leading article, published in his memory and developed from his keynote contribution to ReproSex 2024. Its central argument is straightforward but far-reaching: adolescence should be treated not only as a period of vulnerability, but also as a strategic period of opportunity. Shah draws attention to the formative importance of early adolescence, the double-edged role of digital media, and the need to invest before preventable harms become established. He proposes five linked priorities: earlier engagement, stronger age-appropriate SRH education, purposeful use of digital platforms, explicit inclusion of boys and young men, and adolescent-responsive services that protect privacy and dignity [2].

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The contribution is especially fitting for this issue because it reminds us that the reproductive future of a population begins long before pregnancy enters the consulting room. It begins with what young people know, what they are allowed to ask, whom they trust, and whether services are designed to meet them without judgement.

Three further papers extend this adolescent agenda from education into institutions and rights. Sana and Dissanayake review evidence from Pakistan and Sri Lanka and identify recurring weaknesses in teacher preparation, community acceptance and curriculum coherence. Their proposed five-pillar framework combines developmentally structured content, teacher training, community and parental engagement, safe-school guidance on violence and digital risks, and mechanisms for monitoring and accountability [3]. De Silva approaches the same problem from a legal perspective, arguing that comprehensive sexuality education (CSE) may be strengthened in Sri Lanka through broader judicial interpretation of the rights to life and education, supported by the Directive Principles of State Policy and international human-rights instruments, while maintaining objective and pluralistic teaching [4]. Palihawatta and colleagues then carry the discussion into higher education, where they describe persistent knowledge gaps, stigma and misconceptions among undergraduates and call for universities to provide structured orientation, credible information, counselling and stronger links to SRH services [5]. Together, these contributions position accurate, age-responsive sexuality education as a practical bridge between knowledge, rights and access to care.

The consequences of missed opportunities during adolescence are illustrated from a regional perspective by Radhakrishnan's analysis of adolescent mothers in India using National Family Health Survey data. The study reports associations between child marriage, consanguineous marriage and adverse first-delivery outcomes, including child loss, and shows better child-survival odds among women who married at 18 years or later than among those who experienced child marriage [6]. The study should be interpreted within the limits of its cross-sectional design, but its message is important: early reproductive transitions do not occur in isolation. They are embedded in education, marriage practices, poverty, social norms and access to information. Prevention therefore requires more than clinical management after a complication has occurred; it requires action on the conditions that shape when and how young women enter marriage and motherhood.

Maternal health itself is examined through a different but equally important lens in the qualitative study by Suranga and colleagues. ReproSex previously synthesised Asian evidence showing that intimate partner violence (IPV) during pregnancy is associated with important maternal and pregnancy risks and remains insufficiently detected in many settings [7]. The new study from Nuwara Eliya moves from prevalence and association to lived experience. Through case-study interviews, the authors describe perinatal IPV as a spectrum extending beyond episodic physical assault to sexual, emotional and economic abuse and sustained coercive control. Women described restrictions affecting antenatal care, strategic and selective disclosure, reliance on trusted Public Health Midwives, crisis-driven contact with formal services, and substantial psychological and functional consequences [8]. For obstetricians and gynaecologists, the clinical implication is

difficult to ignore: an antenatal or postnatal contact is not only a biomedical encounter. When privacy, continuity, safe enquiry and referral pathways are present, it can also become an entry point to protection and support.

Fernando broadens this safety agenda from routine maternity care to disaster settings. His post-Cyclone Ditwah commentary reviews Sri Lanka's policy and institutional response to sexual and gender-based violence (SGBV) during emergencies, acknowledging recent policy advances while identifying continuing gaps in legislation, protection standards in evacuation centres, referral procedures, data systems, institutional accountability and women's participation in disaster-related decision-making [9]. The paper makes a persuasive case that SGBV prevention and survivor-centred response cannot be treated as optional additions to disaster management. Disruption of shelter, privacy, transport and health services can magnify pre-existing vulnerabilities; therefore, preparedness must include clear responsibilities, safe referral pathways and sustained resources for protection and SRH care [9].

Reproductive autonomy also includes the ability to pursue a wanted pregnancy. Athauda and colleagues explore the experiences of women who underwent subfertility treatment and subsequently achieved pregnancy at Teaching Hospital, Kurunegala. Their qualitative findings describe treatment-related discomfort, repeated attempts, financial and access burdens, anxiety and emotional strain, together with social expectations, gender roles and family dynamics that shape the treatment journey [10]. These findings resonate with the qualitative study of couples attending infertility services in Jaffna published in the previous issue, which documented effects on marital relationships, social interaction and psychological well-being [11]. Together, these studies reinforce a clinical principle that deserves greater attention: fertility care should not be reduced to investigations, medications and procedures. Good care must also recognise the emotional, relational and financial realities through which patients experience infertility and its treatment.

The issue then turns to contraception and the changing tools available to support contraceptive choice. Karunarathne's analysis of the 2016 Sri Lanka Demographic and Health Survey examines factors associated with traditional family-planning use among ever-married women. The study identifies a combination of age, parity, education, knowledge, decision-making and contact with health services as important correlates, and notably shows that greater family-planning knowledge does not automatically translate into use of a modern method [12]. This is a useful reminder that contraceptive behaviour is not determined by information alone; preferences, perceived side effects, relationships, social context and trust in services also matter. Chamikara and colleagues look forward technologically, proposing a hybrid artificial-intelligence model that combines deterministic UK Medical Eligibility Criteria safety rules with probabilistic decision support for complex contraceptive consultations [13]. Their proposal is appropriately cautious: artificial intelligence should support, not replace, clinical judgement, and any system must be transparent, validated, protected against bias and designed around patient safety and informed choice [13].

These individual reproductive decisions ultimately contribute to population-level change, but the relationship between demography and reproductive rights requires careful handling. In Volume 1, Issue 1, de Silva and De Silva used an indirect total-birth-number method to signal that Sri Lanka was approaching an ultra-low fertility level before complete census-based fertility estimates were available [14]. In the present issue, Silva and Suranga compare that estimate with the 2024 Census age-specific fertility rates. The indirect total fertility rate (TFR) of 1.340 and the census-derived TFR of 1.325 differ by only 0.015, or approximately 1.1%, suggesting that the indirect method provided a useful early signal while not establishing equivalence across every year, district or population group [15]. More importantly, their policy discussion avoids a simplistic pronatalist response. It calls for reproductive autonomy to be protected while strengthening the conditions that allow people to realise their reproductive preferences, including infertility services, childcare, counselling, health and maternity protection, and broader social and economic support [15].

Deegodage places this national discussion within a wider global debate by describing a 'demographic squeeze' at the intersection of population ageing and the climate crisis. The commentary warns that demographic anxiety can encourage policy approaches that treat fertility as a macroeconomic instrument rather than a personal reproductive decision. In response, it argues for reproductive justice and demographic resilience: stronger care economies, dignified migration, supportive family policies, access to assisted reproduction, climate-resilient health systems and technological adaptation without reproductive coercion [16]. Whether every proposed policy mechanism is appropriate in every country will require further evidence and context-specific evaluation, but the underlying ethical point is compelling. Low fertility, ageing and climate instability are legitimate policy concerns; they do not weaken the obligation to protect bodily autonomy.

Read together, the papers in this issue move from the classroom and university to the household, antenatal clinic, infertility service, disaster shelter, courtroom and national population debate. They also move across the life course: from the formation of knowledge and relationships in adolescence, through contraception and pregnancy, to fertility treatment and the demographic consequences of millions of individual reproductive decisions. Across these settings, a common principle emerges. Better SRH cannot be achieved through clinical technology alone, through information alone, or through population policy alone. It requires systems that connect reliable knowledge with respectful care; protect people from violence and coercion; support both the prevention and achievement of pregnancy according to individual preference; and use law, policy and emerging technologies to strengthen rather than displace human judgement and reproductive choice [1-16].

For clinical practice, this means listening as carefully to the context of a reproductive decision as to the clinical history. For public-health programmes, it means building services that remain accessible across adolescence, adulthood, pregnancy, infertility and crisis. For policymakers, it means resisting the temptation to turn demographic targets into individual obligations. And for researchers, it means

continuing to generate evidence that is locally grounded while remaining relevant to regional and global debates. As ReproSex enters its second volume, this issue offers a timely reminder that the future of sexual and reproductive health will depend not simply on whether systems become more advanced, but on whether they become more responsive, more resilient and more respectful of the people they are intended to serve.

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The Future Is Now: Why Adolescents Must Be Central to Sexual and Reproductive Health Policy and Practice



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Dedication: This article is published in memory of Professor Iqbal H. Shah, keynote speaker at ReproSex 2024 and a valued member of the International Advisory Committee of ReproSex: International Journal on Sexual and Reproductive Health. His lifelong contributions to sexual and reproductive health research, policy and practice have left an enduring global legacy. The Editors and the ReproSex Editorial Team remember with deep gratitude his wisdom, generosity, encouragement and commitment to advancing evidence-informed sexual and reproductive health for all. His work and influence will continue to inspire future generations of researchers, practitioners, and advocates. May he rest in eternal peace.

Leading Article

Abstract

Adolescence is a decisive period for sexual and reproductive health policy, as the knowledge, norms, service access and early behaviours established during these years shape lifelong health and well-being. This article frames adolescence as both an age of opportunity and an age of vulnerability. It synthesises evidence from South Asia and Sri Lanka to discuss demographic importance, the impact of digital transformation, progress in reducing adolescent fertility, persistent gaps in knowledge and service access, and the need for a renewed action agenda. The paper argues for five key priorities: engaging adoloscents earlier in life, strengthening sexual and reproductive health education, and harnessing digital platforms purposefully, explicitly including boys and young men, and developing context-specific adolescent-responsive services. The future of sexual and reproductive health policy depends on whether societies invest in adolescents before preventable harms become entrenched.

Key Words: adolescence, young people, sexual and reproductive health, South Asia, Sri Lanka, sexual and reproductive health education

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Introduction

In the era of digital transformation and artificial intelligence, adolescence must be understood as far more than a period of risk; it is a pivotal stage of expanding capacity, profound transition and immense opportunity [1]. This framing aligns with contemporary adolescent health scholarship, which recognises adolescence and young adulthood as key phases for human capital development, lifelong health, and intergenerational well-being [2-5]. In sexual and reproductive health (SRH), the stakes are especially high, because knowledge, norms, service access and early behaviours established during these years shape later fertility, relationships and health trajectories [2,4-6]. Building on this evidence base, the article argues that adolescent SRH policy in South Asia must move beyond a narrow protective model towards one that is enabling, evidence-based and responsive to the evolving needs of young people [1-6].

Adolescence as a strategic window

Adolescents are not a homogeneous group, and distinctions within age categories are important for policy and programme design. The World Health Organization defines adolescence as the period between 10-19 years, while more recent scholarship has argued for a broader age range of 10-24 years to better reflect social and developmental transitions [2,3]. Both perspectives converge on one point: the early adolescent years, particularly ages 10-14, are formative for the development of attitudes, relationships, body literacy and health behaviours [1-3]. Global adolescent health research has repeatedly demonstrated that investments during this phase produce benefits that extend into adulthood and across generations [2-5]. Young people should therefore be understood not only as beneficiaries of services but also as social actors whose agency and decision making capacities requires support and development [1]. This



Figure 1. Conceptual framework linking adolescent opportunities, vulnerabilities and sexual and reproductive health trajectories.

Note: This conceptual framework illustrates adolescence as a formative period shaped simultaneously by opportunities and vulnerabilities that influence sexual and reproductive health trajectories. Opportunities refer to positive conditions that support adolescent knowledge, agency, participation and well-being, while vulnerabilities refer to risks and constraints that may undermine health, development, rights and access to services. The framework is interpretive and was developed by the author on the basis of the supporting literature cited in this article. SRH = sexual and reproductive health.

is particularly important in South Asia, where large youth populations coexist with rapid social change, expanding educational opportunities, delayed marriage and accelerating digital transformation [4,5].

This framing is summarised in Figure 1, which presents adolescence as a strategic window shaped by both opportunities and vulnerabilities. The figure highlights that adolescent SRH trajectories are not determined by individual behaviour alone, but by the interaction between enabling factors, such as education, digital access, healthy social norms and personal agency, and constraining factors, including limited SRH knowledge, violence, misinformation, unmet need for contraception and gender-based exclusion.

The digital age: opportunity and misinformation

As indicated in Figure 1, digital connectivity can function both as an opportunity and as a source of vulnerability in adolescent SRH. Digital transformation has reconfigured the information environment in which adolescents learn, communicate and make decisions about their health and well-being [1,4,7]. Evidence suggests that digital health interventions can improve sexual health knowledge, promote safer practices and increase access to services, particularly among young people who may avoid formal healthcare because of stigma, and concerns about confidentiality [7]. Yet, evidence from Sri Lanka indicates that young people often rely on friends, the internet and other informal channels for SRH information, with notable gender differences in information seeking pathways [8,9]. This reality provides both an opportunity and a challenge. While digital platforms can democratise access to information and services, they can also facilitate the spread of misinformation, reinforce harmful social norms and widen inequalities between those who can distinguish credible sources and those who cannot [1,7-9].

Progress in South Asia and Sri Lanka

Policy debate must start by acknowledging progress. Across low- and middle-income countries, the past three decades have seen substantial declines in adolescent pregnancy and child marriage, alongside increased recognition of adolescent SRH in policy agendas [5]. Figure 2 presents an illustrative comparison of changes in adolescent fertility across selected South Asian countries, based on earlier and more recent data observations for each country. The figure indicates that adolescent fertility has declined across all countries presented, although the pace and level of decline vary considerably. Sri Lanka stands out for maintaining comparatively low adolescent fertility rates within the region, reflecting long-standing investments in education, family planning, and maternal health services [1,12,19].

Local evidence also suggests that adolescent and youth relationship patterns are evolving. Research among Sri Lankan youth has documented widespread romantic relationships and dating, increasing diversity in relationship experiences, and substantial variation in sexual behaviour and contraceptive use across population subgroups [10,11]. A subnational study of unmarried youth found that unprotected sexual intercourse remained common among a sizeable minority of sexually active young people and that disparities persisted across sectors and ethnic groups [11]. Studies synthesised in Sri Lankan SRH publications further demonstrates that knowledge

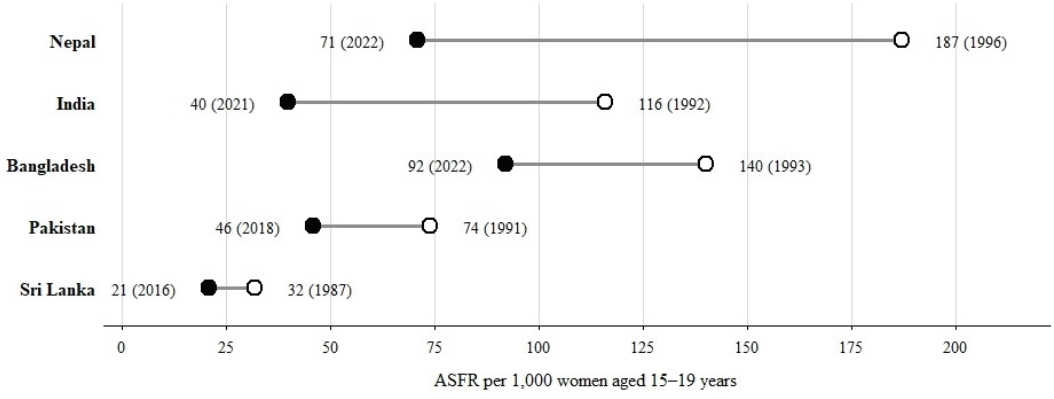


Figure 2. Illustrative decline in adolescent fertility in selected South Asian countries.

Note: Age-specific fertility rate (ASFR) per 1,000 women aged 15–19 years. Open circles indicate the earlier observation and solid circles indicate the most recent observation shown for each country; the connecting line illustrates the direction and magnitude of decline between the two time points. Values were reproduced from the keynote presentation delivered by Dr Iqbal H. Shah at ReproSex 2024 and aligned with cited secondary demographic sources. ASFR = age-specific fertility rate [1,12,19].

and contraceptive use vary according to age, sex and social context, rather than being distributed uniformly across the population [12-14].

Taken together, the regional and Sri Lankan evidence presents a mixed picture. While measurable progress has been achieved, particularly in reducing adolescent fertility and increasing policy attention to adolescent SRH, gaps and inequalities persist across multiple domains of adolescent SRH. Table 1 summarises the key evidence discussed in this section, linking each area of progress or continuing gap to its policy implication for adolescent SRH programming in South Asia and Sri Lanka.

Persistent and emerging vulnerabilities

Progress in averages does not eliminate vulnerability. Recent evidence from Sri Lanka continues to highlight major gaps in SRH knowledge among unmarried youth, including limited knowledge of pregnancy, contraception and sexually transmitted infections, despite the perceived value of school-based SRH education [8,9]. These gaps are not confined to school-going adolescents. Research among female factory workers in Sri Lanka has also identified low levels of knowledge regarding emergency contraception and missed opportunities for pregnancy prevention, suggesting broader weaknesses in contraceptive literacy among young women outside formal educational settings [15].

Service access also remains a concern. A review of Sri Lankan studies identified persistent barriers related to privacy, confidentiality, acceptability and service design, while an earlier study revealed that adolescents often perceived available reproductive health services as insufficiently responsive to their needs [8,16]. At the same time, adolescents are exposed to broader threats that shape SRH indirectly, including bullying, violence and other psychosocial stressors. Multicountry analyses have shown that bullying victimisation and physical violence remain common among school-going adolescents, underscoring the need to address adolescent health

Table 1. Summary of progress and continuing gaps in adolescent sexual and reproductive health in South Asia and Sri Lanka

Theme	Evidence relevant to South Asia and Sri Lanka	Policy implication	Key sources
Adolescent fertility	Adolescent fertility has declined in South Asia, but the pace and level of progress remain uneven. Sri Lanka has generally maintained comparatively low levels within the region.	Regional progress should not obscure persistent pockets of vulnerability.	[1,5,12,19]
Relationships and sexual behaviour	Sri Lankan studies show widespread romantic involvement among youth and important subgroup differences in sexual behaviour and contraceptive use among unmarried young people.	Programming should reflect the realities of contemporary youth transitions rather than assume universal abstinence before marriage.	[10,11]
School-based SRH education	School-based SRH education exists and is valued by many young people, but knowledge gaps on pregnancy, contraception and STIs remain substantial.	Education must be more comprehensive, age-specific and gender-sensitive.	[8,9,13]
Family planning and contraceptive literacy	Knowledge and use of contraception are socially patterned, and unmet informational needs persist among young people and young married women.	Service design must combine information, confidentiality and practical access.	[14,15,20]

Note: Selected evidence summarised from the keynote address and cited secondary literature to illustrate areas of progress, continuing gaps and policy relevance for South Asia and Sri Lanka. This table is interpretive rather than exhaustive and does not represent a systematic review. SRH = sexual and reproductive health; STI = sexually transmitted infection.

within a broader social ecology rather than relying solely on clinic-based responses. [17,18]. Adolescent SRH programmes often focus predominantly on girls, even though relationship formation, contraception, consent and the prevention of unintended pregnancy are inherently relational issues [4,5]. A sustainable and effective SRH agenda cannot overlook boys and young men, whose knowledge, attitudes, and behaviours are equally important.

A renewed agenda for action

A renewed agenda should include five linked priorities. First, interventions must begin earlier. Evidence from global adolescent health and sexuality education research supports developmentally appropriate engagement before sexual debut, with content that builds progressively across age groups [2,3,6]. Second, sexual and reproductive health education must be comprehensive rather than limited to biological reproduction alone. High-quality programmes improve knowledge and can support safer behaviours without increasing sexual activity [6]. Third, digital strategy must become a deliberate component of adolescent SRH policy. Given that young people already use digital media as an information source, governments, non-governmental organisations and professional bodies should

Table 2. Priority actions, rationale and lead actors for a renewed adolescent sexual and reproductive health agenda

Priority action	Why it is needed	Lead actors	Indicative evidence
Start earlier (10-14 years)	Early adolescence is formative for attitudes, body literacy, relationship expectations and later SRH behaviour.	Schools, families, health systems	[1-3,6]
Strengthen Sexual and Reproductive Health Education	Evidence-based sexual and reproductive health education improves knowledge and supports safer behaviour without increasing sexual activity.	Education sector, curriculum bodies, professional associations	[6,8,9]
Use digital platforms purposefully	Young people already use digital media for information; credible digital pathways can improve reach and confidentiality.	Governments, NGOs, youth organisations, digital health providers	[1,7-9]
Include boys and young men	Pregnancy prevention, consent and safer relationships are relational issues; male exclusion weakens programme impact.	Programme designers, educators, community organisations	[1,4,5]
Design adolescent-responsive services	Privacy, confidentiality and acceptability remain major barriers to service use in Sri Lanka.	Health systems, service managers, counsellors	[8,16,20]

Note: Priority actions summarised from the keynote address and aligned with the cited evidence to support a renewed adolescent sexual and reproductive health agenda. The table is intended as a strategic synthesis for policy and programme consideration and does not represent an exhaustive framework. SRH = sexual and reproductive health; NGO = non-governmental organisation.

invest in accurate, youth-friendly web content, moderated digital counselling and referral pathways linked to confidential services [1,7-9]. Fourth, programmes must include boys and young men explicitly, while remaining attentive to the distinct vulnerabilities of girls and young women [4,5]. Fifth, service and policy design must be context-specific. Sri Lankan evidence repeatedly shows that knowledge, behaviour and access vary by sex, age, sector and social setting [9-14]. These five priorities are summarised in Table 2 as a practical action framework, linking each recommended action to its rationale, likely lead actors and supporting evidence. The table is intended to translate the preceding discussion on adolescent opportunities, vulnerabilities and service gaps into programme and policy directions for adolescent-responsive SRH action.

Building on the action areas summarised in Table 2, these priorities imply a broader shift in practice. Schools, families, community organisations and health systems should not assume that adolescents will confidently seek help through formal channels. They require respectful communication, privacy, non-judgemental care and consistent accurate information across the settings in which they live and learn [8,16]. In this sense, adolescent SRH is not a niche concern. Rather, it is a cross-sectoral investment in health, gender equity and future social well-being [2,4,5].

Conclusion

The central insight remains compelling: adolescence is simultaneously a period of opportunity and vulnerability [1]. The policy failure is not that risk exists, but

that institutions too often respond to adolescents only when risk becomes visible. A stronger policy and programme response must begin before risks become entrenched, engage more closely with adolescents' lived realities, and provide age-appropriate SRH education, confidential services, credible digital information and supportive family, school and community environments [1-9]. For South Asia, and for Sri Lanka in particular, the next phase of progress will depend on recognizing adolescent SRH not as a peripheral concern, but as a core public investment whose benefits will be realised across the life course and into future generations [2-5].

Ethical Approval

This article was developed from the keynote address delivered at the opening ceremony of ReproSex 2024: International Conference on Sexual and Reproductive Health, Colombo, Sri Lanka, 5–6 November 2024, together with the publicly available recording of that address. As the article does not report original research involving human participants, human tissue or identi-fiable personal data, ethics committee approval and informed consent were not required.

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Conflict of interests

The author declares no conflict of interests.

Data Availability Statement

The full keynote speech underpinning this article is publicly available on the official ReproSex YouTube channel at: https://www.youtube.com/watch?v=b572HwX2324. No primary dataset was generated for this manuscript; the article is based on the keynote speech and the published sources cited in the reference list.

Statement on the Use of Artificial Intelligence Tools

This article was prepared on the basis of the keynote address delivered by Dr Iqbal H. Shah at ReproSex 2024. The Editors-in-Chief declare that ChatGPT (GPT-5.4 Thinking, OpenAI) was used exclusively for language refinement and clarity enhancement. All content was subsequently reviewed and approved by the Co-Editors of the ReproSex Journal, who assumed full responsibility for the accuracy, interpretation and integrity of the article.

Author Biography

Dr Iqbal H. Shah is a prominent figure in global reproductive health research. He served as a Visiting Scientist in the Department of Global Health and Population at the Harvard T.H. Chan School of Public Health and was also affiliated as a Research Fellow with Inselspital, Bern University Hospital. Over a distinguished career, including many years at the World Health Organization, he became internationally known for his influential work on unsafe abortion and for advancing social science and operations research in sexual and reproductive health. An accomplished and widely cited scholar, he authored more than 100 scientific papers and co-edited several books. His scholarship and leadership left a lasting mark on the fields of family planning, abortion, infertility and adolescent health.

Editor's Special Note: In Memory of Professor Iqbal H. Shah

ReproSex: International Journal on Sexual and Reproductive Health publishes this leading article in Volume 2, Issue 1, in memory of Professor Iqbal H. Shah, who passed away in Geneva, Switzerland, on 28 December 2025. This article was developed from the keynote address delivered by Professor Shah at the opening ceremony of ReproSex 2024: International Conference on Sexual and Reproductive Health, held in Colombo, Sri Lanka, on 5–6 November 2024. Professor Shah's association with ReproSex was both meaningful and generous. He served as the keynote speaker at the ReproSex 2024 Conference and as a valued member of the International Advisory Committee of the ReproSex Journal. Throughout the formative stages of both the conference and the Journal, he extended thoughtful guidance, encouragement and intellectual support. His contributions strengthened the Journal's commitment to evidence-informed, rights-based and globally engaged scholarship in sexual and reproductive health. By publishing this article as the leading article of Volume 2, Issue 1, ReproSex honours Professor Shah's scholarly legacy and his personal generosity. His work will continue to inspire researchers, policymakers, programme professionals and advocates committed to advancing sexual and reproductive health and rights in Sri Lanka, South Asia and beyond. The full keynote speech on which this article is based is publicly available on the official ReproSex YouTube channel at: https://www.youtube.com/watch?v=b572HwX2324.

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Perinatal Intimate Partner Violence and Maternal Health Pathways in Nuwara Eliya, Sri Lanka: An Inductive Thematic Analysis of Case Study Interviews

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Original Article

Abstract

Introduction: Intimate partner violence (IPV) during pregnancy is a critical maternal health and safety concern. Beyond episodic assault, perinatal IPV may operate through coercive control that undermines women's autonomy, restricts access to essential resources, and disrupts engagement with antenatal care (ANC) and related maternal health services. This study aims to explore how pregnant women experience perinatal IPV in the Nuwara Eliya District, Sri Lanka, and how violence shapes maternal health pathways, including ANC engagement, disclosure, and help-seeking.

Methods: This paper reports a stand-alone qualitative component nested within an ongoing exploratory sequential mixed-methods study. Fifteen in-depth case-study interviews were conducted with pregnant and postpartum women who disclosed IPV during their most recent pregnancy. Interviews followed a case-narrative approach and were analysed using inductive thematic analysis under an interpretivist epistemological position. Data were managed and coded using NVivo (v15.3), progressing from free coding to codebook refinement and theme development.

Results: Four inter-connected themes were generated. Theme 1 showed perinatal IPV as a spectrum of abuse and coercive control, including physical, sexual, emotional, and economic abuse, with pregnancy-specific restriction of ANC access. Theme 2 highlighted a household "ecosystem" sustaining violence, commonly involving alcohol-linked escalation, in-law hostility, jealousy/suspected infidelity, and pregnancy-related role expectations. Theme 3 demonstrated that disclosure was strategic and selective; women navigated silence, concealment, reliance on trusted Public Health Midwives (PHMs), temporary separation, and crisis-driven engagement with hospitals or police/legal services. Theme 4 described significant maternal well-being and functional impacts, including disrupted sleep/appetite, reduced daily functioning, and severe psychological distress.

Conclusion: Perinatal IPV in this setting is experienced as sustained coercive control that directly shapes maternal health pathways. Strengthening confidential, survivor-centred IPV responses within routine ANC/PNC; particularly through PHM continuity, safe enquiry, and coordinated referral may improve protection and support for women during pregnancy.

Key Words: gender based violence, domestic violence, antenatal care, help-seeking pathways, coercive control, inductive thematic analysis

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Introduction

Intimate partner violence (IPV) refers to physical, sexual, psychological, and controlling behaviours by a current or former intimate partner that cause harm to women's health, safety, and autonomy [1]. IPV is widely recognised as both a public health and human rights concern, with consequences that extend beyond episodic physical assault to include coercive control, fear, restricted mobility, economic dependence, and reduced access to support [1, 2]. Pregnancy and the postpartum period may heighten these vulnerabilities because women require regular health service contact, physical rest, nutrition, emotional support, and household cooperation [3, 4]. In this context, IPV may directly shape maternal health pathways by affecting women's ability to attend antenatal care (ANC), disclose violence, seek help, and maintain well-being during pregnancy and early motherhood [3-5].

Maternal health pathways, particularly antenatal care (ANC) and postnatal care (PNC), are central to this relationship between IPV and perinatal well-being [3]. In many settings, pregnancy may increase routine contact with health services, which positions ANC/PNC as a potential entry point for early identification, first-line support, and referral [5]. However, health system contact does not automatically translate into protection. For women experiencing IPV, maternal health services can become contested spaces where disclosure is shaped by fear of escalation, concerns about confidentiality, stigma, and the potential consequences of involving others [6]. In these circumstances, women may delay care, attend selectively, or develop cover stories to avoid raising suspicion at home [7]. The relationship between IPV and maternal health pathways, therefore, requires attention not only to whether women access services, but also to how women navigate those services under coercive conditions, and when health services become helpful or insufficient within trajectories of violence.

Recent international evidence supports examining perinatal IPV as a pathway issue rather than only as a violence exposure. Qualitative evidence from perinatal care settings shows that disclosure is shaped by fear of retaliation, perceived confidentiality, family consequences, provider response, and the safety of the consultation environment [8]. Even when women have contact with health services, disclosure may remain difficult if they doubt that services can offer practical protection or if partner or family surveillance continues [6, 8]. Multi-country evidence also suggests that IPV is associated with maternal health service utilisation, reinforcing the need to understand not only whether women attend ANC/PNC, but how they navigate care under conditions of control, fear, and constrained autonomy [9].

Sri Lanka provides an important context for examining these dynamics. Despite its strong maternal health indicators and well established public health midwife (PHM) system, IPV during pregnancy remains under-researched and inadequately addressed within routine maternal healthcare services [10, 11]. Sri Lanka's policy and service frameworks increasingly support IPV enquiry and first-line response within antenatal and postnatal care, including guidance for PHMs to conduct sensitive enquiry, provide first-line support, and refer survivors to dedicated services such as Mithuru Piyasa/Natpu Nilayam [12, 13]. Yet, recent assessments highlight

persistent implementation gaps, including inconsistent application of protocols, limited integration of IPV screening into routine maternal and child health services, and missed opportunities for identification and support during ANC/PNC encounters [10]. These gaps are significant because women often have multiple points of contact with the health system throughout pregnancy and the postpartum period, and each interaction can either reinforce silence or provide a safe pathway to disclosure and support [14].

The Nuwara Eliya District was selected because it represents a setting where Sri Lanka's strong maternal health system intersects with estate-sector, rural, linguistic, and socio-economic vulnerabilities [13,15,16]. In this manuscript, the term "estate" refers to plantation-sector communities commonly associated with tea estates, characterised by plantation labour histories, estate-based settlement patterns, and distinct socio-economic and linguistic contexts. "Non-estate" refers to communities located outside the plantation estate structure, including rural, semi-urban, and other settlement types within the district. This distinction is analytically important because household structure, income security, mobility, language, social surveillance, and proximity to services may influence both IPV experiences and help-seeking options [15-17]. National evidence indicates that violence against women remains a significant concern in Sri Lanka, while district-level vulnerability evidence underscores the importance of examining how socio-economic conditions and service-access constraints operate in specific local contexts, rather than assuming that the benefits of national maternal health achievements are experienced equally across all communities [16,17].

The key evidence gap extends beyond the limited documentation of IPV during pregnancy in Sri Lanka, to the lack of qualitative understanding of how women experiencing IPV navigate maternal healthcare pathways. While existing studies identifies IPV as an important maternal health concern and acknowledge the potential role of ANC/PNC services in addressing it, less is known about how pregnant and postpartum women in estate and rural settings manage clinic attendance, concealment or disclosure of abuse, interactions with PHMs, hospital encounters, and formal help-seeking, while living under conditions of coercive control [6,10,12,14]. This gap limits the development of survivor-centred IPV interventions within routine maternal healthcare, particularly in settings where privacy, mobility, and access to referral services may be limited [10-12].

This study aimed to explore how pregnant and postpartum women in the Nuwara Eliya District experience IPV during the perinatal period and how these experiences shape their engagement with maternal healthcare pathways, including ANC/PNC engagement, disclosure, and help-seeking. The study was guided by two research questions: (01) How do women experience IPV during pregnancy and the postpartum period within the estate and rural district context? (02) How does IPV influence women's engagement with maternal health services, decisions regarding disclosure, and help-seeking pathways?

Methods

Study design and epistemological position

This paper reports the qualitative component of an ongoing exploratory sequential mixed-methods study conducted in the Nuwara Eliya District, Sri

Lanka. The qualitative component was designed as a case-study-based inquiry to generate an in-depth understanding of how IPV is experienced during pregnancy and the postpartum period, and how these experiences shape maternal health pathways, particularly ANC/PNC engagement, disclosure, and help-seeking. The study was guided by an interpretivist epistemological position, which treats women's accounts as situated narratives shaped by household relationships, social norms, structural constraints, and interactions with health and support systems [16]. Inductive thematic analysis was selected because it allowed patterns to be generated from women's narratives while retaining attention to case context, meaning, and variation across participants [18,19].

Study setting

The study was conducted in the Nuwara Eliya District, a predominantly rural and estate-sector area with distinctive maternal health and social conditions relevant to perinatal IPV. Maternal health services in the district are delivered through routine ANC/PNC clinics and hospital pathways, supported by the PHM system [13]. Formal referral and support services for women experiencing IPV and other forms of gender-based violence include Mithuru Piyasa/Natpu Nilayam service points and a 24/7 hotline and referral network [12]. The district context is also characterised by estate/non-estate settlement patterns, constrained household resources, language diversity, and structural barriers [16] that may influence both IPV dynamics and access to care [17].

Participants, recruitment and sampling

Fifteen pregnant and postpartum women who disclosed IPV during their most recent pregnancy were included. Participants were purposively selected to capture variation in estate and non-estate residence, perinatal stage, age, parity, living arrangement, type and severity of IPV, and type of help-seeking pathway. Recruitment took place through IPV-relevant health and community contact points, including FPA Sri Lanka Suwasewa Centre.

Recruitment was conducted with attention to participant safety. Participation was discussed privately where feasible. No identifying information was recorded in maternal health records for research purposes. Interview appointments were arranged at times and locations considered safe by participants, with careful attention to the risk of partner, in-law, or community surveillance. The sample size was justified by the qualitative component's purpose: to develop rich, information-dense case narratives rather than statistically representative estimates. Sampling continued until the research team judged that additional interviews no longer yielded substantially new insights into the central analytic domains: forms of IPV, pregnancy-specific control, ANC/PNC disruption, disclosure, PHM contact, hospital or legal encounters, and maternal well-being impacts. Saturation was assessed through iterative review of interview summaries, emerging codes, and cross-case comparison. The adequacy of 15 interviews was also supported by the principle of information power, which suggests that smaller qualitative samples may be sufficient when participants provide rich, specific, and highly relevant information for a narrowly focused study aim [20].

Data collection

Data were collected through individual in-depth interviews using an open-ended

case-narrative interview guide. Interviews explored women's pregnancy history, relationship context, forms and timing of IPV, perceived triggers or sustaining conditions, restrictions on movement or resources, ANC/PNC attendance, disclosure decisions, interactions with PHMs or other health workers, hospital encounters, police/legal or community help-seeking, and perceived physical and psychological impacts. Probing questions were used flexibly to allow participants to describe events in their own words and to preserve the sequence of pregnancy, violence, care-seeking, and support. This approach was consistent with qualitative interviewing standards that emphasise participant-led narratives, contextual detail, and transparent reporting of interview procedures [18,19,21].

Interviews were conducted in confidential locations selected in consultation with participants, including safe health or community settings where privacy could be maintained. Interviews lasted approximately 60–90 minutes, depending on participant comfort, narrative depth, and safety considerations. The interviewer used a non-judgmental approach, monitored distress, avoided pressuring participants to disclose details they did not wish to share, and provided information on available support services when needed [21].

Researcher reflexivity

Researcher reflexivity was incorporated throughout data collection and analysis. The interviewer was a female medical graduate with prior training in GBV/IPV-related service response, but she did not have a prior relationship with the participants. This reduced the likelihood that participants felt obliged to participate because of an existing clinical or service relationship. During analysis, the research team discussed how their backgrounds in sexual and reproductive health, maternal health, public health, and service delivery could shape interpretation. Reflexive discussions focused on avoiding assumptions that contact with health services automatically equates to safety, avoiding victim-blaming interpretations of non-disclosure, and interpreting silence, concealment, and delayed help-seeking as contextually situated safety strategies [8, 18, 21].

Data Analysis

Interviews were audio-recorded with consent, transcribed verbatim, and de-identified before analysis. Data were managed using NVivo version 15.3. Analysis followed an inductive thematic analysis process. First, transcripts were read repeatedly to develop case-level familiarity and to document the sequence of pregnancy, IPV experience, care-seeking, disclosure, and support. Second, free/open coding was conducted across the transcripts to capture descriptions of IPV forms, coercive control, household drivers, pregnancy-specific restrictions, ANC/PNC barriers, concealment, disclosure, PHM contact, hospital encounters, police/legal help-seeking, and maternal well-being impacts. Third, initial codes were reviewed, merged, renamed, and organised into broader analytic categories through constant comparison across cases. Fourth, candidate themes were developed by examining how categories explained the relationship between perinatal IPV and maternal health pathways [18, 19].

To strengthen transparency, the final coding structure is summarised in Annexure 1. Coding decisions were discussed within the research team, with attention to

whether themes were grounded in multiple cases, whether contradictory or less common cases were represented, and whether each theme directly addressed the research aim. This process was informed by qualitative reporting principles that encourage transparent description of the research team, coding process, analytic decisions, and interpretation [18, 21]. NVivo was used as a data management and analytical support tool, not as a substitute for interpretation. Query outputs and visualisations were used only to support reflection on coding patterns and case relationships. The final themes were generated through interpretive engagement with transcripts, case summaries, and team discussion, rather than solely from automated NVivo outputs [18, 19, 21].

Ethical Considerations

These procedures were consistent with established ethical principles for research and service engagement on violence against women, where privacy, confidentiality, voluntary participation, and non-maleficence are central safeguards. 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, and the official approval letter was issued on 25th April 2025.

Results

Participant Profile

The analysis draws on 15 case-study interviews with pregnant and postpartum women who disclosed IPV during their most recent pregnancy. Most participants were from estate-sector communities (11/15), with ages ranging from 19 to 41 years. Women were interviewed across the perinatal period, including pregnancy (12–34 weeks' gestation) and postpartum (approximately 3 weeks to 6 months). Reported violence commonly included physical and psychological abuse, with several accounts also describing sexual and economic abuse (Table 01).

Figure 01 illustrates the distribution and overlap of IPV forms reported across the 15 case-study interviews. Most participants described psychological abuse occurring alongside physical violence, reflecting the frequent co-occurrence of emotional harm with bodily assault during pregnancy. A smaller number of cases also reported sexual violence in addition to physical and psychological abuse. Economic abuse was less frequently reported and tended to occur in combination with other forms of violence, rather than as an isolated experience. Overall, the visual highlights that perinatal IPV in this sample commonly involved multiple, overlapping forms of violence, reinforcing an analytic framing of IPV as a spectrum of coercive control rather than a single-event exposure.

Theme 1: Perinatal IPV as a spectrum of abuse and coercive control that restricted safety, resources, and antenatal care

Women described IPV during pregnancy and postpartum as layered and cumulative, where physical assaults often occurred alongside sexual coercion, intimidation, emotional degradation, mobility restriction, and financial control. Pregnancy was repeatedly framed as a period when women required care, rest, and consistent maternal health follow-up, yet many

Table 1. Socio-demographic and pregnancy characteristics of participants

	Estate or Non-estate	Age	Marital Status[1]	Pregnancy status	Number of pregnancies[2]	Number of living children	Education
01	Estate	21	2	04 WPP	2	1	Grade 10
02	Estate	38	2	03 WPP	3	2	O/L
03	Estate	19	2	23 W0G	1	0	O/L
04	Non-estate	33	4	12 WOG	1	0	A/L
05	Estate	24	2	20 WOG	1	0	O/L
06	Estate	29	2	20 WOG	3	2	Grade 9
07	Estate	41	2	12 WOG	2	1	O/L
08	Non-estate	36	2	19 WOG	3	2	O/L
09	Estate	29	2	20 WOG	3	1	A/L
10	Non-estate	20	2	24 WOG	1	0	O/L
11	Estate	28	2	32 WOG	1	1	A/L
12	Non-estate	20	2	23 WOG	1	0	Grade 12
13	Estate	33	2	34 WOG	3	2	O/L
14	Estate	41	2	24 WPP	4	3	O/L
15	Estate	23	2	24 WPP	1	1	O/L

Note: Marital Status = 1. Never married, 2. Currently Married – First Marriage, 3Currently Married – Remarried (second or later marriage), 4. Divorced or Separated, 5. Widowed.

WOG = weeks of gestation; WPP = weeks postpartum; O/L= GCE Ordinary Level, A/L= GCE Advance Level.

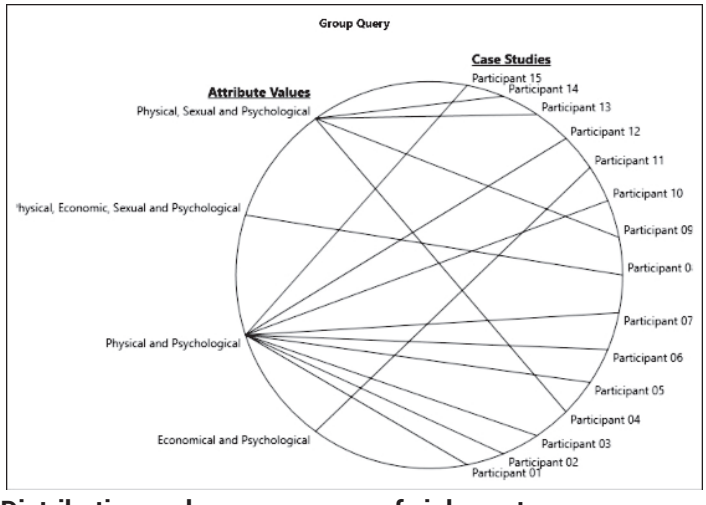


Figure 1. Distribution and co-occurrence of violence types across participants (NVivo group query).

Note: Chord diagram from NVivo group query showing the combination of IPV types coded within each case study participant. Lines indicate the co-occurrence of physical, sexual, psychological, and economic violence within individual narratives, demonstrating that most women reported multiple overlapping forms of abuse rather than a single isolated type.

[1]1. Never married, 2. Currently Married – First Marriage, 3. Currently Married – Remarried (second or later marriage), 4. Divorced or Separated, 5. Widowed.

[2]Number of pregnancies before this pregnancy.

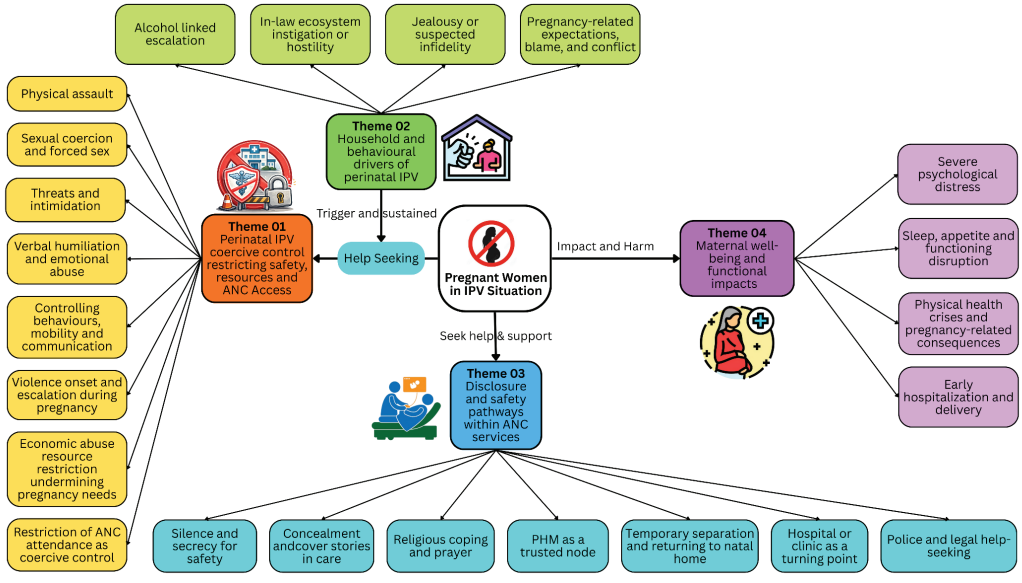


Figure 2. Conceptual overview of thematic findings linking perinatal IPV, sustaining household drivers, help-seeking pathways, and maternal well-being impacts.

Note: The arrows indicate perceived linkages across four domains based on participants' narratives, and should be interpreted as relational pathways rather than evidence of causality.

experienced a tightening of control instead. Rather than reducing violence, pregnancy sometimes intensified surveillance and conflict, positioning the perinatal period as a time when both bodily vulnerability and dependence on the household increased.

Physical violence during pregnancy was frequently narrated as occurring despite foetal vulnerability, with women describing assaults even after explicitly stating they were pregnant. One woman recalled, *"When he started hitting me, I reminded him that I'm pregnant… then he pulled my hair and dragged me on the ground and beat me."* Several accounts conveyed that violence was not limited to one episode but repeated across pregnancy, contributing to fear about harm to the baby and on-going instability. A participant explained, *"Throughout my pregnancy, I have been admitted to the hospital around four or five times… even now, I still have bruises and scars all over my body from being beaten."* Another participant explained, *"I remember that I fainted once while he was hitting me, and I had to get admitted to the hospital for 8 days as I had severe back pain and was not able to stand or do regular activities. My husband did not even visit me during my hospital stay or even provide me with the necessary expenses needed".* In these narratives, pregnancy was not protective; instead, it became the context in which violence was endured while women simultaneously attempted to safeguard the foetus. *"When I was pregnant with my first child, he tried to kill me by squeezing my neck. He tried to hit my stomach. But as my child was inside me, I protected my stomach by defending myself and making sure he didn't hit it."*

Sexual coercion during pregnancy was described as forced compliance within a climate of fear and power imbalance. Women spoke about refusal being unsafe or impossible, and some narrated forced sex as part of a broader system of domination rather than an isolated incident. One participant stated, *"He will not listen to my refusals… When I say no, he would force me."* Another described compliance as a strategy to avoid further assault: *"If I don't want to have sex with him, he hits me. When he asks, I'm expected to say yes. Most of the time, it starts with a fight."* These experiences highlight how pregnancy did not reduce sexual entitlement, but instead positioned women to negotiate bodily autonomy under heightened dependence and threat. *"My husband never really cares; he only wants sex. After getting me pregnant, he always leaves. He comes and goes whenever he wants and sexually abuses me. Sometimes, he even accuses me of carrying someone else's child."*

Threats and intimidation operated as a constant backdrop that amplified women's fear during pregnancy, shaping daily decisions and limiting perceived options for resistance or disclosure. Women described being frightened not only for themselves but also for the unborn baby and other family members. One woman noted, *"He threatened to kill me… another time, he said he would kill our child."* Such intimidation extended the violence beyond physical injury into a pervasive atmosphere of fear, where women remained alert to escalation and weighed the risks of "speaking out" during pregnancy.

Verbal humiliation and emotional abuse were described as continuous forms of harm that eroded dignity during pregnancy, often intensifying when women were physically constrained and more dependent. Participants described insults, accusations, and harsh language that undermined their sense of self and security. One woman explained, *"He uses bad words… I don't fight back because of the child."* Another reflected how repeated degrading comments shaped her emotional state across pregnancy, describing the home as a space of constant criticism rather than support. These accounts show emotional abuse functioning as an everyday form of violence that accompanied pregnancy, making the perinatal period psychologically burdensome even when physical assault was not occurring.

Controlling behaviours were described as particularly prominent during pregnancy and the postpartum period, when women's mobility and communication were closely monitored. Women described being restricted from leaving the home, from visiting family, or from speaking freely with trusted people. One participant reported, *"I can't speak with even my mother… he checks my phone."* For some women, control over communication meant that pregnancy follow-up and help-seeking were navigated in isolation, increasing dependence on the partner and reducing access to protective social ties. *"My husband always tries to control me. He does not like me talking to anyone else, and he won't let me go out alone. The only time he allows me to go alone is when I go to the clinic, as once the PHM shouted at him for not allowing me to visit the clinic."*

Several women described violence as beginning for the first time or escalating after pregnancy was recognised, framing pregnancy as a turning point in relationship power dynamics. A participant described her experience: *"He first hit me when I*

was two months pregnant. During an argument, he hit and slapped me several times and also pushed me down more than once. I hit the oil lamp once and fell down. But even then, they didn't take me to the hospital or allow me to go". Women spoke about changes in behaviour where conflict became more frequent, control became stricter, or assaults became more severe as pregnancy progressed. In these accounts, escalation was experienced as both physical and relational. Women described a shift from "arguments" to fear, surveillance, and repeated harm, particularly when household pressures increased.

Economic abuse was repeatedly framed in relation to pregnancy-related needs; with food, transport, medicines, and clinic-related expenses becoming sites through which control was exercised via denial and deprivation. Women described asking for basic pregnancy necessities and facing anger or refusal. A participant explained, *"He doesn't buy medicines… milk… I had to work even when I was pregnant."* Another linked financial deprivation to conflict and intimidation: *"He keeps talking about money… if I ask for something, he gets angry."* Another participant described that *"He doesn't take care of me, sometimes he doesn't even provide food. There have been days when I haven't eaten properly. I often survive on just one meal per day, as my husband does not give me money."* In these narratives, withholding resources was not only an economic constraint but a mechanism that undermined maternal well-being and reinforced dependency during pregnancy.

A particularly pregnancy-specific dimension was the restriction of antenatal care, where clinic attendance was regulated, delayed, or made conditional on surveillance by others. Women described needing permission, accompaniment, or oversight, limiting their autonomy in seeking care. One participant stated, *"He does not allow me to go to the clinic alone… only my mother-in-law takes me."* For these women, ANC was not simply a health service; it became a contested space shaped by coercive control, with clinic access reflecting relational power dynamics rather than maternal need.

Theme 2: Household and behavioural drivers that intensified IPV during pregnancy and postpartum

Women consistently situated perinatal IPV within a broader household "ecosystem" where alcohol use, jealousy, in-law dynamics, and pregnancy-related role expectations interacted to heighten tension and escalate violence. Participants rarely presented these conditions as single causes; rather, they described predictable patterns in which certain triggers intensified assaults, threats, and control during pregnancy and the postpartum period.

Alcohol use was frequently described as a catalyst that escalated violence, with women reporting that intoxication changed men's behaviour and increased the likelihood of assault. One woman explained, *"When he drinks alcohol, he will hit… other times he is good."* Another described alcohol-related conflict spilling into clinical spaces, showing how pregnancy did not protect women even in healthcare environments: *"He visited the hospital drunk and again fought there."* Women's narratives often reflected anticipation; pregnancy was lived with the fear of what would happen "when he drinks," indicating that alcohol contributed to cyclical and predictable violence patterns. "*If he didn't have enough money for alcohol, he used the little money*

kept aside for food. When I objected, he manhandled me and threatened me with daggers".

In-law involvement was described as an enabling environment where violence was legitimised, reinforced, or intensified, particularly for women living in the partner's household during pregnancy. Some participants described hostility from mothers-in-law and sisters-in-law, where blame and insults accompanied or escalated abuse. One woman stated directly, *"His mother also hit me… they all blame me."* Others described pregnancy as a period when they were expected to endure mistreatment silently within the household hierarchy, with limited protection from elders. In such contexts, violence was not contained within the couple but embedded within extended family relations that shaped women's isolation and reduced their capacity to seek support. *"My partner and I always had to listen to his parents' comments as they would insult me, saying that I don't have parents or an identity of my own"*.

Jealousy and suspected infidelity emerged as common drivers of conflict and control during pregnancy, with women describing accusations that justified monitoring and restrictions. One participant explained, *"He thinks I have another man… that's why he fights."* These suspicions often fuelled surveillance of phones, restrictions on movement, and increased intimidation, reinforcing the controlling dynamics described in Theme 1. One participant explained that her husband would repeatedly question her, *"You didn't answer my phone; were you with another man? Were you pregnant by him?"* This shows how pregnancy did not reduce the IPV; for some women, it intensified conflict, positioning pregnancy within a broader context of mistrust and coercion.

Pregnancy-related expectations and blame also contributed to violence escalation, with women describing being held responsible for household stability while physically constrained. Some women described being pressured to continue heavy domestic tasks, manage finances, and meet relationship expectations despite pregnancy-related fatigue and health needs. One woman expressed the strain clearly: *"I have to take care of him, right? But I don't have money, and I do not take care of the household work."* These accounts reveal a "double vulnerability" in pregnancy; women were more physically limited, yet more harshly judged, with conflict emerging when expectations were not met. *"Two months ago, when I was pregnant. I didn't go to work for one month, I didn't get paid, and they told me to come back only after I gave birth. Then, my sister's husband went to speak to my husband about it. But my husband blamed me, saying it was all my fault because of that conversation. And then he hit me."*

Theme 3: Selective disclosure, concealment, and help-seeking within pregnancy and postpartum constraints

Women's responses to IPV during preg-nancy were shaped by fear of escalation, stigma, social consequences, and concerns about the unborn baby. Disclosure was not described as a simple "yes/no" act, but as a strategic process in which women assessed what could be safely shared, with whom, and at what moment. Maternal health pathways were sometimes opportunities for limited help-seeking, yet they could also be navigated through silence, concealment, and controlled communication.

Silence and secrecy were frequently framed as protective strategies to prevent further violence, avoid retaliation, and preserve pregnancy safety. *"I do not want to talk about this with anyone except my mother. I don't want anyone in the community to know what I am going through because I will feel ashamed of myself. That is why I do not want to speak to anyone in the clinic either."* Women described remaining quiet to avoid provoking partners and to prevent conflict from worsening. One woman explained, *"I did not tell him… because if he knows, he will do something. Only my child and I know."* For many participants, silence was not acceptance, but survival, pregnancy was managed alongside fear, and speaking openly was seen as risky when women remained dependent and closely monitored.

Concealment and cover stories were commonly used when women accessed maternal care or interacted with others, especially when visible injuries raised questions. Participants described hiding bruises, attributing harm to accidents, or minimising incidents to avoid disclosure. One participant narrated, *"I told the doctor I fell down… I did not say anything about what happened at home."* Such concealment reflected women's calculation of safety and the fear that disclosure could trigger escalation once they returned home. Even in care settings, women often managed disclosure carefully, balancing the need for help against the consequences of being "found out."

Religious coping emerged as an emotional response when women felt they had limited practical options for change. Women described prayer and faith as sources of endurance and hope during pregnancy, particularly when violence was ongoing and support systems were uncertain. For some, religion offered a private space to express distress when speaking to others was unsafe. This form of coping did not replace formal support but functioned as a stabilising strategy within constrained circumstances.

The Public Health Midwife (PHM) was repeatedly described as a trusted and familiar node within women's maternal health pathways, where limited disclosure sometimes became possible. *"I had to face everything alone. Neither my parents nor my in-laws supported me. When I finally spoke to the PHM and told her what I was going through, she advised me how to protect myself and my unborn baby"*. Some women spoke about the PHM as someone who could notice distress or provide guidance, especially when pregnancy follow-up created repeated contact. Women described feeling safer sharing concerns when approached sensitively and when confidentiality felt credible. In these accounts, the PHM role was experienced not only as clinical follow-up but as relational trust within the maternal care system. *"I took his phone and gave it to the PHM to keep it. I didn't explain why, but I did it so he couldn't talk to that lady."*

Temporary separation; often returning to a natal home was described as a safety strategy used during pregnancy or postpartum when violence escalated. *"I always want to run away to my parents' house whenever he hits me. He always comes home drunk and gets angry at me for no reason. Even on the days he doesn't drink, he still abuses me."* Women described leaving temporarily to protect themselves and the baby, although these separations were often unstable due to dependence, childcare, social pressures, or continued intimidation. One woman reflected, *"When I was having my second baby, I stayed in*

my brother's place… sometimes he would come and shout at me." For some women, leaving created brief safety but did not end coercive control, as partners continued to monitor or threaten them across locations.

Hospital or clinic encounters sometimes functioned as turning points, particularly when violence resulted in physical harm, severe distress, or pregnancy complications that required care. Women described moments when health staff raised concerns or when the hospital environment temporarily reduced partner control. *"I once had a fit when my husband was hitting me, and I had to be admitted to the hospital because it affected my baby. The doctor warned me and advised me to be careful, saying that if it happens again, it could lead to serious problems for the baby."* However, women also remained cautious because clinics were not always safe spaces for open disclosure, especially when partners or in-laws accompanied them. Care settings could therefore represent both opportunity and constraint; women might receive support, but only within the boundaries of what could be safely said. *"I have been admitted to the hospital four or five times. He's even gone to jail because of it. The hospital staff said they would file a case, but I begged them not to. He promised me he would change. He said he would will take care of me."* Some women described receiving personal support from hospital staff, including one participant who recalled, *"A madam at the hospital told me, 'If something happens again, I will protect you and find a safe place for you and your children to stay.'"*

Police or formal legal help-seeking was described cautiously and often only under crisis conditions. Women's accounts reflected hesitation due to fear of retaliation, stigma, and uncertainty about outcomes. Some women described approaching police when violence became unmanageable, while others explained why they avoided it, anticipating escalation or community consequences. Formal help-seeking was thus situated as a high-risk option, considered when safety threats outweighed fears of disclosure.

Theme 4: Maternal well-being and functional impacts of IPV during pregnancy and postpartum

Women's narratives highlighted that IPV during pregnancy affected both body and mind, disrupting sleep, appetite, emotional stability, and everyday functioning. Rather than being a period of protection and anticipation, pregnancy and the early postpartum period were described as periods of survival marked by chronic tension. Women's accounts conveyed that well-being impacts were not only psychological but also shaped by physical strain and pregnancy-related complications occurring in an environment of fear and instability.

Severe psychological distress was described through constant worry, fear, and emotional exhaustion, often intensified by concerns about the baby's safety and uncertainty about the future. One participant described severe psychological distress and suicidal thoughts despite being referred for counselling, stating, *"I was referred from the hospital for counselling, but my husband said I'm fine. Sometimes I have thoughts of ending my life, but when I look at my children, I feel a little better."* Another participant described, *"My son wants us to commit suicide together. He is very smart for his age, not like other children. He doesn't like me suffering, and he's also*

going through a difficult time. He thinks we should end our lives together." Women described pregnancy as emotionally heavy, with distress accumulating over time. In these accounts, distress was not separate from violence; it was understood as a consequence of living under coercion while trying to maintain pregnancy health and household stability.

Sleep, appetite, and daily functioning were commonly disrupted, with women describing reduced food intake and a diminished capacity to complete daily tasks. One participant stated, *"Yes, I don't get much sleep. Sometimes I don't feel like eating, either."* Another linked emotional distress to physical weakness and lack of support during pregnancy: *"I have even fainted thinking about this, as I couldn't eat properly… no one ever came to see me or take care."* Women also described how persistent rumination interfered with routine activites: *"I sometimes don't eat… and I find it hard to do daily activities. I just keep thinking about these things."* These accounts illustrate the experience of pregnancy lived under chronic stress, where basic functioning became difficult.

Physical health crises and pregnancy-related consequences were described as occurring within the context of violence and distress, with women expressing fear that conflict and harm could affect the baby. Some women reported episodes of collapse or acute illness during pregnancy, while others described being warned by clinicians about risks associated with stress or injury. In these narratives, the pregnant body was experienced as fragile, and violence created uncertainty about the safety of the foetus and the stability of the pregnancy. Early hospitalisation and delivery were described by some women as part of pregnancy trajectories shaped by stress, conflict, and declining health. One participant linked pregnancy complications to the broader context of distress and instability: *"I got pressure in that pregnancy, so I had to get admitted early for the delivery."* Such accounts illustrate how IPV during pregnancy was not only a safety concern but also a factor shaping maternal health trajectories, increasing the likelihood of crisis-driven care and heightened vulnerability during late pregnancy.

Discussion

This qualitative analysis of 15 case-study interviews with pregnant and postpartum women in the Nuwara Eliya District provides an in-depth account of how IPV is experienced, sustained, and navigated during the perinatal period, with particular attention to maternal health pathways. Rather than presenting violence as a series of isolated incidents, women's narratives portrayed pregnancy as a time when abuse often intensified into a spectrum of coercive control, shaping bodily safety, emotional well-being, household resources, and critically, women's ability to access ANC and other maternal healthcare services.

These findings are consistent with recent international qualitative evidence showing that perinatal IPV disclosure is often constrained by fear, concerns about confidentiality, family consequences, and uncertainty about whether services can offer meaningful protection [8]. Similar to findings from antenatal and perinatal care settings, women in this study did not experience disclosure as a simple individual decision, but as a safety calculation shaped by partner surveillance, family dynamics, stigma, and perceived responses from services [6, 8]. The findings also align with broader multi-country evidence

that IPV can influence maternal health service utilisation, although the present study extends this evidence by showing how service contact may be strategically negotiated rather than simply delayed or missed [19].

A central contribution of this study is the way women described IPV during pregnancy as layered and cumulative, with physical assault, sexual coercion, intimidation, emotional degradation, restrictions on mobility and communication, and economic restriction operating together as an interlocking system. Importantly, pregnancy did not simply occur "alongside" violence; instead, it appeared to reshape the terrain of control. Women spoke of being assaulted while pregnant despite foetal vulnerability, being coerced into unwanted sex while carrying a pregnancy, and living under persistent threats that made everyday life; including sleep, eating, and rest feel unsafe. What is particularly pregnancy-specific in these accounts is the way maternal health needs became part of the control strategy. Women described a loss of autonomy not only in home settings but also in their ability to attend clinics, communicate freely with providers, or disclose safely. This positions ANC access not merely as a service utilisation issue, but as an element of coercive control embedded in the lived experience of perinatal IPV. In this way, the study extends typical descriptions of "violence in pregnancy" beyond incident-based harm, highlighting how pregnancy-related vulnerabilities such as dependence, health needs and mobility constraints may be used to tighten control and isolate women at the very time they require additional care and support.

The findings can be interpreted through a coercive control lens, in which violence operates not only through discrete acts of physical harm but through repeated restrictions on autonomy, mobility, resources, communication, and decision-making [1, 3, 5]. This framing is particularly useful in the perinatal period because pregnancy can increase women's dependence on household support, transport, nutrition, and access to health services [3, 4, 8]. In this study, ANC attendance, communication with PHMs, hospital care, and disclosure were not neutral health behaviours; they were embedded in household power relations and shaped by safety calculations. This helps explain why women may attend services but remain silent, disclose partially, or seek help only when violence escalates to a crisis [6-9].

Women consistently located perinatal IPV within a broader household context; a set of interacting stressors and power relations that helped explain why violence escalated or persisted. Alcohol use emerged as a common escalation context, with women describing predictable patterns in which drinking preceded intimidation or assault. In parallel, in-law influence appeared in women's narratives not simply as "background family dynamics" but as an active social force that could legitimise or amplify abuse, leaving women with limited protection within the household during pregnancy. Jealousy and suspected unfaithfulness also featured as recurring drivers, sometimes intensifying controlling behaviours and restrictions on communication and mobility. These suspicions often carried heightened consequences in pregnancy, as women's physical limitations and dependence increased, making resistance or escape more difficult. In addition, women described pregnancy-related expectations; regarding domestic labour, obedience, and perceived "role" fulfilment as creating conflict when

women were physically unwell, required rest, or could not meet household demands.

A second major contribution is the study's detailed portrayal of how women managed disclosure strategically rather than following a simple "disclose versus do not disclose" pattern. Silence and concealment were frequently described as safety-preserving decisions made under fear of escalation, economic dependence, social consequences, and concerns about confidentiality. For many women, the risks of being "found out" were perceived as immediate and severe, particularly during pregnancy when physical vulnerability was heightened. Within maternal health settings, women sometimes used cover stories or partial disclosure to access care while avoiding escalation at home. This highlights ANC/PNC not only as opportunities for support, but also as contested spaces where women must actively negotiate safety. In this context, the PHM emerged as a critical trusted actor. Women's narratives suggested that the relational continuity of PHM contact (home visits, routine clinic follow-up, familiarity with families) can provide a rare entry point for recognition and support, especially when trust and confidentiality are experienced as credible. At the same time, women's accounts caution against assuming that service contact automatically ensures protection. Even when healthcare providers identified abuse or made referrals, women described situations where partners minimised concerns, restricted follow-through, or monitored interactions. These findings underscore that effective responses require more than the availability of services; they depend on whether care environments are safe, private, and equipped with viable referral pathways that protect women from retaliation and further control.

Women's narratives also suggest that hospital admissions and police/legal services were most commonly engaged under conditions of escalation, acute harm, or crisis; rather than early in the violence trajectory. Hospitals were sometimes described as rare spaces where women were temporarily separated from the perpetrator or encountered compassionate staff support, creating moments where women could reflect, disclose, or be referred onward. However, these "turning points" were not consistently protective; they were fragile, dependent on staff discretion, and often undermined by fear of consequences once women returned home. Similarly, police/legal help-seeking appeared to be shaped by ambivalence and constraint: women described weighing the possibility of protection against risks of escalation, stigma, or community exposure. This indicates that formal services may be perceived as high-stakes options rather than routine supports, particularly within rural/estate contexts where women may fear social repercussions and have limited alternatives for safe housing or financial security.

Finally, the study shows how perinatal IPV undermined well-being in ways that were both psychological and physical. Women described disrupted sleep, appetite, and daily functioning, alongside experiences of severe distress. In some accounts, psychological suffering extended to thoughts of ending one's life, illustrating the intensity of entrapment and despair that can accompany sustained coercive control in pregnancy. In a perinatal context, these harms are particularly consequential because they occur alongside heightened physiological demands and the need for consistent care, nutrition, rest, and emotional safety. The findings therefore

reinforce that perinatal IPV is not only a social problem but a maternal health concern with implications for continuity of care, safety planning, and integrated mental health support within ANC/PNC systems.

These findings carry several practice-relevant implications for maternal and community health systems in Sri Lanka. First, ANC/PNC services should be positioned not only as routine clinical care but as protection-sensitive entry points, with staff trained to recognise coercive control patterns, not only physical injury. This includes strengthening privacy during consultations, improving confidential enquiry processes, and ensuring women have safe opportunities to speak alone. Second, the PHM system appears pivotal for early identification and relational support. Strengthening PHM capacity with practical tools for first-line response, safety planning, and referral coordination could be a high-impact investment, particularly in rural and remote communities where specialist services may be limited. Third, hospitals and police/legal mechanisms should be linked through clearer, survivor-centred referral pathways so that crisis points can become genuine opportunities for sustained protection rather than temporary interruptions. Finally, because economic restriction emerged as part of coercive control during pregnancy, responses must extend beyond counselling and referral alone. Where feasible, linkages to social protection, emergency support, and safe accommodation pathways can reduce women's dependency-driven entrapment, particularly when pregnancy increases the costs of care and transport.

Limitations

This study has several limitations. First, the sample was small and purposively selected, and the findings are intended to provide in-depth qualitative insight rather than statistical generalisability. Second, the study was conducted in one district with a substantial estate-sector population; therefore, the findings may not fully represent women's experiences in other Sri Lankan settings. Third, the analysis is based on women's accounts and does not include the perspectives of partners, in-laws, PHMs, hospital staff, police officers, or other service providers. Fourth, because IPV is a sensitive and potentially dangerous topic to disclose, some participants may have under-reported certain experiences or avoided details that felt unsafe or distressing to discuss. Finally, although the study identified important service pathways, it did not evaluate the effectiveness, quality, or safety of specific IPV response services.

Conclusion

Overall, this study demonstrates that perinatal IPV in Nuwara Eliya is lived as a spectrum of coercive control, with pregnancy creating distinct vulnerabilities and service-related stakes. Maternal health pathways, especially ANC, the PHM system, and hospital care, can serve as vital entry points for protection, yet women's engagement is shaped by fear, surveillance, and strategic disclosure. Strengthening confidential, integrated, and survivor-centred IPV responses within routine maternal care is therefore essential to protecting both women's wellbeing and the continuity and safety of perinatal health pathways in estate and rural Sri Lankan settings.

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 23 April 2025. The official approval letter was issued on 25 April 2025. Written or documented informed consent was obtained from all participants before data collection. Confidentiality, voluntary participation, the right to withdraw, and referral information for participants requiring support were incorporated into the study procedures.

Author Contributions

MSS contributed to conceptualisation, study design, qualitative analysis, interpretation of findings, and drafting of the manuscript. LS led the overall study conceptualisation, provided technical guidance on maternal health and IPV response, and critically reviewed the manuscript. PK contributed to qualitative interpretation, literature integration, and critical review of the manuscript. JD, CB, AD, PS, and CR contributed to study design, field coordination, interpretation of findings, and critical review. All authors reviewed and approved the final manuscript.

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Conflict of Interests

The authors declare that there are no conflict of interests.

Data availability Statement

The de-identified case-study narratives underpinning this qualitative analysis are publicly available in the report Voices of Mothers in Shadow: Intimate Partner Violence during Pregnancy, published by The Family Planning Association of Sri Lanka, available at:

https://www.fpasrilanka.org/sites/default/files/2026-03/Voices%20of%20Mothers%20in%20Shadow%20Intimate%20Partner%20Violence.pdf

The full interview transcripts are not publicly available due to the sensitive nature of the data, the risk of deductive identification, and the ethical obligation to protect participant confidentiality and safety. Any further use of the underlying qualitative data would require appropriate ethical approval and permission from the

corresponding author and the relevant institutional authorities.

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.

Disclaimer

The views and opinions expressed in this article are solely those of the authors and do not necessarily reflect the views of The Family Planning Association of Sri Lanka (FPASL) or its donors, including the International Planned Parenthood Federation (IPPF) and the Embassy of the Kingdom of the Netherlands in Sri Lanka, unless explicitly stated otherwise in the manuscript.

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Child Loss among Adolescent Mothers in India: Associations with Consanguineous Marriage, Child Marriage and Teenage Childbirth

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Original Article

Abstract

Introduction: Women who are bearing children during their teenage years are at increased risk of physical and mental health problems. According to NFHS-5, seven percent of women aged 15-19 have begun childbearing; 5 percent of women have had a live birth and 2 percent of women are pregnant with their first child. Child marriage remains widespread in several northern Indian states and is a major driver of early and high risk fertility. Consanguineous marriage, also prevalent in parts of India, may further compound reproductive risks. Child marriage directly leads women to become sexually active and drives early reproductive childbearing. This study examines how consanguineous marriage, child marriage, and teenage pregnancy individually and jointly influence pregnancy outcomes, particularly child loss, among adolescent women in India.

Method: Data were drawn from the National Family Health Survey (NFHS-5), focusing on women aged 15–19 years. Descriptive statistics and chi-square tests were used to assess associations between key predictors and child loss. Univariate and bivariate analyses, followed by binary logistic regression, were conducted to estimate the independent and combined effects of consanguinity, age at marriage, and teenage pregnancy on the likelihood of child loss.

Results: Both consanguineous marriage and child marriage individually increase the risk of health complications and the intertwined combination of these factors increases the probability of first child death. Omnibus tests show that consanguineous marriage and child marriage in the model are highly significant (Chi^2 (5,5462) = 25.278, p<0.01) for child loss. Furthermore, women who married at the age of 18 or above have 1.2 times higher odds of having a child alive than women who experienced child marriage.

Conclusion: Consanguineous marriage and child marriage substantially elevate the risk of child loss among adolescent mothers in India, and their combined effect is particularly detrimental. Interventions that raise educational attainment, reduce poverty, delay age at marriage, and increase awareness of the risks of consanguinity and early pregnancy are essential to improving reproductive outcomes for young women.

Key Words: child deformities, child marriage, child loss, consanguineous marriage, first delivery outcome, health complications, teenage pregnancy

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Introduction

Women who are childbearing during their teenage years are at risk of physical and mental health problems. Irwan M. Hidayana explains that teenage pregnancy is associated with poor economic and social conditions [1]. Teenage pregnancy has immediate and long-term impacts on health, education and economy, he added [1]. According to NFHS-5, seven percent of the women aged 15-19 have begun childbearing; 5 percent of women have had a live birth and 2 percent of women are pregnant with their first child [2]. Evidently teenage childbearing is relatively higher in rural areas. Eight percent of women in rural areas in the age group 15-19 have begun childbearing. One-third (32%) of the women have reported that the age at first union is below 18 years, which is considered as the "child marriage". Child marriage is one of the major factors affecting women's health and is prevalent in the northern states of India. Many studies have revealed that consanguineous marriage also affects women's health. Many studies explain that consanguineous marriage leads to child deformities, and that early marriage puts women at risk of delivery complications and forces them into teenage childbearing. Children born to consanguineous parents may have biological deformities at birth. Child marriage directly leads women to become sexually active and pushes them into reproductive childbearing.

The paper attempts to understand how the combinations of the consanguineous marriage, women who married before the age of 18 (child marriage) and teenage pregnancy affect women, placing them at higher health risk and increasing the likelihood of experiencing first delivery outcome as child loss. The research hypotheses are given below.

- There is a significant association between consanguineous marriage and first-delivery child loss among teenage mothers.
- There is a significant association between child marriage and first-delivery child loss.
- The combined effect of consanguinity, early marriage, and teenage pregnancy is significantly associated with adverse pregnancy outcomes.

Methods

This study used secondary data from the National Family Health Survey, India, 2019–2021 (NFHS-5). NFHS-5 is a nationally representative, population-based household survey conducted under the stewardship of the Ministry of Health and Family Welfare, Government of India. The International Institute for Population Sciences (IIPS), Mumbai, served as the nodal agency for survey implementation. The survey collected information on fertility, marriage, reproductive health, maternal and child health, mortality, nutrition, and socio-demographic characteristics across India. NFHS-5 covered almost all states and Union Territories and provides nationally and sub-nationally representative estimates. The dataset is publicly available for research purposes through the DHS Program, subject to registration and approval for data access [2].

The present analysis used the NFHS-5 all-India individual women's dataset. The study population was restricted to adolescent women aged 15–19 years. For the main analysis, the analytical sample included women aged 15–19 years who had experienced at least one live birth, because the outcome of interest was child

loss following first delivery. Based on these criteria, the final national-level analytical sample comprised 5,462 adolescent women.

The study examined child loss in relation to selected marriage-related and reproductive characteristics. Child marriage was defined as first union before 18 years of age. Consanguineous marriage was defined as marriage to a blood relative, including first cousins and other blood relatives. Teenage childbirth was assessed using age at first birth, while current pregnancy status was used descriptively. As the study used anonymised, publicly available secondary data, separate ethical approval was not required for this analysis.

Measures

The dependent variable was child loss at first delivery, derived from the NFHS-5 birth history variable B5, which records whether each live-born child was alive at the time of interview. The outcome was coded as 1 if the respondent's first-born child had died by the time of interview and 0 if the first-born child was alive.

The main explanatory variables were child marriage, consanguineous marriage, and teenage childbirth. Child marriage was defined using S314C, with first union before age 18 years coded as child marriage. Consanguineous marriage was measured using S311, which records the respondent's relationship to her current husband before marriage, and was categorised as first cousin, other blood relative, or non-blood relative. Teenage childbirth was defined using V212, age at first birth, and coded as first birth before age 18 years versus age 18 years or above. Current pregnancy status was measured using V213 and used descriptively, as ongoing pregnancies do not have a delivery outcome unless the respondent had a previous live birth. Socio-demographic covariates included age, religion, caste/social group, education or literacy, and household wealth index. Given the cross-sectional design, the variables were interpreted as factors associated with child loss rather than as causal determinants.

Data Analysis

Data were analysed using the NFHS-5 individual women's dataset. The analytical sample was restricted to adolescent women aged 15–19 years who had at least one live birth, as the outcome of interest was child loss following first delivery. Respondents with missing information on the outcome or key explanatory variables were excluded from the relevant analyses.

Descriptive statistics were used to summarise socio-demographic characteristics, marriage-related variables, age at first birth, current pregnancy status, and child-loss status. Bivariate associations between child loss and selected explanatory variables were examined using Pearson's chi-square tests. Binary logistic regression was then used to assess factors associated with child loss, as the dependent variable was dichotomous. The model included child marriage, consanguineous marriage, early teenage childbirth, and selected socio-demographic covariates. Results were reported as odds ratios with 95% confidence intervals and p-values.

Model fit was assessed using the Omnibus Test of Model Coefficients and the Hosmer–Lemeshow goodness-of-fit test. Pseudo-R^2 statistics and classification results were examined as supplementary indicators of model performance. Data were analysed using IBM SPSS Statistics version 21.

Limitation of the study

This study has some limitations. First, the analysis used cross-sectional secondary data from NFHS-5; therefore, the findings should be interpreted as associations rather than causal relationships. Second, key variables, including age at first union, age at first birth, consanguineous marriage, and child survival status, were self-reported and may be affected by recall or reporting bias. Third, the outcome was limited to child loss among live-born children and did not capture other adverse pregnancy outcomes such as miscarriage, stillbirth, induced abortion, preterm birth, low birth weight, or congenital anomalies. Fourth, the analysis could not fully account for all relevant structural and contextual factors, including quality of antenatal care, nutrition, household decision-making, access to health services, and community norms. Finally, the analytical sample was restricted to adolescent women aged 15–19 years with at least one live birth; therefore, the findings should not be generalised to all adolescent girls or all married adolescents in India.

Results

The NFHS-5 all-India women's dataset included a large national sample of women aged 15–49 years. Among them, 231,445 women aged 15–49 years had entered first union before the age of 18 years, indicating child marriage. Within the adolescent age group of 15–19 years, 11,224 women had married before age 18. Consanguineous marriage was also reported in the dataset: 71,509 women aged 15–49 years had married a relative, while the corresponding number among women aged 15–19 years was 3,099. For the present analysis, the study sample was restricted to adolescent women aged 15–19 years who had at least one live birth, as child loss following first delivery was the main outcome of interest. This resulted in a final analytical sample of 5,462 women. Within this sample, 2,151 women had experienced both child marriage and consanguineous marriage, indicating the co-occurrence of these two marriage-related exposures among a substantial proportion of adolescent mothers.

Socio-Demographic characteristics

Univariate analysis using demographic variables are explained below. Interestingly around sixty percent of the women reported their current age as 19 years, which is followed by 18 years (28.9%), (Figure 1).

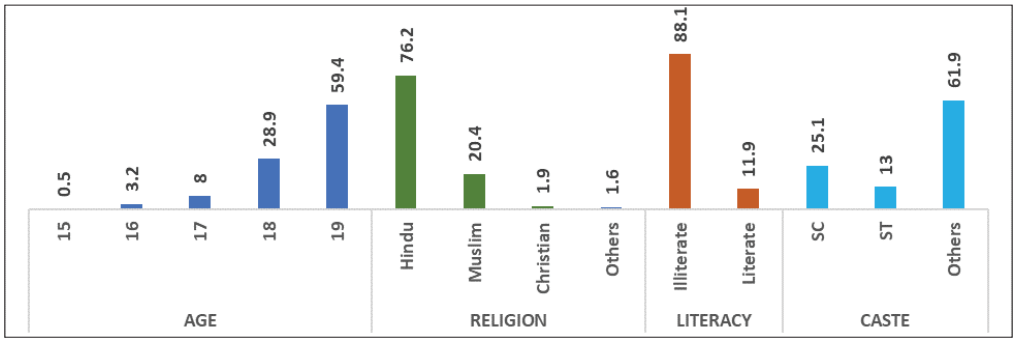


Figure 1. Distribution of demographic variables.

Consanguineous Marriage and Child Marriage and Child loss:

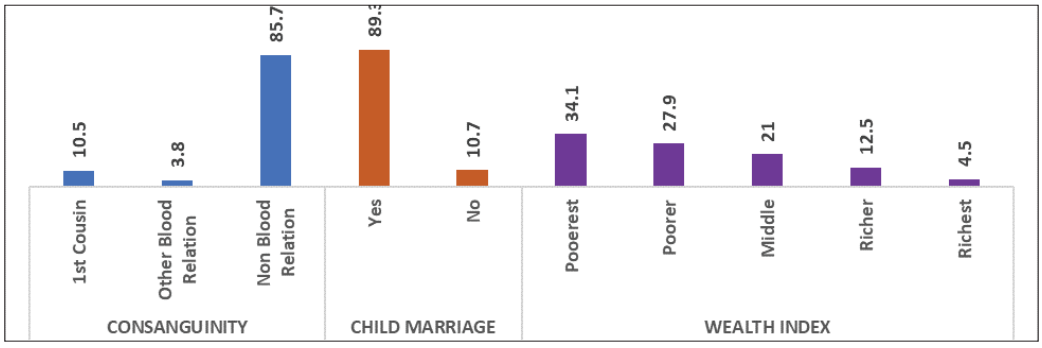


Figure 2. Distribution of marriage practice and wealth Index.

More than three-quarters of them are Hindus, followed by Muslims (20%) (Figure 1).

The majority of the women (88%) are illiterate (Figure 1) and around two-thirds of the respondents are from other caste groups, followed by Schedule Castes (25%).

Among married women, one-tenth reported marrying their first cousin and more than 85% of them married to non-blood relatives (Figure 2). Further, around nine-tenths of the women married when they were below 18 years of age (Figure 2). Consanguinity is common in South Asia, the Middle East, and North Africa. It increases the likelihood of autosomal recessive genetic disorders due to shared genes. Bittles & Black found that consanguineous marriages are associated with higher rates of stillbirth, neonatal mortality, and congenital malformations [3]. Hamamy explained that first-cousin marriages have a significant association with perinatal mortality and low birth weight [4]. Around one-third (34%) of the respondents fall into the "Poorest" Wealth Index category, followed by "Poorer" (27.9%).

When looking at the child loss, 4% of respondents reported experiencing child loss. One-third of the women are in the poorest wealth index category, followed by 28% in the poorer category, and only 5% in the richest category (Figure 2).

More than half (53%, 15407) of currently married women age 15-19 have already begun childbearing. Child marriage (marriage before age 18) is linked with early and repeated pregnancies, poor antenatal care, and greater maternal mortality. Nour reports that early marriage leads to early and repeated pregnancies, which significantly increases maternal and neonatal health risks [5]. These include higher rates of obstetric complications, stillbirth, and maternal mortality.

According to UNICEF, Girls married early are more likely to experience complications such as obstructed labor, fistula, and eclampsia [6]. Godha et al. found lower use of maternal health services and higher neonatal mortality among children born to women married before 18 years in South Asia [7]. It is observed that 18 percent of women age 15-19 (946) with no schooling have already begun childbearing, compared

with only 4 percent of women who had 12 or more years of schooling (226). Kohno et al., in their meta-synthesis of qualitative evidence, highlight that decisions about child marriage are rarely made by the girls themselves but are influenced by family pressures, economic insecurity, and community expectations [8]. Horii identifies a 'blind spot' in international human rights frameworks, where traditional practices such as child marriage are sometimes tolerated under cultural relativism [9]. This creates a tension between rights-based approaches and socio-cultural practices.

Around one-third of women experienced child marriage. Among those who married a relative, 61.5 percent married their first cousin. Teenage childbearing is higher among scheduled tribe women age 15-19 years (9%, 8311) than the other three caste/tribe groups. Northern and north-eastern states experience higher teenage pregnancy rates, including Tripura (22%, 70), West Bengal (16%, 1570), Andhra Pradesh (13%, 448), Assam (12%, 365), Bihar (11%, 1580), and Jharkhand (10%, 338) have higher levels of teenage pregnancy than other states. Among women (15-19) having combinations of consanguineous marriage, child marriage and teenage pregnancy, 19.3 %(210) percent are experiencing the first child loss (male child-11.8 (25), female child-7.5(16)). Rahman et al. in a multi-country study found that adolescent pregnancy significantly predicted poor antenatal attendance and worse delivery outcomes [10]. WHO states that teenage pregnancies are associated with anemia, preterm birth, low birth weight, and higher neonatal mortality [11-12]. Teenage mothers (aged 10–19) are biologically and socially unprepared for motherhood, leading to higher risk pregnancies. Efevbera et al. empirically demonstrate that child marriage significantly contributes to early childhood stunting and poor developmental outcomes among children, suggesting intergenerational health impacts [13]. The report from Maharashtra shows a notable prevalence of child marriage and teenage pregnancies, especially in tribal and low-income populations, reflecting deep-rooted inequality and unmet need for reproductive health services [2].

These three factors often co-occur in vulnerable populations and amplify risks due to socioeconomic disadvantage, limited healthcare access, and poor nutrition. Santhya et al. suggest that early marriage combined with consanguinity doubles the odds of adverse pregnancy outcomes [14]. UNICEF has consistently highlighted early marriage as a harmful traditional practice, calling for stronger laws, educational empowerment of girls, and community-level behavioral change strategies [15-16]. Their advocacy efforts emphasize that ending child marriage is essential for achieving multiple Sustainable Development Goals (SDGs), especially related to health, education, and gender equality.

Results – Logistic Regression:

Logistic regression was conducted using consanguineous marriage, child marriage and demographic variables as predictors of the dependent variable child loss. The Hosmer and Lemeshow was insignificant with Chi^2 (6, N=5462) = 10.258, p>0.05, which indicates good model fit. A high p-value (e.g., > 0.05) suggests the model fits the data well (no significant difference between observed and expected),

Omnibus tests shows that the variables included in the model are highly significant (Chi^2 (5,5462) = 25.278, p<0.01) for child loss (Table 1).

Between 0.5% and 1.8 of the variance in the dependent variable is explained by the model.

Percentage of Accuracy Classification (PAC) = 96.7% (Table 1).

The Hosmer and Lemeshow test was insignificant with Chi^2 (4,5462) = 1.894, p>0.05, which indicates a good model fit.

Table 3 shows that women who married at age 18 or above have 1.2 times higher odds of having a living child than women who had child marriage (Table 1).

Women who married a person who is a "first cousin or other blood relative" have higher odds of child death than women who married "non-blood relatives" (Table 1).

Women who had their first birth before the age of 18 years have lower odds of having a live birth (Table 1).

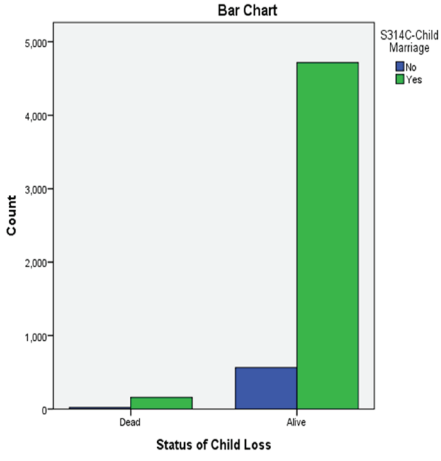
Table 1. Multivariable logistic regression model of factors associated with child survival status at first delivery among adolescent mothers aged 15–19 years, NFHS-5, India

Variable	Category	Adjusted odds ratio (aOR)	95% CI	p-value
Child marriage (age at first union)	No child marriage (≥18 years)	Reference	—	—
	Child marriage (<18 years)	1.24	0.76–2.01	0.391
Consanguineous marriage (relationship to husband before marriage)	First cousin	Reference	—	—
	Other blood relative	0.92	0.57–1.50	0.735
	Non-blood relative	0.35	0.21–0.58	<0.001
Education/literacy status	Illiterate*	Reference	—	—
	Literate*	1.12	0.69–1.82	0.652
Age at first birth	≥18 years	Reference	—	—
	<18 years	0.57	0.41–0.78	<0.001

Note: aOR = adjusted odds ratio; CI = confidence interval; NFHS-5 = National Family Health Survey, India, 2019–2021. The model included child marriage, consanguineous marriage, education/literacy status and age at first birth. Model summary: Omnibus test of model coefficients, $\chi^2(5) = 25.278$, $p < 0.001$; Hosmer–Lemeshow goodness-of-fit test, $p > 0.05$; overall classification accuracy = 96.7%. Classification accuracy should be interpreted cautiously because child loss was an uncommon outcome.

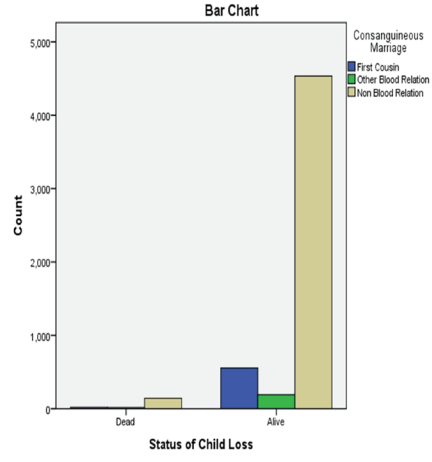
Child loss Vs Child Marriage

Chi^2 (1,5462) = 0.171, p>0.05



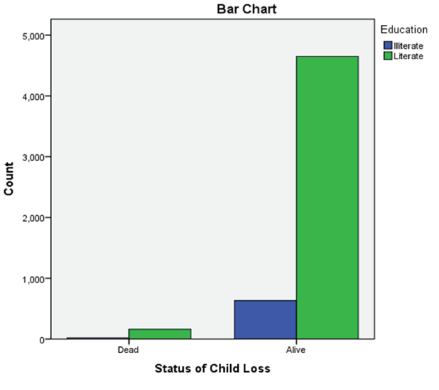
Child loss Vs Consanguineous Marriage

Chi^2 (2,5462) = 16.441, p<0.001



Child loss Vs Education

Chi^2 (1,5462)=0.338, p>0.05



Child loss Vs Age at 1st Birth (<18)

Chi^2 (1,5461) = 11.753, p<0.001

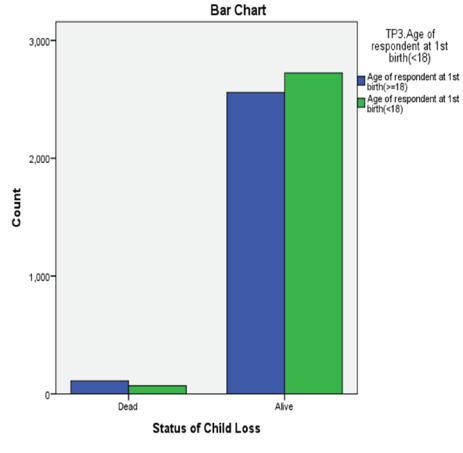


Figure 3. Chi square value (Child loss with other variables).

Discussion

This study examined how **consanguineous marriage, child marriage,** and **teenage pregnancy**—individually and jointly—shape the risk of **child loss at first delivery** among adolescent women in India. The findings reveal that these factors do not operate in isolation; rather, they cluster within socio-economically vulnerable populations and collectively heighten reproductive risks.

Consanguineous marriage emerged as a **significant predictor** of child loss and higher perinatal mortality. Women married to first cousins or other blood relatives had substantially higher odds of child loss compared to those married to non blood relatives. In the context of adolescent motherhood—where biological immaturity and limited healthcare access already pose challenges—these genetic risks may be further amplified.

Child marriage, although not statistically significant in the bivariate analysis, remains a **critical structural determinant** of poor reproductive outcomes. Nearly 90% of respondents were married before age 18, reflecting persistent sociocultural norms and economic pressures. Prior research shows that early marriage reduces educational attainment, accelerates sexual debut, and increases exposure to repeated pregnancies and inadequate antenatal care. The absence of a direct statistical association in this dataset may be due to the overwhelming prevalence of child marriage, which reduces variability. Nonetheless, its indirect influence is evident through its strong association with teenage pregnancy and limited maternal health service utilization.

Teenage childbirth (<18 years) was a **strong and independent predictor** of child loss. This finding aligns with WHO and UNICEF reports that adolescent mothers face higher risks of anemia, obstructed labor, preterm birth, and neonatal mortality. Biological immaturity, combined with social vulnerability and restricted access to skilled care, contributes to these adverse outcomes. The high prevalence of teenage childbearing in this study underscores the need for targeted interventions to delay first pregnancy and improve adolescent sexual and reproductive health services.

The **combined exposure** to consanguinity, child marriage, and teenage pregnancy produced the **highest risk**, with nearly one fifth of such women experiencing child loss. This demonstrates a cumulative effect, where biological, social, and economic vulnerabilities intersect. Similar patterns have been noted by Santhya et al., who found that early marriage combined with consanguinity significantly increases adverse pregnancy outcomes. These overlapping risks are concentrated among poorer, less educated, and marginalized caste groups, highlighting the role of structural inequality.

The logistic regression model showed good fit and high classification accuracy, indicating that the predictors meaningfully explain variation in child loss, even though the variance explained is modest—typical for demographic health models influenced by multiple unmeasured factors such as nutrition, antenatal care quality, and household environment.

Overall, the findings underscore the need for **multi sectoral interventions**. Strengthening enforcement of laws against child marriage, expanding girls' education, raising awareness about the risks of consanguinity, and improving adolescent

reproductive health services are essential. Targeted efforts in high prevalence states and among marginalized communities are particularly important. Addressing these interconnected factors is crucial for reducing child loss, improving maternal and child health outcomes, and breaking the intergenerational cycle of disadvantage.

Conclusion

This study found that child loss following first delivery among adolescent mothers in India was associated with selected marriage-related and reproductive factors. Consanguineous marriage and childbirth before the age of 18 years showed important associations with child status at first delivery, while child marriage was highly prevalent and clustered with other markers of reproductive vulnerability. These findings suggest that adolescent motherhood, early union, and kinship-based marriage practices may intersect with broader socio-economic and cultural disadvantages to shape adverse child-health outcomes.

The findings underscore the need for integrated interventions that address early marriage, adolescent pregnancy, and reproductive health risks among young women. Strengthening the implementation of the Prohibition of Child Marriage Act (PCMA), 2006, together with adolescent health and empowerment programmes such as Rashtriya Kishor Swasthya Karyakram (RKSK) and the SABLA scheme, remains important for delaying marriage, supporting adolescent girls' education, and reducing early pregnancy. Programme monitoring should give particular attention to areas and communities where child marriage and early childbirth remain common, including settings where socio-cultural practices such as early union or delayed cohabitation may influence the transition to adolescent childbearing.

Public health responses should also include culturally sensitive counselling and community awareness on the potential reproductive and child-health risks associated with consanguineous marriage, particularly where marriage between blood relatives is socially accepted. Such efforts should be framed carefully to avoid stigma and should be integrated with broader maternal, newborn and adolescent health services.

Ethical Approval and Data Governance

This study used anonymised secondary data from the National Family Health Survey, India, 2019–2021 (NFHS-5), accessed through the DHS Program following registration and approval for research use. As the analysis was based on publicly available, de-identified data, separate ethical approval was not required. No new data were collected, and no personally identifiable information was accessed. The data were used only for the stated research purpose, stored securely, and analysed in aggregate form. No attempt was made to identify individual respondents, households, or communities.

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Conflict of Interests

The author declares no conflict of interests.

Data Availability Statement

This study used secondary data from the National Family Health Survey, India, 2019–2021 (NFHS-5). The NFHS-5 dataset is publicly available for research purposes through the "DHS Program" data repository, subject to registration and approval for data access. The data can be accessed at: https://dhsprogram.com/data/] (https://dhsprogram.com/data/). The analytical dataset can be reproduced from the NFHS-5 women's recode file using the inclusion criteria and variables described in the Methods section.

Statement on the Use of Artificial Intelligence

Artificial intelligence tools were used to support language refinement and formatting of the manuscript. All analytical decisions, interpretations, and conclusions were made solely by the author. The author takes full responsibility for the accuracy and integrity of the content.

Disclaimer

The views and interpretations presented in this manuscript are those of the authors and do not necessarily reflect the views of the institutions with which they are affiliated. Any errors remain the responsibility of the author.

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A Qualitative Inquiry: Experiences of Women who Underwent Subfertility Treatment and Successfully Conceived in Teaching Hospital, Kurunegala

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Original Article

Abstract

Introduction: Infertility is a significant global public health concern affecting around 48 million couples and 186 million individuals worldwide. It can have a profound impact on women's mental, emotional, sexual, and spiritual health, often resulting in stress, anxiety, and depression. Available treatment options include medication, surgery, and advanced fertility procedures such as in vitro fertilization (IVF). Approximately 85% to 90% of female subfertility cases can be managed with medication or surgery, while fewer than 3% require IVF. The success of subfertility treatment is influenced by several factors, including the underlying cause of infertility, individual circumstances of the couple, and the quality of care provided by the treatment centre. Throughout the process, women may face a range of physical, emotional, and social challenges. The objective of this study is to explore the psychological, socio-cultural, and treatment-related experiences and challenges of women who have undergone subfertility treatment and successfully conceived.

Methods: A qualitative study was conducted in 2024 at the Gynecology and Obstetrics wards of the Teaching Hospital, Kurunegala, Sri Lanka. Fifteen women who had successfully conceived following subfertility treatment were selected using purposive sampling. Data were collected through in-depth, face-to-face interviews using a structured interview guide until data saturation was achieved. The data were analyzed using a six-step thematic analysis approach.

Results: Thematic analysis identified treatment-related, psychological, and sociocultural challenges. Women reported physical discomfort, repeated treatment attempts, financial burden, and barriers to accessing healthcare services. Psychological experiences included stress, anxiety, coping mechanisms, and feelings of social isolation. Sociocultural factors such as cultural expectations, gender roles, and family dynamics influenced their experiences.

Conclusion: The study revealed that subfertility treatment significantly affects women's mental, physical, and socio-cultural well-being. Common psychological reactions include fear, anxiety, and helplessness, influenced by social attitudes and feelings of insecurity. Socio-cultural experiences are also negatively affected by subfertility and family-related challenges. The findings highlight the importance of encouraging women with untreated infertility to seek appropriate treatment.

Key Words: subfertility, women's health, psychological experience, socio-cultural experience, fertility treatment, emotional stress

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Introduction

Infertility is a significant global public health concern affecting millions of couples, with approximately 48 million couples and 186 million individuals experiencing subfertility worldwide [1]. Around 17.5% of the adult population, roughly 1 in every 6 people globally, is affected by subfertility [2]. According to the World Health Organization, subfertility is defined as the inability to conceive after 12 months of regular, unprotected intercourse. It is a profound global health issue affecting approximately 15% of reproductive-aged couples worldwide [3]. In Sri Lanka, the prevalence of infertility is estimated at approximately 10–15%, with 30-50% of subfertility cases, posing a substantial public health concern [3-6].

Infertility has a considerable impact on women's overall well-being, including their mental, emotional, sexual, and spiritual health [7,8]. A successful pregnancy often brings immense joy and relief, validating the emotional and physical efforts endured during the treatment process [9]. However, this transition also introduces new emotional and psychological dynamics that need to be understood [10]. Women experiencing infertility often face emotional distress, anxiety, depression, and social stigma, which can negatively affect their quality of life and interpersonal relationships [11]. In many cultural contexts, particularly in developing countries, motherhood is closely linked to a woman's identity, and the inability to conceive may lead to social pressure, discrimination, and feelings of inadequacy.

Many couples seek medical assistance to overcome infertility, including medication, surgical interventions, and Assisted Reproductive Technologies (such as *in vitro fertilization*) [12]. While successful treatment and conception often bring relief and fulfillment, women who achieve pregnancy after subfertility treatment may continue to experience ongoing psychological and emotional challenges [13,14]. These may include anxiety related to pregnancy outcomes, fear of complications, and lingering stress from the treatment journey [9].

Previous studies have highlighted that women undergoing subfertility treatment experience complex psychological and sociocultural challenges, including emotional stress, social isolation, and societal pressure [15]. Discontinuation of treatment is often prompted by mental fatigue, weak prognosis, and emotional overwhelm rather than medical complications alone. Other barriers include inadequate healthcare infrastructure and limited access to skilled healthcare professionals [7,16]. Treatment failure can also negatively affect sexual relationships and emotional intimacy between partners [9].

Even among women who achieve pregnancy after treatment, emotional and psychological burdens may persist. Several studies have shown that the stress of medical interventions, such as hormone therapy, IVF procedures, or ethical dilemmas related to assisted reproductive options such as surrogacy and egg donation, can lead to anxiety, guilt, low self-esteem, and emotional burnout. Financial strain is another critical concern, especially in countries without comprehensive health insurance coverage for infertility treatments [17].

Despite the cultural differences between developed and developing nations,

infertility-related distress shows surprising similarities across contexts. However, the consequences tend to be more severe in developing countries, where childlessness is perceived as a failure to fulfill a woman's role and identity. In contrast, voluntary childlessness in developed countries is often accepted and less stigmatized [18]. These findings underscore the profound sociocultural dimensions of subfertility and treatment-related experiences.

As explained, infertility and subfertility are increasingly recognized as significant global public health concerns with profound psychological, social, and emotional consequences for women. Studies have shown that infertility and its treatment can lead to anxiety, depression, emotional distress, and social isolation, affecting overall quality of life [19]. Qualitative evidence further highlights that women undergoing fertility treatment experience complex challenges, including stigma, relationship strain, and inadequate healthcare support systems [20]. Despite the growing body of global evidence, there is limited research exploring the experiences of women who have successfully conceived following subfertility treatment, particularly in developing country settings.

In the Sri Lankan context, research focusing on the post-treatment experiences of women remains scarce, especially using qualitative approaches that capture in-depth psychological and sociocultural dimensions. This represents a significant gap in understanding how women navigate the transition from subfertility to successful pregnancy within specific cultural and healthcare contexts. Therefore, this study aims to explore the psychological, socio-cultural, and treatment-related challenges experienced by women who have undergone subfertility treatment and successfully conceived, contributing to a more comprehensive understanding of their lived experiences and informing patient-centered care approaches.

Methods

A qualitative research approach was used to explore the subjective, real-life experiences of women who underwent subfertility treatment and successfully became pregnant. This approach was considered appropriate for capturing in-depth information on the psychological, social, and cultural challenges experienced before and after subfertility treatment. Further, this method enables a deeper understanding of complex human experiences, particularly within natural settings, irrespective of their demographic characteristics [21].

This study was conducted in 2024 at the Gynecology and Obstetrics wards of the Teaching Hospital, Kurunegala, Sri Lanka, which is a major tertiary care hospital in the Northwestern Province. The study population consisted of women admitted to these wards who had undergone subfertility treatment and successfully conceived.

Purposive sampling was used to select participants based on specific inclusion criteria relevant to the study objectives. Women aged 18–50 years who had undergone subfertility treatment and successfully conceived were included in the study, while women diagnosed with pre-existing psychological disorders were excluded. Data collection continued until data saturation was reached, at which point no new themes emerged from the interviews [22].

A structured interview guide was developed based on the study objectives to collect data from participants. The guide included

questions on demographic characteristics, challenges faced before and after treatment, societal perceptions, and psychological experiences. The interview guide was reviewed by experts in the field to ensure content validity and clarity.

Data were collected through in-depth, face-to-face interviews (multilingual) conducted in the ward setting. Interviews were carried out using the structured interview guide, supported by audio recordings and field notes. Written informed consent was obtained from all participants before data collection.

Ethical approval was obtained from the Ethics Review Committee of the Teaching Hospital Kurunegala, and written permission to conduct the study was granted by the Director of the Teaching Hospital Kurunegala. Participation was voluntary, and written informed consent was obtained after fully explaining the nature, objectives, potential risks, and benefits of the study. Participants were informed of their right to withdraw at any time without penalty. Confidentiality and privacy were strictly maintained, with all data anonymized and securely stored in a password-protected computer system. Given the sensitive nature of subfertility and pregnancy, participants were approached with emotional sensitivity, and access to counselling support services was ensured when necessary. All participants were treated with respect regardless of their background or medical history, ensuring non-discrimination. The study was conducted in accordance with the principles of beneficence and non-maleficence, and cultural norms and beliefs were respected throughout the research process. Care was taken to avoid exploitation of vulnerable participants. Participants allowed to receive feedback on the study findings. All data were used solely for academic and publication purposes and will be securely stored for five years before deletion.

Data analysis was conducted using the six-step thematic analysis approach described by Braun and Clarke (2019), including familiarization with the data, coding, theme development, reviewing themes, defining themes, and reporting [23,24]. The analysis followed an iterative process, whereby data collection and analysis occurred simultaneously to identify emerging patterns throughout the study [25]. This approach enabled the identification of key themes related to the psychological, socio-cultural, and treatment-related experiences of the participants.

Results

Participant profile highlights

According to Table 1, the participants were aged between 30 and 43 years, while their husbands were aged between 33 and 45 years. The duration of treatment ranged from 1.5 to 3 years before achieving the first successful pregnancy. The main causes of subfertility among women were identified as polycystic ovary syndrome (PCOS/PCOD) (7 out of 12), irregular menstrual cycles (4 out of 12), and hypothyroidism/anovulation (2 out of 12), while husbands reported no fertility-related health issues. Professionally, wives worked as teachers (4 out of 12), nurses (2 out of 12), government/bank officers (3 out of 12), or were homemakers (2 out of 12); husbands held roles like businessmen (5 out of 12), government officers (3 out of 12), and armed forces/police (2 out of 12). Family structures were either extended (7 out of 12) or nuclear (5 out of 12). Notably, 4 wives had histories of spontaneous abortions (1 to 2 instances).

Themes, Sub-themes, and codes of the analysis

Thematic analysis was conducted based on three key objectives: (1) identifying challenges faced by women who underwent subfertility treatment and achieved pregnancy, (2) exploring their psychological experiences, and (3) examining their socio-cultural experiences throughout this journey. The themes derived from the analysis that reflect the objectives are presented in Table 2.

Table 1. Participants profile

	Age (at first childbirth)		Education Level/ Occupation		Treatment Period (until first successful pregnancy)	Etiology of the women	Family Structure	Other
	Wife	Husband	Wife	Husband				
1	37	39	Accountant	Officer	2	Irregular Menstrual cycle	Extended	One spontaneous abortion
2	41	42	Nurse	Businessman	1.5	Hypothyroidism, PCOS, and Anovulation.	Nuclear	One spontaneous abortion
3	30	33	Teacher	Executive	3	PCOS	Extended	-
4	33	35	Clark	Businessman	2	PCOS	Nuclear	-
5	33	35	Teacher	Army Officer	1.5	PCOD	Extended	-
6	36	40	Nurse	Accountant	2	Irregular Menstrual Cycle	Extended	-
7	34	37	Housewife	Bank Officer	2	Irregular Menstrual Cycle	Extended	-
8	33	33	Government Officer	Businessman	3	PCOS	Extended	-
9	32	36	Teacher	Government Officer	3	PCOS	Nuclear	-
10	43	45	Bank officer	Bank officer	2.5	Irregular menstrual cycle	Nuclear	Two spontaneous abortions
11	35	40	Teacher	Policeman	2	PCOS	Extended	-
12	40	41	Housewife	Businessman	3	Hypothyroidism, Anovulation	Nuclear	Two spontaneous abortions

Table 2. Themes, Sub-themes, and codes of the analysis

Objective	Themes	Sub-themes	Codes
To identify challenges faced by women who underwent subfertility treatment and achieved pregnancy	Physical Exhaustion	Side effects from fertility treatment	Post-treatment discomfort
		Multiple attempts at conception	Pain from frequent hormone injections and procedures
		Mental challenges	Complications resulting from repeated cycles of treatments like IVF
	Financial Strain	High costs of Subfertility treatments	Large out-of-pocket expenses for treatment and medication
		Economic burden on the family	Families needing to take loans or cut back on daily expenses
		Limited access to fertility specialists	Financial stress on the couple, affecting their overall well-being
	Navigating the Healthcare System	Long waiting periods and lack of personalized care	Difficulty in securing appointments with reproductive specialists
			Long waiting times for procedures and consultations
			Challenges in accessing timely and continuous medical care
To explore the psychological experiences of women who underwent subfertility treatment and achieved pregnancy	Emotional Stress and Anxiety	Fear of failure with each treatment cycle	Fear of the treatments not resulting in pregnancy
		Anxiety about maintaining the pregnancy	Constant worry about miscarriage or complications
			Feelings of helplessness after repeated failed attempts
	Coping Mechanisms	Emotional support from spouses and family	Strong reliance on spouse for emotional resilience
		Seeking counselling or mental health support	Involvement in religious or spiritual practices for comfort
			Attending therapy or support groups to manage stress and emotions
	Feelings of Isolation	Social isolation due to subfertility struggles	Avoiding gatherings where pregnancy or motherhood is discussed
		Inability to relate to other pregnant women	Lack of understanding from friends who have children
		Pressure to conceive from society and family	Sense of being "different" because of the subfertility journey

(Continued)

Objective	Themes	Sub-themes	Codes
To examine sociocultural experiences during this journey	Cultural and Social Expectations	Judgment from community on delayed pregnancies	Constant questions or advice from relatives and friends
			Negative cultural beliefs around childlessness
		Expectation to fulfill traditional roles of motherhood	Feeling inadequate or incomplete as a woman due to delayed conception
	Gender Roles and Family Dynamics	Marital and in-law pressure to produce an heir	Emphasis on motherhood as central to a woman's identity
			Strain in the relationship due to family's pressure for children
			Tension between the couple due to external expectations
	Support Systems	Support from extended family or community	Emotional encouragement from family members
			Financial support from relatives for fertility treatments
		Role of peer support during the fertility journey	Celebratory response from the community once pregnancy was achieved

Thematic analysis under challenges during subfertility treatment

Physical Challenges

Participants reported experiencing physical side effects associated with fertility treatments, including fatigue, discomfort, and pain from repeated medical procedures.

"The injections induced significant illness; I did not anticipate experiencing such fatigue and emotional distress." (Participant 3)

Repeated attempts at conception were also described as physically and emotionally draining.

"Each unsuccessful cycle felt like a heartbreak." (Participant 5)

Financial Strain

High costs of treatment were commonly reported, including expenses related to medication, procedures, and travel.

"I spent all my savings on just one round of IVF; it felt like I was gambling my future." (Participant 6)

Participants also described financial pressure that affected family relationships.

"My husband and I argued constantly about money. The stress of subfertility added to our worries about our finances" (Participant 2)

They also expressed the limitations to access healthcare due to economic barriers.

"Travelling to see a specialist was a challenge. The costs piled up quickly, making it difficult to get the help I needed." (Participant 9)

Navigating the Healthcare System

Additionally, limited access to fertility specialists exacerbated difficulties. These challenges often delayed treatment and intensified the emotional and physical toll of subfertility.

Here, participants reported challenges related to accessing fertility services, including long waiting times and limited availability of specialists.

"I waited for weeks to consult the specialist. Each postponement diminished my hope." (Participant 10)

Some participants also reported a lack of personalized care during treatment.

"I felt like merely a statistic in the system. My concerns were frequently disregarded." (Participant 5)

Thematic analysis of psychological experiences during subfertility treatment

Emotional Stress and Anxiety

Participants described experiencing stress and anxiety throughout the treatment process, particularly related to uncertainty and fear of failure.

"With each new cycle, I felt as though I were on a tightrope; the dread of hearing 'not this time' was overwhelming." (Participant 7)

Anxiety persisted even after successful conception, particularly regarding pregnancy outcomes.

"Upon seeing the positive test, my relief was fleeting; I was perpetually anxious about losing the baby. It seemed as if I was holding my breath constantly." (Participant 7)

Coping Mechanisms

Coping strategies also played a critical role, with many women relying on emotional support from spouses or professional counselors.

"My husband was my support; he reminded me I was not alone in this struggle." (Participant 6).

"Engaging with a counselor facilitated my emotional processing. We acquired coping strategies that significantly impacted our situation." (Participant 3)

Feelings of Isolation

Feelings of isolation emerged strongly as the third theme under the psychological experiences, as participants described social withdrawal and difficulty relating to other pregnant women.

"I felt as though I was inhabiting an alternate reality. Friends who were expecting did not comprehend my suffering, leading me to isolate myself." (Participant 3)

"I found it hard to celebrate others' pregnancies due to my preoccupation with my own challenges." (Participant 3)

Societal pressures exacerbated this isolation, with one participant noting,

"Every family gathering resembled an interrogation regarding when we would have children. The strain was overwhelming." (Participant 1)

Thematic analysis of sociocultural experiences during subfertility treatment

Cultural and Social Expectations

Participants reported experiencing societal pressure and expectations related to motherhood.

"Whenever I participated in a family gathering, I could perceive the judgment in their gazes. The assessment of my value appeared to be based on my ability to bear children." (Participant 3)

"Our culture views motherhood as the ultimate achievement for women. I saw myself as letting everyone down due to my inability to conceive." (Participant 2)

Gender Roles and Family Dynamics

Family and societal expectations contributed to stress, particularly pressure from in-laws and extended family members.

"My in-laws consistently enquired about when I would provide them with a grandchild. I felt like I was constantly under scrutiny." (Participant 9)

"My husband was supportive, but I could see the disappointment in his family's eyes...it was shared failure for all of us." (Participant 7)

Support Systems

Support from family, partners, and peers was identified as important.

"Having friends experiencing similar challenges provided me with a sense of validation. We would cry together and celebrate little triumphs." (Participant 6)

"Participating in a support group transformed my life. Listening to others' narratives made my challenges more manageable". (Participant 10)

Discussion

This study explored the experiences of women who underwent subfertility treatment and successfully conceived, focusing on psychological, socio-cultural, and treatment-related challenges. The findings highlight the complex and multidimensional impacts of subfertility treatment on women's lives.

Challenges during Subfertility Treatment

The findings under this theme revealed that women experienced significant physical, financial, and healthcare-related challenges during subfertility treatment. Participants reported physical discomfort and side effects associated with repeated medical procedures. Similar findings have been reported in previous studies, which indicate that fertility treatments such as IVF can lead to physical exhaustion and reduced quality of life [26-28]. These results highlight the need for healthcare providers to implement supportive strategies addressing both physical and psychological challenges.

Financial strain emerged as a major challenge, with participants reporting high out-of-pocket expenditures and financial stress affecting family dynamics. This is consistent with existing literature, which highlights the financial burden of subfertility treatment, particularly in low- and middle-income countries where access to affordable care is limited. For example, Ozturk et al. (2021) state that financial burdens often restrict access to

care, causing significant stress [28]. Thus, the economic burden on families was identified as a frequent theme, with women highlighting its impact on household finances and relationships.

Participants also reported difficulties in accessing healthcare services, including long waiting times and a lack of personalized care. These findings, aligned with previous research, indicate that healthcare system barriers contribute to increased stress and reduced satisfaction with treatment [29,30]. These challenges highlight the need for more accessible, patient-centered fertility care services.

Psychological experiences during subfertility treatment

Many women described experiencing intense fear before each treatment cycle, with repeated failures contributing to growing feelings of hopelessness and emotional exhaustion [31]. The study identified significant psychological challenges, including emotional stress, anxiety, and fear associated with treatment outcomes. Participants described persistent anxiety during treatment and even after achieving pregnancy. Sharma and Shrivastava (2022) similarly noted that psychological burdens often extend beyond successful treatment [32].

According to the findings, we can understand that the emotional support from spouses and family was vital, with one participant stating, "*My husband was my rock*" a sentiment aligning with Kenarsari et al. (2015) emphasis on partner support [33]. Professional counseling also improved mental well-being, offering strategies to build resilience [32]. This is consistent with previous literature highlighting the role of social and emotional support in improving psychological well-being among women undergoing subfertility treatment

Feelings of isolation were also commonly reported, particularly due to social pressure and difficulty relating to others, confirming that the social and familial expectations to conceive further intensified distress. These results emphasized the importance of strong support networks in mitigating feelings of isolation and enhancing coping capacity.

Sociocultural experiences during subfertility treatment

The findings demonstrated that socio-cultural expectations significantly influenced women's experiences. Participants reported societal pressure to conceive and negative perceptions related to delayed pregnancy. These findings are consistent with previous studies, which indicate that infertility is often associated with stigma and social judgment, particularly in developing countries [34].

Gender roles and family expectations also contributed to stress, with women experiencing pressure from spouses and extended family members. Similar findings have been reported in other studies, where motherhood is strongly linked to female identity, leading to feelings of inadequacy among women facing fertility challenges [35].

Support systems, including family and peer support, were identified as important factors in coping with subfertility challenges. These findings align with previous research highlighting the role of social support systems in reducing emotional distress and improving resilience [36]. Overall, these findings emphasize the need to address sociocultural factors in subfertility care.

Conclusion

This qualitative research offers significant insights into the complex experiences of women who have received subfertility treatment and subsequently achieved pregnancy while hospitalized in the gynecology and obstetrics wards at the Teaching Hospital, Kurunegala. The research explored the complexities of subfertility and its significant effects on women's lives by examining the challenges, psychological experiences, and societal situations encountered by these women. The research highlights the need for compassionate and well-informed care. The study revealed that subfertility has substantial impacts on women's mental, physical, and socio-cultural well-being. Emotional stress is a major issue linked with subfertility, and women often experience social isolation due to cultural expectations and pressure to become parents. The findings highlight the importance of adopting a holistic approach to subfertility treatment that includes medical care alongside psychological and social support.

Recommendations

The research provides important insights into improving subfertility care services. There is a need to establish quality subfertility treatment services that are respectful, accessible, and affordable, while minimizing the challenges experienced by women. Healthcare professionals and policymakers should consider the high cost of subfertility treatments and take necessary steps to make them more affordable and accessible to all individuals.

Emotional and psychological support should be integrated into subfertility care. Providing counselling services and support groups can help reduce psychological stress and improve overall well-being. Health care professionals should be trained to understand the complex challenges faced by women undergoing subfertility treatment and create a supportive and empathetic care environment throughout the treatment journey. In addition, there is a need to develop policies and programs that address the social challenges associated with subfertility, including stigma and cultural pressure. Educational programs and awareness initiatives should be implemented to support women and encourage those who have not yet sought treatment to access appropriate care and support services.

Ethical Approval

Ethical approval for this study was obtained from the Ethics Review Committee of the Teaching Hospital, Kurunegala. Written permission to conduct the study was also granted by the Director of the Teaching Hospital, Kurunegala prior to data collection.

Author Contribution

A.M.R.N.A., W.A.A.W., T.M.D.U.K.T., and K.W.P.G.T.A.P. contributed to the study design, data collection, and data analysis. G.A.G.S.Y. drafted the manuscript. All authors contributed to manuscript revision, reviewed the manuscript, and approved the final version. P.W.G.D.P.S. and G.A.G.S.Y. provided supervision throughout the study.

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Conflict of Interests

The authors declare no conflict of interests.

Data Availability Statement

The data supporting the findings of this study are not publicly available due to ethical and privacy considerations. Data may be available from the corresponding author upon reasonable request and with appropriate ethical approval.

Statement on use of Artificial Intelligence

Artificial intelligence tools were used only for language editing and improving the clarity of the manuscript. No AI tools were used in this research, including data collection, analysis, or interpretation.

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Traditional Family Planning in Modern Times: Factors Determining Traditional Family Planning Use among Ever Married Women in Sri Lanka

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Original Article

Abstract

Introduction: Effective family planning improves the well-being of both mothers and children by reducing pregnancy-related and neonatal morbidity and mortality through the appropriate timing and spacing of births. However, traditional family planning (TFP) methods have higher failure rates than modern methods, leading to health risks such as unintended and pregnancies at advanced maternal age. In Sri Lanka, reliance on TFP remains high, yet the underlying reasons for this preference have not been statistically investigated. Therefore, the empirical findings will support researchers and policymakers in designing family planning strategies that promote the uptake of modern contraceptive methods among traditional method users by addressing their needs and preferences. The study aimed to identify the factors that significantly influence the use of TFP and to identify the characteristics of traditional and modern family planning users.

Methods: Using data derived from the most recently published Sri Lanka Demographic and Health Survey in 2016, with a sample of 10,835, a binary regression model was developed to determine the factors influencing the use of traditional methods.

Results: The predictive accuracy of the fitted model was 82.9%. Based on the final model, knowledge of family planning, women's age, number of children, education, and decision-making regarding family planning use, and receiving advice from a PHM significantly increase the likelihood of using TFP methods, while attendance at well-woman clinics and certain ethnic and religious factors reduce the likelihood of TFP use.

Conclusion: Employed women and older women were more likely to rely on traditional family planning methods. Women with advanced knowledge of family planning also showed a greater preference for using TFP, indicating that familial and socio-cultural influences affect family planning choices. Consequently, contraceptive services can be better targeted at key population groups, improving the effectiveness and efficiency of family planning interventions.

Key Words: binary regression model, demographic and health survey, ever-married women, factors, traditional family planning usage, Sri Lanka

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Introduction

Globally family planning plays a vital role in enhancing child and maternal health. Growing demands for contraceptive use among both men and women are driven by the need to delay or space or limit the number of births and regulate the size of the family. Different contraceptive methods are used by women of reproductive age (15-49 years) who are married or in a union, in many parts of the world [1]. According to recent statistics published by the United Nations (UN), more than 900 million women worldwide use various forms of method of family planning methods. Contraceptive prevalence exceeds 70% in Latin America and the Caribbean, Northern America and Europe, while it remains below 30% in Middle and Western Africa [1].

Family planning can be defined as 'the ability of individuals and couples to anticipate and attain their desired number of children and to achieve the spacing and timing of their births, according to the World Health Organization-WHO [2]. In other words, family planning is voluntary, and a variety of contraceptive methods are available to meet individual needs, with effectiveness depending on correct and consistent use. [3]. Furthermore, the term 'family planning' is often used interchangeably with terms such as 'birth control and contraception'. The use of specific methods varies extensively across the globe. Contraceptive methods can generally be divided into two categories: modern and traditional family planning methods [4].

Traditional methods include the rhythm method and withdrawal method. Other traditional methods typically include long-term abstinence and prolonged breastfeeding [5]. Traditional methods can be referred to as natural methods, and the effectiveness of these methods depends on their correct and consistent use by the user [6,7]. According to the SLDHS report 2016 [8], withdrawal and rhythm methods are among the most commonly used traditional family planning methods in Sri Lanka. Conversely, modern family planning methods can be defined as scientific methods used to prevent unintended pregnancies. These methods enable couples to engage in sexual activity at their preferred time with a reduced risk of conception [6, 9].

When considering the family planning history of Sri Lanka, the establishment of the Family Health Bureau and The Family Planning Association of Sri Lanka, in 1968, together with the training programmes and implementation of family planning services positioned Sri Lanka as a leading country in South Asia in the adoption of family planning. As a result, the country's contraceptive prevalence rate (CPR) increased to 61.7% by 1987, with consensual sterilizations accounting for approximately 50% of the total contraceptive prevalence. One of the major reasons for this increase was the expansion of sterilization services and the financial incentives provided by the government to individuals opting for voluntary sterilizations [10].

As an important point, contraceptive use is relatively high among rural women (70%) compared to women living in the estate sector (64%) in Sri Lanka [8, 11]. According to the WHO, modern family planning usage in Sri Lanka increased from 20.3% in 1975 to 53.6% in 2016. Nevertheless, traditional family planning usage declined from 26% in 1982 to 11% in 2016.

Further, according to the latest data available, the Sri Lanka Demographic and

Health Survey (SLDHS) in 2016 stated that the current national contraceptive prevalence rate was 65%. The report further reveals that 61.7% of women who ever married were using various contraceptive methods while 38.3% were not adopting any contraceptive technique or method. Nearly 10.4% used traditional methods and modern methods were used by 51.3% of ever-married women.

Globally, the use of contraceptives eliminates approximately 33% of pregnancy related deaths and 44% of neonatal deaths. This is due to appropriate family planning interventions for the timing and spacing of pregnancies. However, compared to modern contraceptive methods, the failure rate of traditional family planning methods is higher [12]. It may affect child and maternal health outcomes, especially premature births, abortions, maternal deaths, teenage pregnancies, and unintended pregnancies. This leads to an increased risk of pregnancies at advanced maternal age, as traditional methods are more commonly used by women in older reproductive age groups (40-49 years) [12,13].

On the other hand, while some modern contraceptive methods help to avert the risk of HIV/AIDS and other STIs, traditional methods cannot protect people from these infections [3]. Further, traditional family planning may increase the likelihood of contracting sexually transmitted infections. However, it is important to note that Sri Lanka has been identified as one of the countries with a high proportion of people who depend on traditional family planning methods compared with modern methods [10, 14]. Therefore, this research aims to explore why 10.4% of ever-married women in Sri Lanka are still using traditional methods.

Based on the 2030 Sustainable Development Agenda, SDG 3 was formed to enhance the health of the global population in each area under the common theme of good health and well-being. With regard to this goal, target 3.7 addresses the importance of sexual and reproductive health and family planning and aims to 'ensure universal access to sexual and reproductive healthcare services, including for family planning, information and education and the integration of reproductive health into national policies, strategies and programmes by 2030'.

Yet, when addressing family planning requirements and issues within the context of global policies, implementation cannot be uniform across all regions. Specifically, with regard to Sri Lankan adult females' family planning practices, it is important to understand the reasons for using traditional methods instead of modern contraceptive methods in the 21st century. Therefore, before implementing integrated national-level policies aimed at enhancing women's accessibility to family planning services and improving reproductive health and well-being, it is essential to identify how different factors influence their family planning choices, especially their choice of traditional methods.

Hence, this study will be helpful for policymakers, researchers and decision-makers in making informed decisions on family planning interventions and the family planning market, including how traditional family planning users can be encouraged to shift to modern methods by addressing their needs. Further, this research will provide insights into pathways for achieving the 2030 Sustainable Development Goals, including universal access to reproductive health by 2030, by addressing gaps in the

understanding of demographic, social and economic factors that influence women's traditional family planning practices.

Research Objectives

On the basis of the aforementioned rationale, the study has two main objectives: first, to identify the background characteristics of modern and traditional family planning users in Sri Lanka; and second, to model the determinants of traditional family planning use among ever-married women in Sri Lanka using a binary logistic regression approach.

A Review of Family Planning Research in Sri Lanka

As the main objective of identifying the factors which affect the use of traditional methods of family planning, it is worthwhile to understand how other researchers have identified factors associated with the use of traditional family planning methods in Sri Lanka.

As a South Asian country, Sri Lanka has been reported as a country with a high prevalence of traditional contraceptive method use.[14]. However, when referring to research conducted by other scholars regarding traditional family planning use in Sri Lanka, it is very difficult to find studies compared with other developing nations at the global level. In particular, the literature on factors associated with the use of traditional family planning methods has not been extensively examined in Sri Lanka [12,15-17].

Caldwell and others in 1987 [18] conducted research to examine the characteristics of traditional fertility regulation in Sri Lanka. The research highlighted that education and a substantial proportion of love marriages had a significant association with the use of the rhythm method. In addition, the authors stated that cultural norms, especially ethnicity, religious beliefs, knowledge of modern and traditional contraceptives and myths regarding modern contraceptives influenced the use of traditional methods. However, the vital factors identified in this research have not been justified through any statistical analysis.

However, in 2012, Gunawardane and Hettiarachchi [12] conducted a statistically based research study to identify the factors influencing the use of modern and traditional contraceptive methods among women in rural Sri Lanka. According to the logistic analysis, women who were older than 35 years, Muslim, living in an extended household, childless, had the youngest child older than six years, lacked information on modern methods, did not receive public health midwife home visits, lived farther than 1 km from a clinic, did not utilize clinic services, held negative views about public health midwife services, held negative opinions regarding services at field clinics and had poor knowledge of modern family planning were identified as key factors which were connected with the use of traditional methods.

Gunawardane and Hettiarachchi's findings are supported by Perera (2014) [15], who examined factors influencing the preference for traditional family planning methods among Sri Lankan women. According to the bivariate analysis, traditional methods were most commonly used among women with 1–2 children (68%), those living in rural areas (86%), and women aged 40–44 years (54%).

Interestingly, 46% of users had completed the G.C.E. Ordinary Level or higher education, indicating that even educated

women may favor traditional methods. Perera's qualitative data further revealed that anxiety surrounding the side effects of modern methods, spousal support/ cooperation, limited time to purchase modern contraceptives, misconceptions about modern methods, and confidence in the effectiveness of traditional methods influenced their continued use. Overall, these findings show that both socio-demographic and attitudinal factors shape women's preference for traditional family planning methods in Sri Lanka.

In such a case, the above-mentioned literature revealed that there is a lack of research in Sri Lanka on the reliance on natural family planning methods among women of reproductive age using SLDHS 2016 data. Additionally, it shows that there is a gap in statistical research on the use of traditional methods in Sri Lanka. Therefore, this research is expected to help develop a statistical model that can be used to identify the determinants of traditional family planning use among Sri Lankan ever-married women, and it contributes to bridging a research gap in family planning research in Sri Lanka.

Methods

This study is based on the secondary data obtained from the 2016 Sri Lanka Demographic and Health Survey (SLDHS) [8], conducted by the Department of Census and Statistics, Ministry of National Policies and Economic Affairs and Ministry of Health, Nutrition and Indigenous Medicine.

The SLDHS-2016 sample utilized a multilevel stratified probability sampling approach to ensure national representation. The study employed a two-phase stratified sampling approach. During the initial phase, census blocks (2500) were chosen as primary sampling units, and in the subsequent phase, 12 housing units were selected from each primary unit as secondary sampling units. A total of 28,800 residential units were chosen for the whole study. Of these, 27,210 households were chosen, and comprehensive information was gathered from all ever-married women aged 15 to 49 years and their children. Among these households, 18,302 women were successfully interviewed.

Among the secondary data derived from SLDHS 2016, all women who are aged 15 to 49 years who were using any type of family planning method (Both TFP and MFP methods) were included in the current study sample. This sample included women from all districts and residential sectors (urban, rural and estate sectors) of Sri Lanka.

According to the selected sample, 10,835 ever married women (15 to 49 years) were using family planning methods. Among them, 1768 women were using traditional methods while the remaining 9067 women were using modern methods. For the development of the final binary logistic model, 10,835 women who used any kind of family planning method were included in the analysis.

Final dependent variable was developed as 1=traditional family planning users (TFP) and 2=modern family planning users (MFP) and the following criteria were used to construct this binary dependent variable. Women who used traditional methods, including the withdrawal and rhythm methods, or both, as well as those who used MFP methods in combination with the rhythm and/or withdrawal method were classified as traditional family planning users. Women who used only MFP method/s were classified as modern family

planning users. Ever-married women who had not used any contraceptive method were excluded from the study sample.

The independent variables included in the study were identified through a rigorous review of global and Sri Lankan literature and subsequently organized within a conceptual framework that incorporated the key determinants. Further, the identified variables were categorized into three main categories; demographic, socio-economic and programmatic. Table 1 presents the variables used in the study.

Table 1. Independent variables, categories, codes, and reference groups used in the analysis

	Independent variable	Category (Codes)
Demographic Characteristics	Women's age (Years)	1 – '42-49' (WA1) 2 – '33-41' (WA2) 3 – '24-32' (WA3) 4 – '15-23' (WA4)**
	Husband's age (Years)	1 – '49-63' (HA1) 2 – '34-48' (HA2) 3 – '19-33' (HA3)**
	Marital Status	1 – 'Married or living together' (MS1) 2 – 'Divorce or separated' (MS2) 3 – 'Widowed' (MS3)**
	Number of Children	1 – 'Childless' (NC1) 2 – '1 - 2 children' (NC2) 3 – '3 or above children' (NC3)**
	Women's' education level	1 – 'Degree & above' (WE1) 2 – 'Passed G.C.E A/L (WE2) 3 – 'Passed grade 1 to G.C.E O/L (WE3) 4 – 'No schooling or only preschool (WE4)**
	Husband's education level	1 – 'Degree & above' (HE1) 2 – 'Passed G.C.E A/L (HE2) 3 – 'Passed grade 1 to G.C.E O/L (HE3) 4 – 'No schooling or only preschool (HE4)**
	Sector	1 – 'Urban' (RS1) 2 – 'Rural' (RS2) 3 – 'Estate' (RS3)**
	Districts by FP usage	1 – '(High usage districts' (DU1) 2 – 'Moderate usage districts' DU2) 3 – 'Lowest usage districts' (DU3)**
	Knowledge of FP	1 – 'Good' (FK1) 2 – 'Moderate' (FK2) 3 – 'Poor' (FK3)**
	Decision to use FP	1 – 'My decision' (FD1) 2 – 'Husband's decision' (FD2) 3 – 'Decision of both' (FD3) 4 – 'Decision of PHM' (FD4)**

(Continued)

	Independent variable	Category (Codes)
Socio-economic characteristics	Women's ethnicity	1 – 'Sinhala' (RE1) 2 – 'Tamil' (RE2) 3 – 'Muslim' (RE3) 4 – 'Burgher' (RE4)**
	Religion of women	1 – 'Buddhism' (RR1) 2 – 'Catholic' (RR2) 3 – 'Islam' (RR3) 4 – 'Hindu' (RR4)**
	Wealth quantile	1 – 'Highest quantile' (WQ1) 2 – 'Middle quantile' (WQ2) 3 – 'Lowest quantile' (WQ3)**
	Women's occupation	1– 'Manager, professional and administrative jobs (WO1) 2 – 'Clerical, sales, industry and machine related workers (WO2) 3 – 'Unemployed' (WO3) 4 – 'Eliminatory occupation' (WO4)**
	Husband's occupation	1– 'Manager, professional and administrative jobs (HO1) 2 – 'Clerical, sales, industry and machine related workers (HO2) 3 – 'Eliminatory occupation' (HO3) 4 – 'Unemployed' (HO4)**
Programmatic Factors	Advice from a PHM	1 – 'No' (AP1)** 2 – 'Yes' (AP2)
	Family planning exposure via electronic media	1 – 'Yes' (EE1) 2 – 'No' (EE2)**
	Family planning exposure via printed media	1 – 'No' (EP1)** 2 – 'Yes' (EP2)
	Family planning exposure via digital media	1 – 'No' (ED1)** 2 – 'Yes' (ED2)
	Attendance at a well-woman clinic	1 – 'Yes' (AW1) 2 – 'No' (AW2) 3 – 'Not aware' (AW3)**

Source: Prepared by Author (2025)

Note: FP = family planning; PHM = Public Health Midwife; GCE A/L = General Certificate of Education Advanced Level; GCE O/L = General Certificate of Education Ordinary Level. ** = Reference categories used in the logistic models.

The Statistical Package for the Social Sciences (SPSS) version 22 was used to analyze the derived data. Charts, tables, and graphs were reproduced using Microsoft (MS) Excel software. To statistically examine the association between two variables, the Chi-square test was used and Spearman's rank correlation was computed to assess the direction and strength of the monotonic relationship between the variables. As the dependent variable, the use of traditional methods of family planning among ever-married females had two possible outcomes,

namely, yes or no, therefore binary logistic regression analysis was utilized to develop the final regression model.

The modal for logistic regression can be written as:

$$\text{logit } p(x) = \log \frac{P(X)}{1 - P(X)}$$

$$p(x) = \frac{\exp(\beta_0 + \beta_1 x)}{1 + \exp(\beta_0 + \beta_1 x)}$$

Further to assess the goodness of fit of the logistic regression model, the Hosmer-Lemeshow statistical test was used and to measure the association between the outcome and the significant variables in the final model, odds ratios were employed.

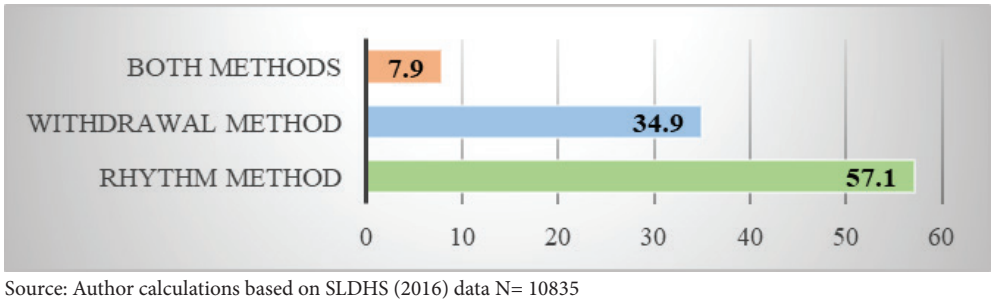
Results

This section first provides an exploratory statistical analysis on Sri Lankan women using family planning methods. Further, it describes the characteristics of traditional method users and modern method users in Sri Lanka where only the percentage distribution among categories within each variable has been presented using 2-way frequency tables.

Among the family planning users, 16.3% of respondents used traditional family planning methods. The remaining 83.7% used modern contraceptive methods. Notably, among the traditional users (TFP), nearly 35% used the withdrawal method, and 57% of respondents used the rhythm method (figure 1). It indicates that the majority of traditional method users preferred the rhythm method over the withdrawal technique. Further, nearly 8% of respondents used both the withdrawal and rhythm methods.

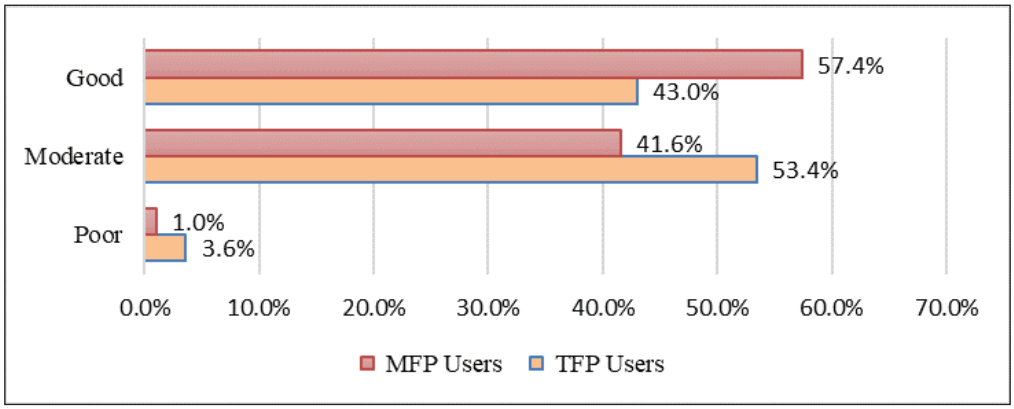
Family Planning Knowledge and Awareness

The level of understanding of family planning was assessed using 12 questions administered to respondents in the DHS 2016 questionnaire. The questions had two possible answers: 'yes' and 'no'. Correct answers were scored as 1, whereas incorrect responses received a value of 0. Respondents were divided into three categories based on their total score: Good knowledge (scored 09-12), Moderate knowledge (scores 05-08) and Poor knowledge (scores 00-04). Accordingly, family planning knowledge and awareness among traditional method users and modern method users are illustrated in Figure 2. The results indicate that 57.4% of traditional family planning method users had good knowledge of contraception, whereas only 1% of TFP users had poor knowledge.



Source: Author calculations based on SLDHS (2016) data N= 10835

Figure 1. Use of Traditional Family Planning among ever Married women in Sri Lanka by Method.



Source: Author calculations based on SLDHS (2016) data N= 10835

Figure 2. Knowledge of Family Planning among ever Married TFP Users and MFP Users.

Among MFP users, the majority exhibited moderate knowledge (53.5%), followed closely by those with good knowledge (43%). In contrast, only 3.6% of these users were classified as having poor knowledge. The results were statistically significant ($\chi^2(2) = 140.202$, $p = 0.001$), indicating that TFP users have significantly higher knowledge of family planning compared to MFP users.

Demographic Characteristics of Modern and Traditional Family Planning Users

The mean age of the TFP users is 37.5 years with the standard error (SE) of 7.5 while the mean age of modern family planning users (MFP) is 35.7 years with an SE of 7.5. This indicates that the age distributions of both TFP and MFP users are negatively skewed, suggesting that family planning users are concentrated in the older age groups. When considering women's age categories, 38.4% of TFP users belong to the age category of 33–41 years, followed by (36.2%) women in the 42–49 years category. The lowest percentage (4.8%) was reported among women in the 15–23 years age category (Table 2).

However, the proportions of MFP users in all three age categories below 41 years are greater than the proportions of traditional method users. Notably, MFP users belonging to the 42–49 age cohort (25.2%) represented a lower proportion than traditional family planning users (36.2%) within the same age group.

When considering women's education levels, among the TFP users more than 55% of women belonged to the educational category of Grade 1 to G.C.E Ordinary Level (O/L). Further it shows that among the TFP users 33.6% of women had passed G.C.E Advanced Level (A/L) and 8% of women had obtained a degree or higher qualification. However, the women who belonged to those two categories among MFP users were represented by lower percentages, respectively, at 22.7% and 3.5% compared to the TFP users. This suggests that traditional family planning methods were more commonly used among women with higher educational attainment in Sri Lanka.

Among the MFP users, more than two-thirds (71.9%) of women had attained education from Grade one to G.C.E

Table 2. Socio-demographic characteristics of ever-married women in Sri Lanka by family planning type

Characteristic	Category	TFP users (%)	MFP users (%)
Age	15-23 (years)	4.8	6.4
	24-32 (years)	20.6	27.6
	33-41 (years)	38.4	40.8
	42-49 (years)	36.2	25.2
	Total	**100.0**	**100.0**
Education	No schooling or only preschool	0.6	2.0
	Attend grade 1 - GCE O/L	57.6	71.9
	Passed GCE A/L	33.6	22.7
	Degree or above	8.1	3.5
	Total	**100.0**	**100.0**
Employment	Unemployed	59.8	69.9
	Eliminatory occupation	12.0	12.0
	Clerical, sales, industry and machine related workers	15.3	11.2
	Managers, professionals and administrators	12.9	6.9
	Total	**100.0**	**100.0**

Source: Author calculations based on SLDHS (2016) data N= 10835

Note: TFP = traditional family planning; MFP = modern family planning. Percentages are presented within each characteristic category and may not sum exactly to 100.0 due to rounding.

Ordinary Level (O/L), and 2% of MFP users belonged to the lowest level of educational attainment, namely no schooling or preschool education only. Nevertheless, the representation of TFP users in the lowest educational category (0.6%) was very low. This was supported by the Chi-square test statistic (($\chi^2(3) = 207.822$, $p < 0.001$) which shows that a significant difference exists across educational levels between traditional and modern method users.

When considering women's occupational status, according to Table 2 above, nearly 60% of TFP users were unemployed. However, 12.9% of TFP users belonged to the occupation category of managers, professionals and administrators. When compared with the percentage of MFP users belonging to the same occupation category of managers, professionals and administrators, the proportion was nearly 7%. It can be statistically emphasized that women who are in higher occupational groups are more prone to relying on traditional methods than modern methods (($\chi^2(3) = 109.527$, $p < 0.001$).

Among the MFP users, nearly 70% of women were unemployed and 12% of women were engaged in eliminatory occupations. However, industry, machine, clerical, and sales related workers were more likely to use TFP methods (15.3%) compared to MFP (11.2%) users.

Based on the sectoral classification of TFP users, the dominant proportion of women (80.7%) represented the rural sector. As a notable point, the urban sector accounted for 16.9% of traditional method users and 12.9% of modern method users. The results were statistically validated ($\chi^2(2) = 54.570$, $p = 0.001$), which indicates that urban women favored traditional methods over modern methods. The comparison

between traditional and modern family planning users across the three different sectors is presented in Figure 3.

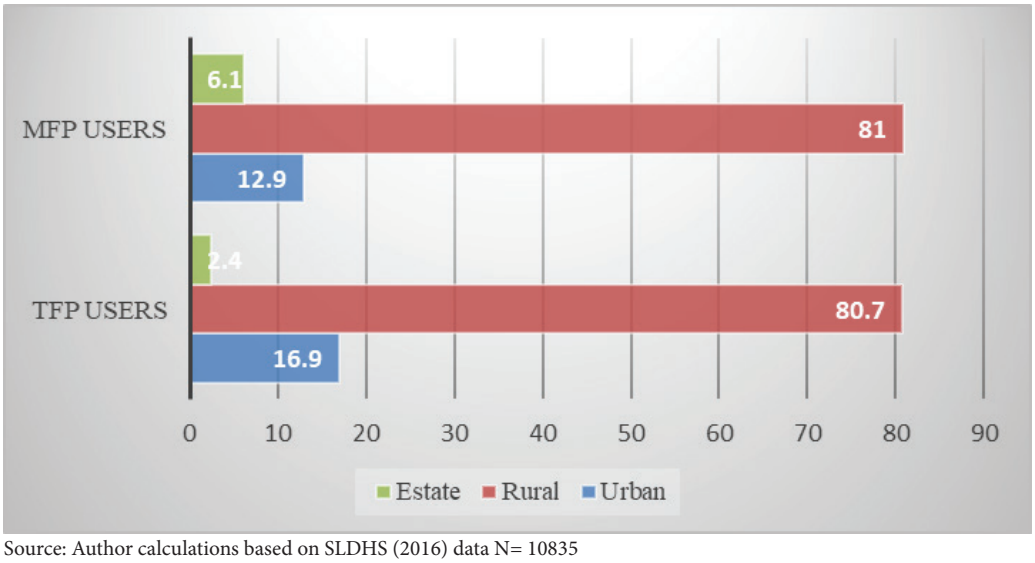
The above trend is different among women in the estate sector compared to urban women. Within the estate sector 6.1% are modern family planning users compared to 2.4% of traditional family planning users. However, a notable difference is not visible among the traditional and modern method users in the rural sector.

On the other hand, according to Figure 4 shown below, the majority (69.6%) of traditional family planning users have 1-2 children. Notably, the use of traditional methods is very low (2.5%) among women with three or more children. However, as an important point, nearly 28% of TFP users are women who are childless.

The same trend can be seen among the MFP users with the highest percentage represented in the 1-2 children category (73%). A notable proportion of MFP users (9.1%) belong to the category of having three or more children. It emphasizes that women who have three or more children mostly prefer to use modern methods rather than traditional methods. On the other hand, amongst childless women, the majority rely on traditional methods (27.9%) rather than modern methods (18%). Further, this can be statistically justified by the substantial difference in the number of children and the use of TFP and MFP methods. Chi-square statistics- ($\chi^2(2) = 155.825$, $p = 0.001$).

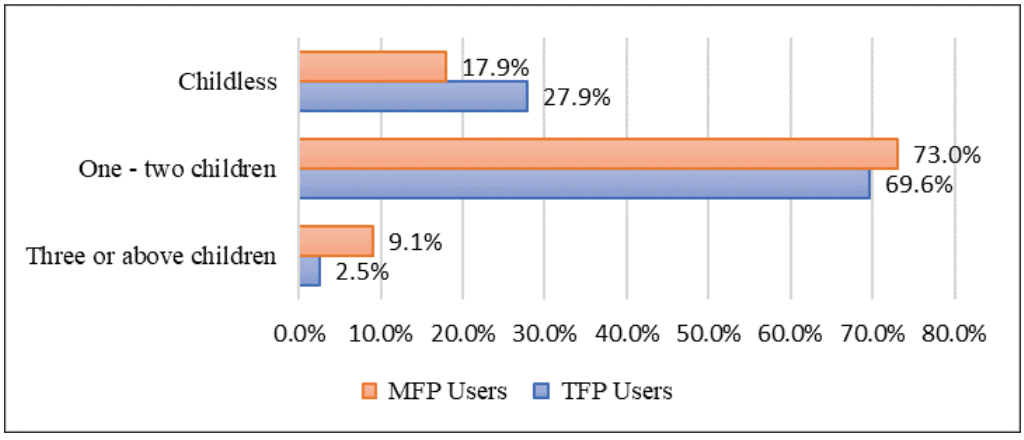
Socio-Economic Characteristics of Modern and Traditional Family Planning Users

The classification of traditional and modern family planning users by ethnicity is presented in Figure 5. According to the results, most traditional family planning users are Sinhalese (85.5%) and the lowest percentage (0.2%) is represented by Burghers. Further according to the analysis, nearly 8% of traditional family planning users can be identified as Muslims.



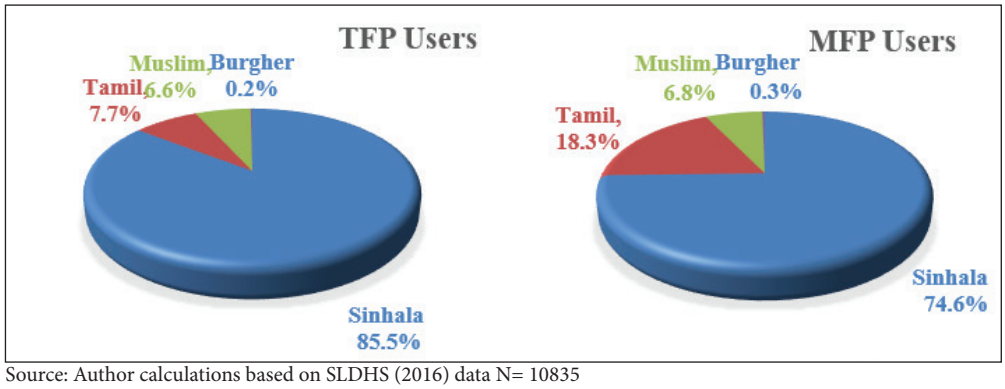
Source: Author calculations based on SLDHS (2016) data N= 10835

Figure 3. Sectoral Distribution among ever Married TFP Users and MFP Users.



Source: Author calculations based on SLDHS (2016) data N= 10835

Figure 4. Distribution of Number of Children among ever Married TFP Users and MFP Users.



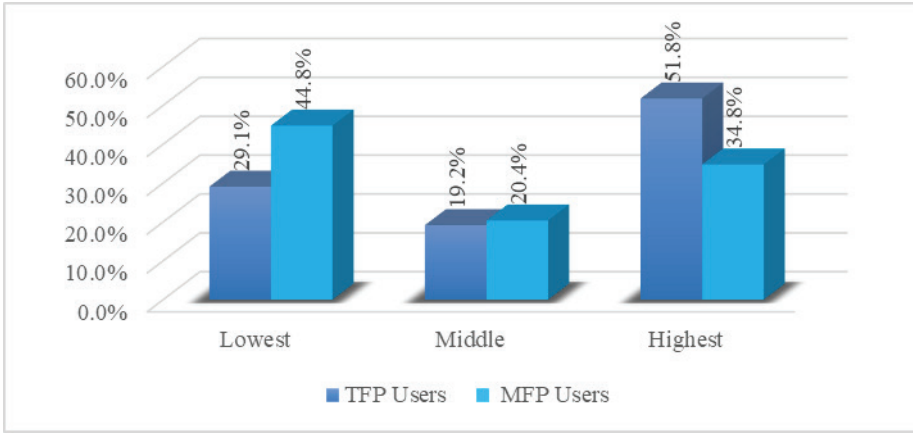
Source: Author calculations based on SLDHS (2016) data N= 10835

Figure 5. Distribution of ever-married women using traditional versus modern family planning methods, categorized by ethnicity.

As an important point, among the MFP users, 74.6% are Sinhalese, while 18.3% are Tamils. It emphasizes that the percentage of Sinhalese TFP users is higher than the percentage of Sinhalese MFP users. However, MFP use among Tamils is higher (18.3%) compared to TFP usage (7.7%). Statistically it can be justified that there is a difference between TFP and MFP users by their ethnicity (($\chi^2(3) = 124.118$, $p < 0.001$) which highlights the influence of ethnicity on family planning practices.

When studying the wealth quintiles of the respondents, more than fifty percent of (51.8%) traditional family planning users belonged to the highest wealth quantile. On the other hand, nearly 30% of TFP users belonged to the lowest wealth quantile. The distribution of TFP and MFP users according to their wealth quantile is shown in Figure 6.

Among the MFP users, nearly 45% of women belong to the lowest wealth quantile, while the highest wealth quantile was represented



Source: Author calculations based on SLDHS (2016) data N= 10835

Figure 6. Distribution of ever-married traditional and modern family planning users in Sri Lanka by wealth quintile.

by only 35% of MFP users. It shows that women who belonged to the highest wealth quantile were more likely to use traditional methods rather than modern methods. However, a similar trend can be seen among TFP users and MFP users within the middle wealth quantile. Statistically, the above can be justified by the Chi-square test statistic which indicates that (($\chi^2(2) = 270.65$, $p < 0.001$) there was a difference between TFP and MFP users by their wealth quantiles.

Programmatic Characteristics of Modern and Traditional Family Planning Users

Media exerts a substantial influence on the dissemination of family planning information and the enhancement of reproductive health awareness among women. Table 3 below reveals the composition of TFP and MFP users according to their exposure to family planning information via media. It was revealed that 50.7% of TFP users had heard or seen a message about family planning through electronic media on family planning. However, only 42.4% of MFP users had been exposed to family planning messages via electronic media. The Chi-square test statistic (($\chi^2(1) = 41.138$, $p < 0.001$) shows that there is a significant difference between TFP users and MFP users in terms of exposure to contraceptive related information through electronic media.

As an important point, 43.6% of the TFP users have seen or read a message regarding family planning through printed media such as newspapers and magazines. However, MFP users' exposure to contraception related information through printed media is quite low (33.6%) compared to TFP users. This difference is statistically significant, as indicated by the Chi-square test statistic (($\chi^2(1) = 63.701$, $p < 0.001$).

As a notable point, exposure to family planning information through digital media among both TFP and MFP users is very low. It represents 8% of the TFP users and 4.3% of the MFP users. This indicates that digital media, such as the internet, is used by a very low percentage of women

to obtain information about contraception. Further, it reveals that traditional method users' exposure to all three types of media regarding family planning is higher than that of MFP users.

Further, public health midwives (PHM) play a pivotal role in promoting family planning and providing guidance on sexual and reproductive health practices to married couples across Sri Lanka (SLDHS, 2016). According to the results, among the TFP users, nearly 33% of respondents received advice from a PHM. However, the majority of TFP users (67.5%) did not receive any advice from a PHM. Conversely, 39% of the MFP users received advice from a PHM, while the others did not receive advice from a PHM. It shows that the majority of TFP users (67.5%) and MFP users (61.2%) did not receive any advice from a PHM. This can be statistically demonstrated by the Chi-square test statistic (($\chi^2(1) = 25.426$, $p < 0.001$) which indicated a significant difference between TFP and MFP users in receiving advice from a PHM.

Modeling of Traditional Family Planning Usage

Before developing the final logistic regression model, individual regression models and Chi-square tests for each independent variable were conducted. All explanatory variables were found to significantly influence the use of traditional methods when considered individually. The overall predictive power of the individual models was greater than 83% (Table 4).

Table 3. Differences between TFP Users and MFP Users among ever-married women in Sri Lanka by Exposure to Family Planning via Media

Media source	Electronic		Printed		Digital	
Exposure	TFP Users (%)	MFP Users (%)	TFP Users (%)	MFP Users (%)	TFP Users (%)	MFP Users (%)
Yes	50.7	42.4	43.6	33.6	8.0	4.3
No	49.3	57.6	56.4	66.4	92.0	95.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Author calculations based on SLDHS (2016) data N= 10835

Table 4. Summary Table of Chi-square Test statistics and Individual Binary Logistics Models

Domain	Variable	χ^2 test p-value	Classification accuracy (%)	Crude OR (95% CI)
Demographic variables	Women's age			
	42- 49 (years)	P < 0.001	83.7%	1.898 (1.487- 2.423)
	33- 41 (years)			1.908 (1.658-2.196)
	24- 32 (years)			1.517 (1.345-1.710)
	Husband's age			
	49-63 (years)	P < 0.001	83.1%	1.753 (1.484- 2.069)
	34-48 (years)			1.422 (1.245-1.625)
	Marital Status			
	Married or living together	P < 0.001	83.7%	0.065 (0.009-0.466)
	Divorce or separated			0.325 (0.033-3.129)

(Continued)

Domain	Variable	χ^2 test p-value	Classification accuracy (%)	Crude OR (95% CI)
Demographic variables	Number of Children			
	Childless	P < 0.001	83.7%	0.180 (0.131-0.247)
	1 or 2 children			0.294 (0.216-0.399)
	Women's education level			
	Degree & above	P < 0.001	83.7%	7.588 (4.000-14.385)
	Passed G.C.E A/L			2.932 (2.381-3.610)
	Completed Grade 1 to G.C.E O/L			1.587 (1.277-1.973)
	Husband's education level			
	Degree & above	P < 0.001	83.1%	3.255 (2.580-4.107)
	Completed G.C.E A/L			2.433(1.877-3.154)
	Completed Grade 1 to G.C.E O/L			1.690 (1.323-2.159)
	Sector			
	Urban	P < 0.001	83.7%	0.298 (0.212-0.418)
	Rural			0.391 (0.284-0.537)
	Districts by FP usage			
	High usage districts	P < 0.001	83.7%	0.233 (0.198-0.274)
	Moderate usage districts			0.406 (0.343-0.481)
	Knowledge of FP			
	Good	P < 0.001	83.7%	0.202 (0.123-0.331)
	Moderate			0.347 (0.212-0.568)
	Decision to use FP			
	My decision	P < 0.001	83.7%	0.216 (0.121-0.386)
	Husband's decision			0.035 (0.020-0.061)
	Decision of both			0.062 (0.036-0.105)
Socio-economic variables	Ethnicity of women	P < 0.001	83.7%	
	Sinhala			0.839 (0.244-2.884)
	Tamil			2.293 (0.660-7.966)
	Muslim			0.995 (0.285-3.470)
	Religion of women	P < 0.001	83.7%	
	Buddhism			0.980 (0.815-1.178)
	Catholic			2.761 (2.119-3.597)
	Islam			1.177 (0.905-1.532)
	Wealth quantile	P < 0.001	83.7%	
	Highest quantile			4.077 (3.398-4.891)
	Middle quantile			1.976 (1.693-2.306)
	Women's occupation			
	Manager, professional and administrative jobs	P < 0.001	83.2%	2.176 (1.845-2.566)
	Clerical, sales, industry and machine related workers			1.860 (1.506-2.297)
	Unemployed			1.365 (1.115-1.671)
	Husband's occupation			
	Manager, professional and administrative jobs	P < 0.001	83.7%	0.920 (0.707-1.197)
	Clerical, sales, industry and machine related workers			0.544 (0.472-0.627)
	Eliminatory occupation			0.720 (0.631-0.823)

(Continued)

Domain	Variable	χ^2 test p-value	Classification accuracy (%)	Crude OR (95% CI)
Programmatic variables	Having advice from PHM Yes	P < 0.001	83.7%	1.320 (1.185-1.471)
	FP exposure via electronic media Yes	P < 0.001	83.7%	0.717 (0.647-0.794)
	FP exposure via printed media No	P < 0.001	83.7%	0.657 (0.592-0.729)
	FP exposure via digital media No	P < 0.001	83.7%	0.520 (0.426-0.635)
	Attend to well women clinic Yes No	P < 0.001	83.7%	0.725 (0.626-0.840) 0.635 (0.558-0.722)

Source: Author calculations based on SLDHS (2016) data N= 10835

Note: χ^2 p-values are from bivariate chi-square tests assessing the association between each independent variable and traditional family planning use. Classification accuracy refers to the percentage of cases correctly classified by each separate unadjusted binary logistic regression model. Crude OR = unadjusted odds ratio; CI = confidence interval; FP = family planning; PHM = Public Health Midwife.

Additionally, the significance of all the explanatory variables was assessed using Wald test statistics and the results confirmed the significance of all predictors in relation to the dependent variable, with p-values less than 0.05. Therefore, all the explanatory variables were selected for inclusion in the final binary logistic regression model.

Additionally, to identify the strength of the relationships between independent variables, a Spearman's rank correlation analysis was conducted. According to the resulting correlation coefficient matrix, all bivariate correlations among independent variables showed a very weak relationship, with correlation values less than 0.5 and the p-values less than 0.05. Therefore, it can be concluded that the independent variables selected for the final model development were not strongly correlated with each other, therefore, variance inflation factors (VIFs) were not calculated.

Final Fitted Model

Based on the final fitted logistic regression model, when all the variables are considered simultaneously, the independent variables of knowledge of family planning, seeking advice from a PHM, ethnicity, decision making family planning use, women's education level, women's age, districts by FP usage, women's occupation, number of children, and wealth quintile significantly increase the likelihood of using TFP methods. However, attendance at a well-woman clinic, religion and a husband's occupation significantly reduce the likelihood of using traditional family planning methods (Table 5).

Notably, husbands age, husband's education, marital status, residential sector and media exposure to family planning were removed from the final fitted model due to their lack of statistical significance.

The final logistic regression model exhibited a satisfactory goodness-of-fit to the observed data. No evidence of model

misfit was observed, as the Hosmer–Lemeshow goodness-of-fit test was not statistically significant (p = 0.233). The final model correctly classified 82.9% of cases overall. Nevertheless, the pseudo-R-squared values suggested modest explanatory power, with a Cox and Snell R^2 of 0.100 and a Nagelkerke R^2 of 0.168. Accordingly, the model accounted for approximately 10.0% to 16.8% of the variation in traditional family planning use, implying that additional factors not captured in the present analysis may also contribute to this behavior.

Table 4. Multivariable logistic regression model of factors associated with traditional family planning use among ever-married women in Sri Lanka

Variables	B	S.E.	Wald	df	P Value	aOR (95% CI)
Knowledge on FP			28.013	2	< 0.001	
Knowledge level (1) - Good	.286	.062	21.281	1	< 0.001	1.331 (1.246-1.826)
Knowledge level (2) - Moderate	.961	.296	10.556	1	< 0.001	2.613 (1.320-2.987)
Seeking advice from PHM (1) -No	.219	.066	11.167	1	< 0.001	1.245 (1.116-1.448)
Attendance at a well-woman Clinic			19.034	2	< 0.001	
Attendance at a well-woman Clinic (1) -Yes	-.286	.073	15.353	1	< 0.001	0.751 (0.234-1.076)
Attendance at a well woman Clinic (2) – No	-.357	.096	13.914	1	< 0.001	0.700 (0.560-1.210)
Religion			8.147	3	.043	
Religion category (1) -Buddhism	-.317	.117	7.322	1	.007	0.728 (0.597-0.973)
Ethnicity			9.209	3	.027	
Ethnicity category (1) - Sinhala	.617	.232	7.065	1	.008	1.854 (1.143-2.168)
Decision to use FP			212.262	3	< 0.001	
Decision to use FP category (1) - My decision	-1.920	.179	115.566	1	< 0.001	0.147 (0.065-0.418)
Decision to use FP category (2) - Husband's decision	-1.225	.137	79.846	1	< 0.001	0.294 (0.128-0.418)
Decision to use FP category (3) - Decision of both	1.450	.302	23.093	1	< 0.001	4.264 (3.786-5.265)
Husband's occupation			11.143	3	.011	
Husband's occupation category (2) - Clerical, sales, industry and machine related workers	-.325	.138	5.590	1	.018	0.722 (0.613-1.005)
Husband's occupation category (3) - Eliminatory occupation	-.416	.143	8.483	1	.004	0.660 (0.438-1.004)
Women's Age			55.468	3	< 0.001	
Women's Age category (1) - 42- 49 years	.397	.081	23.728	1	< 0.001	1.487 (0.877-1.546)
Women's Age category (2) - 33- 41 years	.850	.116	53.355	1	< 0.001	2.339 (1.276-3.076)
Women's Age category (3) - 24- 32 years	.632	.182	12.023	1	< 0.001	1.881 (0.478-4.264)

(Continued)

Variables	B	S.E.	Wald	df	P Value	aOR (95% CI)
Women's occupation			19.020	3	< 0.001	
Women's occupation category (2) - Clerical, sales, industry and machine related workers	.222	.109	4.162	1	.041	1.248 (0.982-2.974)
Women's education level			13.698	3	.003	
Women's education level (2) - Passed G.C.E A/L	.322	.154	4.393	1	.036	1.380 (0.787-1.810)
Women's education level (3) - Passed grade 1 to G.C.E O/L	.890	.398	5.009	1	.025	2.436 (1.241-4.078)
Number of children			62.699	2	< 0.001	
Number of children category (1) – Childless	.352	.071	24.723	1	< 0.001	1.423 (0.943-1.788)
Number of children category (2) - 1 to 2 children	1.382	.184	56.615	1	< 0.001	3.983 (2.315-5.783)
Districts by FP usage			28.742	2	< 0.001	
Districts by FP usage category (1) - High usage	.334	.064	27.033	1	< 0.001	1.396 (0.794-2.354)
Districts by FP usage category (2) - Moderate usage	.570	.228	6.257	1	.012	1.769 (0.767-3.241)
Wealth Quantile			8.854	2	.012	
Wealth Quantile category (1) - Highest quantile	.213	.079	7.302	1	.007	1.237 (0.621-2.251)
Wealth Quantile category (2) - Lowest quantile	.185	.081	5.216	1	.022	1.204 (0.607-2.104)
Constant	.937	.281	11.095	1	< 0.001	2.552

Note: aOR = adjusted odds ratio; CI = confidence interval; FP = family planning; PHM = Public Health Midwife; SE = standard error. Reference categories are omitted from the table. P-values less than 0.001 are presented as < 0.001.

Discussion

When interpreting the final fitted model by regression coefficients, women with good knowledge (+0.286) and moderate knowledge levels on family planning (+0.961) have a higher tendency to utilize TFP approaches. According to the respondent's education levels, those who have passed G.C.E. A/Ls (+0.322) and G.C.E. O/Ls (+0.89) are also more likely to use TFP methods. It indicates that higher educational levels are associated with greater use of TFP methods, which may reflect informed choice rather than lack of access. The results can be justified by the study conducted using 80 national surveys in 2022, which stated that levels of traditional family planning use increase with each additional level of educational attainment [18].

When considering women who seek advice from PHMs (+0.219), they are more likely to use TFP methods, which indicates their dependency on familiar or culturally accepted methods. However, women who attend well-woman clinics are less likely (-0.286 and -0.357) to use TFP methods, suggesting that they are more inclined toward MFP methods due to exposure to clinical services and counselling. This finding is clearly supported by Sri Lankan

research, which shows that non-utilization of clinical services and limited interaction with PHMs are significantly associated with higher use of traditional family planning methods [11].

Notably, when considering socio-cultural factors, women who identify as Buddhist (-0.317) are less likely to prefer the use of traditional methods, while on the other hand, Sinhalese women exhibit a greater likelihood (+0.617) of selecting TFP techniques, highlighting the nuanced ethnic influence beyond religious affiliation on family planning practices. Prior studies in Sri Lanka have similarly emphasized that contraceptive behavior is shaped not only by religion but also by household structure, social norms, and community-level influences [11, 19].

Further women's demographic factors such as age play a crucial role that, older women are more likely (42-49 years = +0.397 and 33-41 years = +0.85) to use TFP methods, indicating a preference for or continuation of natural methods. Interestingly these findings can be justified by the research conducted by Bertrand in 2025 which emphasized that, older women (age 30-49 years) shows a greater preference for traditional methods than younger women [18]. Further Sri Lankan studies have similarly found that women above 35 years are significantly more likely to use traditional methods [11].

Additionally. the final model reflects that working woman are more likely (+0.222) to use TFP methods which can be justified by a study conducted in Turkey, which shows that women's employment status and spouses' occupation are strongly correlated with family planning attitudes and choices [20].

Notably, women with few children (Childless = +0.352 and 1-2 children = +1.382) are more likely to use TFP methods, possibly for initiating and spacing births rather than limiting their births. Further, it revealed that, women who have higher wealth exhibit a greater tendency to utilize traditional methods (Higher wealth quantile = +0.213 and Middle wealth quantile= +0.185) suggesting that TFP usage is not limited to poorer groups and extends beyond economic factors. Notably recent literature also revealed that women in the higher wealth quintiles, as well as childless women and women with 1 or 2 children, prefer traditional methods compared to women in lower wealth quantiles and women with more children [18-19].

The regression coefficients obtained from the final fitted model can be further justified by the corresponding odds ratios, which verify both the trend and magnitude of the relationships between the predictor variables and the likelihood of TFP usage. The odds ratios derived from the final logistic regression analysis show that women with moderate and good knowledge of contraception have 2.613 times and 1.331 times higher odds, respectively, of practicing traditional methods, than women with poor knowledge, when all other variables are held constant.

The odds of using of traditional methods are 1.245 times greater among individuals not utilizing public health midwife services than among those who do, while all other variables are fixed. Further, the odds of using traditional methods are 1.854 times greater among Sinhalese women compared to their Burgher counterparts.

Notably, the odds of using traditional methods when the decision is made

mutually by both partners are 4.264 times greater than when the decision is influenced solely by a public health midwife, while all other variables are held constant.

Additionally, the odds of using traditional methods are 1.881 times, 2.339 times and 1.487 times, higher respectively among women aged 24- 32 years, 33- 41 years, and 42- 49 years than among women aged 15- 23 years, while all other variables in the model are held constant.

On the other hand, the odds of using traditional methods among women who are working as machine, industry, sales, and clerical related workers are 1.248 times greater than those among unemployed women.

The odds of using traditional methods are 1.38 times higher among women who have passed G.C.E Advanced Level and 2.436 times higher among women who have studied from Grade 1 up to G.C.E Ordinary Level than among women who have not attended school or have only attended pre-school, while all other variables in the model are held constant.

As a highlighted point, the odds of using traditional methods among women who have 1 or 2 children and childless married women are respectively 3.983 times and 1.423 times higher than among women with three or more children when all the other variables are held constant in the model. Further, the odds of using traditional methods among females in the highest wealth quantile is 1.237 times higher and 1.204 times higher among women in the lowest wealth quantile than among those in the middle wealth quantile, while all the other variables in the model are held constant.

Overall, the consistency between regression coefficients and adjusted odds ratios confirms both the direction and strength of these associations. Notably, when interpreted alongside existing literature, the findings suggest that TFP in Sri Lanka should not be viewed as a residual or minor practice. Instead, it represents a complex behavioral outcome shaped by knowledge, cultural norms, service exposure, reproductive intentions, and individual choices.

Conclusion

The study was carried out to model the key factors significantly influencing the adoption of traditional family planning (TFP) methods among ever-married women in Sri Lanka, using data collected by the Demographic and Health Survey of Sri Lanka (SLDHS).

Knowledge of family planning, number of children, women's age, decision-making on family planning utilization, education, and seeking advice from a PHM significantly increase the likelihood of using TFP methods, while well-woman clinic attendance and certain ethnic and religious factors reduce the likelihood of using TFP methods. The use of traditional methods is considerably higher among women who are receiving advice from public health midwives, indicating that there are deeper familial and cultural influences on family planning decisions rather than programmatic factors alone.

Higher knowledge of family planning is expected to decrease the TFP use, however myths around modern family planning methods, socio-cultural factors and anxiety surrounding the potential side effects of modern methods increase the

TFP use among women. Women in the older age groups are more likely to prefer TFP methods than women in the younger age group (15 to 23 years), which indicates that older women may be dependent on previous experiences they had at younger ages, while habits and cultural continuity sustain TFP use.

As a notable finding, results indicate that more working women are using TFP methods than unemployed women. This may be because working women usually have greater independence and decision-making power, enabling them to choose their preferred family planning method more privately and reducing the need for open discussion on contraception, which can be sensitive in some social settings.

Limitations

This study relied on a secondary analysis of the Sri Lanka Demographic and Health Survey 2016, which was the most recently published national-level dataset available for examining family planning use in Sri Lanka. While the age of the data may limit the contemporaneity of the findings, the dataset remains an important, nationally representative source in the absence of a more recent national survey. In addition, the cross-sectional nature of the data does not permit causal inference, the analysis was limited to variables available in the DHS, self-reported data may have led to recall or social desirability bias, and interaction effects between explanatory variables were not assessed.

Recommendations

The identified factors provide contemporary and robust evidence to enable more effective and efficient targeting of key female groups in need of contraceptive facilities. Notably, women in older age groups within the reproductive age span should be made aware of modern methods and the misconceptions associated with them through well-woman clinics.

The Ministry of Health should actively identify traditional family planning users in Sri Lanka and provide them with accurate, hands-on information related to the use of modern contraception methods and the advantages of using them.

The Family Planning Association of Sri Lanka and the Family Health Bureau should organize contraceptive awareness campaigns conducted by health professionals to reach Sri Lankan working educated women. It is essential to conduct awareness sessions for employed women at their designated work locations.

Further it is recommended that modern family planning service providers understand the requirements of contraceptive users in the country and make efforts to bridge the gap in family planning services by addressing unmet needs for contraception. Additionally, media awareness programmes should be conducted to address misconceptions about modern contraceptive methods among married women, and these can be delivered via state television and radio channels.

New family planning interventions should be developed to promote modern methods among Sinhalese women and women in older age categories. Digital platforms should be created using social media such as TikTok, Facebook, Twitter, Instagram, and other digital platforms to promote accurate information about family planning methods among the general public in Sri Lanka.

Ethical Approval

This study was based on a secondary analysis of microdata from the Sri Lanka Demographic and Health Survey 2016 and involved no new data collection or direct contact with human participants. Therefore, separate ethical approval was not required. Formal authorization to reuse the dataset for the present study was granted by the Additional Director General (Statistics), Department of Census and Statistics, Sri Lanka (Reference No. DCS/2026/DHS/07, dated on 9th April 2026).

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Conflict of Interests

The authors declare there are no conflict of interests.

Data Availability Statement

Use of the Sri Lanka Demographic and Health Survey 2016 microdata file for this secondary analysis was formally approved by the Department of Census and Statistics, Sri Lanka (DCS/2026/DHS/07 dated on 9th April 2026). The approval authorized the reuse of the dataset for the present study and its publication, and the analysis was undertaken within the scope of that permission and under the governance of the data custodian.

Statement on the Use of AI

During the preparation of this work, the author utilized ChatGPT (GPT-5.1) only for minor language editing and to improve readability. No AI tool was used to generate scientific content, interpret findings, or draw conclusions. The author carefully reviewed and edited the manuscript and takes full responsibility for the content of the publication.

Disclaimer

The views and interpretations expressed in this publication are solely of author. The Department of Census and Statistics, Sri Lanka, bears no responsibility for the study's findings, interpretations, or conclusions.

Disclosure of Previous Related Publication

The author acknowledges that an earlier article, titled "Modelling the Use of Traditional Family Planning by Women in Sri Lanka," was published in the SLIIT Journal of Humanities and Sciences in year 2020 based on the same dataset. The present article, however, represents a substantially developed and distinct analysis, incorporating more comprehensive statistical analyses, detailed methodological explanations, and an extended interpretation and discussion of the findings.

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Designing a National Framework for Age-Appropriate Comprehensive Sexual and Reproductive Health Education: Insights from Pakistan and Sri Lanka

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Review Article

Abstract

Introduction: In South Asia, adolescents face various challenges related to sexual and reproductive health education (SRHE) due to insufficient awareness, contributing to an alarming rate of teenage pregnancies. In Sri Lanka and Pakistan, reproductive health-related topics are included in the curriculum; however, they remain fragmented, with an overemphasis on the biological component, while ignoring emotional well-being, consent, contraceptive awareness, and safe relationship protocols, resulting in a high rate of teenage pregnancies. Both countries face cultural and religious taboos that hinder the effective delivery of comprehensive, age-appropriate SRHE. The review aimed to explore how age-appropriate sexual and reproductive health education is currently addressed in Pakistan and Sri Lanka. Second, the review aimed to propose an integrated age-appropriate national framework on SRHE for Sri Lanka and Pakistan, based on the best global practices.

Methods: To conduct this review, a qualitative narrative review approach was adopted. A search was conducted across digital databases (PubMed, ScienceDirect, Google Scholar) and grey literature from UNESCO, UNFPA, WHO, National ministries' websites, and theses. A keyword search using Boolean operators (AND/OR) was conducted from 2015 to 2025. A total of 26 studies (i.e., 15 empirical studies, 7 government reports, 3 theoretical and conceptual literature, and 1 web portal/commentary were synthesized and included in the review.

Results: The study findings suggest three major gaps in existing SRHE awareness among adolescents in South Asian countries, i.e., Pakistan and Sri Lanka. These include inadequate teacher training on SRHE, community-restricted attitudes towards SRHE advocacy, and the absence of a unified curriculum.

Conclusion: As a future course of action, this review proposed a five-pillar national age-appropriate framework, guided by the UNESCO spiral model, to enhance structured advocacy, teacher preparedness, and culturally sensitive implementation of SRHE awareness.

Key Words: adolescents, South Asia, sexual and reproductive health education (SRHE), life skills-based education (LSBE)

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Introduction

Adolescent sexual and reproductive health education (SRHE) is a cornerstone of the global public health agenda as it affects long-term outcomes related to gender equality, well-being, economic productivity, and supporting Sustainable Development Goals, SDG 3 and SDG 5. The World Health Organization and UNESCO advocate for comprehensive age-appropriate SRHE as an evidence-based approach, with age-appropriate curricula that encompass physical, emotional, social, and rights-based aspects of reproductive health to promote informed decision-making and healthy behaviors [1–3]. Although there have been global advancements (i.e., the International Conference on Population and Development (ICPD) (1994) and the Nairobi Summit (ICPD25, 2019), including reducing the fertility rates of adolescents, particularly in low-and middle-income countries (LMICs), where adolescents experience various reproductive health-related issues, such as teenage pregnancies [4,5].

Age-appropriate frameworks are quintessential in promoting sexual and reproductive-health-related awareness, as fragmented programs fail to provide young people with the required skills needed for informed consent in the pursuit of developing healthy relationships while navigating their vulnerabilities [5]. Statistics from a study reveal that in Pakistan, approximately 50% of the births are to women aged below 20 years living in resource-constrained rural areas [6]. Globally, the majority of people aged between 10-24 years are living in LMICs. This burgeoning and rapidly growing stratum (340 million adolescents) is experiencing cultural and societal taboos associated with SRHE, particularly those living in South Asian countries.

Access to information and services related to SRHE is further restricted by stigma and gender inequalities, which increase the risk of teenage pregnancies and gender-based violence [7]. This is especially concerning when adolescents are at a stage of developing physical, cognitive, and emotional capabilities and undergoing robust changes, which are essential for adult life [8]. In LMICs, providing age-appropriate SRHE to adolescents is often hindered by socio-cultural and religious conservatism across Pakistan and Sri Lanka, which creates resistance or hesitation to SRHE initiatives [8–11]. Additionally, these challenges are further compounded by the lack of teacher training programs, which leads to inadequate and biology-focused education that is ill-suited to adolescents' emotional, psychological, and developmental needs.

Pakistan and Sri Lanka are countries with South Asian cultural foundations and religious conservatism, predominantly Islam in Pakistan and Buddhism in Sri Lanka, which stigmatizes open discourse on sexual and reproductive health-related awareness; however, both countries differ in terms of educational infrastructure and the implementation of sexual and reproductive health-related initiatives. In Pakistan, adolescents comprise 23% of the population, with only 38% of girls reporting knowledge of reproductive health; 617,000 adolescent pregnancies are reported annually, 36% of which are unintended, with more than half ending in abortion, amid contraceptive use of 3.5% [12,13]. There is no unified guidance in curricula, which are fragmented and biology-centric, and this is exacerbated by religious objections that portray SRHE as a way to promote immorality, teacher discomfort, and policy inertia [5,14–18]. Thus, the results reveal

that this limited awareness of reproductive health rights and services available is closely tied to community and faith-based norms [16,18,19].

Whereas Sri Lanka reports a high literacy rate (92%) with mandatory primary education, education related to reproductive health topics is fragmented. As the curriculum is widely biology-focused, it prioritizes physiology over consent and adolescents' emotional well-being [17,20]. Although UNFPA supports initiatives, only 59% of young people received school-based sexual and reproductive health education, with low or no contraceptive knowledge, as well as access barriers among unmarried adolescents, persisting faith-driven moral conservatism, and reluctance among teachers [20–22]. Evidence reveals that adolescents do not have satisfactory SRHE (<1% satisfactory). This gap is accelerating among out-of-school youth, as they are more prone to issues such as sexually transmitted diseases, unintended pregnancies, and a lack of knowledge about informed consent in maintaining a healthy relationship [23,24]. Both countries face similar religious-cultural obstacles, teacher education constraints, and the absence of a centralized national education framework, yet Sri Lanka's developed educational foundation offers greater potential for reform than Pakistan's, which has a more constrained policy environment [15,18,25].

To address prevailing concerns related to sociocultural and religious factors (e.g., belief-driven attitudes) towards sexual and reproductive health education remains a critical gap. Approaches that are age-appropriate, socio-culturally sensitive, and advocate for the inclusion of psychological and emotional elements of reproductive and sexual health in adolescents are needed. Studies indicate that existing initiatives are fragmented and lack uniform reproductive health education across the country that can be adapted to local community needs; therefore, upscaling of these initiatives remains a challenge [15,19,26]. This void calls for an integrated, inclusive, age-appropriate, evidence-based model for adolescents to equip them with the knowledge and skills needed to address risks associated with sexual and reproductive health. This narrative review synthesizes evidence from 2018-2025 to map the SRHE landscapes of Pakistan and Sri Lanka and propose a culturally attuned national framework with two objectives. First, to explore how age-appropriate sexual and reproductive health education is currently addressed in Pakistan and Sri Lanka. Second, to propose an integrated national framework for Sri Lanka and Pakistan, based on the best global practices.

Methods

A qualitative narrative review approach was adopted for this study, which allows the integration of heterogeneous evidence from the SRHE framework within the existing education systems of Pakistan and Sri Lanka from diverse literature, including peer-reviewed articles, policy documents, and theses (grey literature). This approach enabled us to synthesize evidence interpretively on evolving challenges related to implementation (including teacher reluctance and faith-driven cultural norms) and develop a nuanced contextual understanding across countries, while focusing on behavioral and policy barriers.

Search Strategy

Literature was sourced from digital databases (PubMed, ScienceDirect, Google Scholar) and grey literature from

Table 1. Summary of Search Strategy and Study Selection Criteria

Stage /Description	Details
Search sources	PubMed, ScienceDirect, Google Scholar; grey literature from UNESCO, UNFPA, WHO, national ministries' websites, and academic theses.
Search timeframe	2015 to 2025.
Keywords used	Reproductive health education, age-appropriate reproductive health education, sexuality education, school curriculum, adolescent reproductive health policy, adolescents, youth (10-24 years), Pakistan, Sri Lanka; combined using AND/OR operators.
Inclusion criteria	Peer-reviewed studies, policy briefs, reports, theses, and government documents focusing on adolescents and youth aged 10-24 years and addressing reproductive health education or related educational policies in Pakistan and Sri Lanka.
Exclusion criteria	Publications before 2015; purely clinical interventions without educational or policy relevance; studies not focused on reproductive and sexual health education and adolescents.
Total included studies (n = 26)	Pakistan-focused: 13; Sri Lanka-focused: 9; Cross-country/global framework sources: 4.

UNESCO, UNFPA, WHO, national ministries' websites, and theses. A keyword search using Boolean operators (AND/OR) was conducted from 2015 to 2025. Keywords included "reproductive health education", "age-appropriate reproductive and sexual education in Pakistan OR/AND Sri Lanka", OR/AND "South Asia," "adolescents," "youth." As shown in Table 1, key sources included data from UNFPA, UNESCO, WHO, the national youth health survey of Sri Lanka, the Nairobi Summit on ICPD25, and Pakistan Demographic Surveys and published reports.

The inclusion criteria encompassed published peer-reviewed policy briefs, theses, reports, and government reports on adolescent/youth sexual and reproductive health education in Pakistan and Sri Lanka, broadly across South Asia/ low-middle-income countries (LMICs). Exclusion criteria were defined as literature published before 2015 and clinical interventions on adolescents' reproductive or sexual education awareness. Following these inclusion and exclusion criteria, a total of 26 studies (i.e., 15 empirical studies, 7 government reports, 3 theoretical and conceptual literature, and 1 web portal/ commentary were synthesized and included in the review. Since the focus was on two countries, i.e., Pakistan and Sri Lanka, 13 studies were included from the Pakistan literature and 09 studies were included from the Sri Lankan literature, whereas 04 provided a global comparative framework on adolescent reproductive health education and the five-pillar framework.

Evidence Appraisal Criteria

For quality appraisal of the included literature, the mixed methods appraisal tool (MMAT) edited version (2015) was adapted for this study, and diverse formats were assessed, including quantitative studies, qualitative studies (grey literature/thesis), narrative and systematic reviews, mixed-method studies, policy reports, blogs, and press releases. Emphasis was placed on

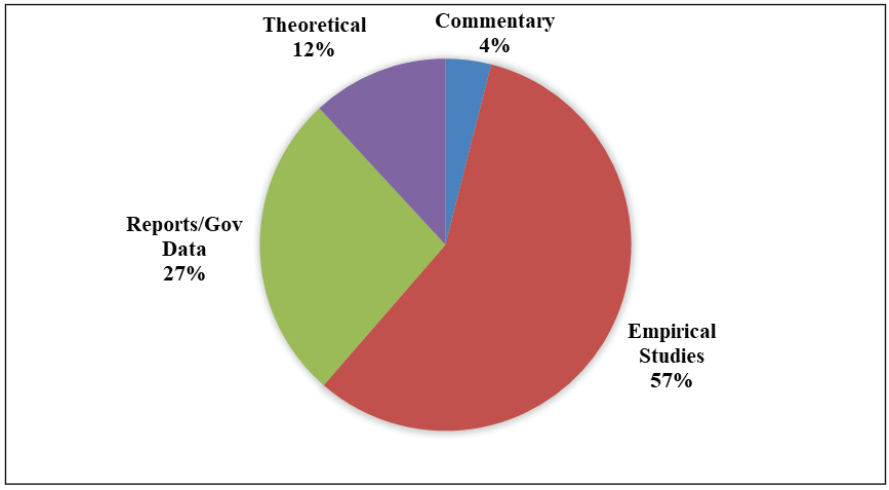


Figure 1. Distribution of Evidence Types included in the Review.

relevance to reproductive health-related awareness in curricula, methodological relevance (e.g., the target population aged from 10 to 24 years), included reports, repositories, national policies, and credibility of sources (e.g., government initiatives and policy reports of ministries or other government bodies). UNFPA, UNESCO, and WHO policy briefs were included as high-scoring items because of their actionable policy evidence; data from unreliable sources, such as commentaries and LinkedIn post analyses, were discarded to ensure evidential balance.

Data Extraction and Synthesis Process

Data extraction was performed manually using a spreadsheet matrix, capturing the study elements (delivery and content relevance), barriers (cultural relevance), and outcomes (knowledge gaps) regarding reproductive health education, drawn from selected databases and appended reports. Similarities (e.g., UNFPA- and UNESCO-backed curriculum patterns) and challenges (e.g., lack of age-appropriate reproductive health education in educational institutions, belief-driven religious responses) were identified through cross-country comparisons and iterative pattern analysis from both countries. The study results were synthesized narratively, without using any software, weaving themes into policy-relevant insights from reports published in recent years to evaluate sexuality education among youth in educational institutes through inclusive curricula while balancing a biological focus with emotional and psychological factors associated with reproductive health.

Results

Existing curricula in Pakistan and Sri Lanka are markedly fragmented and largely prioritize biological aspects of reproductive health education, overlooking psychological, emotional, and rights-based components, which are crucial for comprehensive sexual and reproductive health-related education (SRHE). In Pakistan, SRHE content exists under the umbrella of life skills-based education (LSBE), though it is provided in a fragmented manner [8,27]. Young people constitute 23% of the total

Table 2. Adolescent SRH Crisis Indicators: Pakistan vs Sri Lanka (2023-2025)

Country	Unintended Pregnancies	Teenage Pregnancies
Pakistan	47% (6 million total, 2023)	41 births per 1,000 girls aged 15–19 (2023)
Sri Lanka	33% (approximately 120,000 of 360,000, 2025)	3.8% of registered pregnancies (2023)

Note: Pakistan data were sourced from [29,30], and Sri Lanka data were sourced from [26,31].

population in Pakistan, and this group faces numerous SRHE related challenges [6], such as early marriage, limited knowledge about contraceptives, unintended pregnancies, non-medical or self-administered abortion practices, and insufficient knowledge about hormonal and developmental changes in the body during puberty [16,28,29]. The LSBE curriculum includes content and guidance on SRHE-related concerns broadly, such as gender norms, reproductive health, and HIV/AIDS knowledge; however, the focus remains largely biologically, and implementation of this curriculum remains limited due to community resistance and limited or negligible government support [14,19].

Similarly, in the Sri Lankan curriculum, initiatives have been undertaken with support from UNFPA to raise awareness of reproductive and sexual health, with a primary focus on anatomy, hygiene, and menstruation. Although literacy on early pregnancies, safe sexual relationships, contraceptive use, and consent before sexual activity remains neglected, this is compounded by teacher hesitance and stigma attached to speaking about sexual health in educational settings where the system is mainly religion-based and belief-driven [8,16,20,26,29]. Thereby, these challenges and imbalances contribute to knowledge gaps, demonstrating that only 59% of the youth have access to school-based sexual and reproductive health education, with less than 1% reporting satisfactory awareness of this issue [21,23].

The statistical landscape presented in Table 2 illustrates that 47% of pregnancies are unintended in Pakistan, and 41 births per 1,000 Pakistani girls aged 15-19 years [29,30]. Whereas in Sri Lanka, 33% of pregnancies (approximately 120,000 annually) are reported as unintended amid cultural silences [26]. Moreover, in Pakistan, approximately 3.8 million abortions are reported annually [29], while teenage pregnancies account for 10-13% of maternal deaths. Even though Sri Lanka has seen a decline in teenage pregnancies from 6.5% in 2009 to 3.8% in 2023, reforms to existing curricula are needed to embed SRHE for adolescents.

These pathways must be age-appropriate to address cultural and individual needs. Some initiatives have been taken in the Pakistani province of Sindh as part of a UNFPA-supported project named Aahung, which integrates SRHE partially into existing LSBE content, where "puberty changes" are taught to Grade 6, and healthy relationship norms are taught to Grade 8; however, consent in sexual relationships remains diluted due to religious and cultural resistance [8,14,27,32]. In Sri Lanka, despite UNFPA support and implementation assistance, topics related to contraception and safe sex have been omitted amid backlash from parents and religious leaders. A textbook named "Hathe Ape Potha" teaches Grade 7 students about menstruation and hygiene-related issues [26,31].

Across included studies, adolescents and young adults have limited or no awareness of reproductive health education, and their rights and sources of support are often unclear or unavailable, and they mainly rely on information acquired from social media or websites. Since SRHE awareness is stigmatized, this age group heavily relies on alternative sources such as websites, peer groups, social media, outside formal educational institutions, and the information obtained is often not age-appropriate [23,24].

Teacher Preparedness and Training Gaps

Instructors in educational institutions often lack adequate knowledge and training on reproductive health-related issues, resulting in hesitation and discomfort when educating adolescents about the psychological, emotional, and physiological aspects of reproductive health. [5,14]. In Pakistan, educators face community pressures when addressing reproductive and sexual health-related issues, while teachers from Sri Lankan institutions grapple with societal taboos and insufficient knowledge of psychological and emotional well-being literacy [5,11,26]. Adolescents are considered to be the foundational group within the population, as individuals shape their beliefs about reproductive and sexual health [8] during this stage of development, including their emerging identities. Therefore, adolescence is considered a critical developmental stage for making reproductive health-related awareness effective.

The scarcity of professional teacher training programmes, compounded by cultural taboos, limited pedagogical tools, and conventional educational norms, limits the scalability of such educational initiatives [8,10].

An exemplary programme was carried out in Indonesia, known as "World Starts with Me" (WSWM), in which teachers were trained in rights-based delivery and workshops were conducted for parents, resulting in visible changes in attitudes and knowledge regarding sexuality related topics [33,34]. Integrating these training programmes with local government and NGO partnerships can equip teachers and policymakers to address the emotional and psychological dimensions of SRHR and increase sexual and reproductive health awareness among adolescents in Pakistan and Sri Lanka.

Cultural, Religious, and Community Barriers

To develop a comprehensive sexual and reproductive health-related education (SRHE) discourse, religious conservatism and cultural taboos create the most significant obstacles, causing parental resistance, shame, and misinformation that hinder outreach efforts [10,13,19]. In Pakistan, faith-based norms surrounding SRHE portray it as promoting immorality and immodesty in society [14]. Despite the high literacy rate reported in Sri Lanka, there are socio-cultural and religion-based resistances to promoting reproductive health-related education among adolescents [11,20]. These challenges are more pronounced among adolescents outside formal educational institutions, who often face stigma and have limited or no awareness of reproductive health, their rights, and available support services [23] and may therefore rely on social media and websites for information that is often not age-appropriate.

Takeaways from various recently implemented programmes highlight that parental and educator acceptance of SRHE education can be increased through the

inclusion of community religious leaders and positive engagement with social media. Approaches such as WSWM's Asian programe engage the community through awareness workshops, increase acceptance and adaptability, and create alignment with local values. Such steps can help ensure the long-term success of SRHE frameworks in both countries.

Discussion

The review synthesis suggests that adolescents from Pakistan and Sri Lanka are left vulnerable due to gaps in SRHE awareness, as the knowledge they have been equipped with in conventional institutions is biologically narrow and inconsistently connected their psychological realities [13,17,26,31]. These challenges leave adolescents vulnerable to experimenting and seeking information from inappropriate sources, rather than preparing them for real-world risks with adequate knowledge about SRHE. Thus, there is a need to develop an integrated SRHE framework for adolescents that is age-appropriate and emphasizes the relationship skills they require for the near future, including an understanding of consent in relationships (i.e., 'yes means yes' and 'no means no' for any sexual or non-sexual activities), the ability to set personal boundaries within relationships, and the capacity to navigate peer pressure. These considerations can bridge these gaps, prioritizing psychosocial competencies over a biological emphasis, as a biology-centric SRHE curriculum may fail to influence adolescents' and young adults' behaviour, and reduce adverse outcomes unless paired with rights-based, age-appropriate, and skill-focused curricula [3,5,35].

Insights from both countries further highlight the challenges associated with the full-scale implementation of SRHE curricula. In Pakistan, many initiatives have stalled at the initial stages because of community resistance and a lack of state support mechanisms, as seen with the LSBE project. Similarly, in Sri Lanka, despite UNFPA backing, faith-driven moral conservatism and educators' hesitancy to provide SRHE-related information led to issues such as resistance to contraceptives and safe-sex practices. This policy inertia leaves adolescents from both countries facing the same concerning outcomes, knowledge gaps and heavy reliance on informal and potentially unsafe online sources, such as social media platforms and websites, which often provide inaccurate or unrealistic information.

Educator Preparedness as a Bottleneck

Across studies, educator readiness emerges as a critical bottleneck. Reportedly, in formal settings, teachers report inadequate knowledge and training, and, in most cases, fear of community backlash when addressing psychological, physiological, and emotional aspects of SRHE-related education [5,11,14,26]. This reluctance reinforces the silence around the significance of consent, safe relationship guidance, and digital safety. The Indonesian WSWM project reveals that training educators alone is insufficient; in fact, such training must also engage parents, caregivers, and institutions through incentive-based initiatives such as certifications and short-term training workshops to overcome stigma and ensure effective implementation of SRHE [33,34,36]. Instead of relying on ad hoc workshops, pre-service and in-service training in Pakistan and Sri Lanka should be supported by state-driven policies [14,18].

Sociocultural and Faith-based Constraints

The review findings suggest that the main structural barriers to SRHE outreach efforts are cultural taboos coupled with religious conservatism, which contribute to parental resistance, misinformation, and shame surrounding SRHE advocacy [10,20]. Despite increasing literacy rates in both countries, evidence suggests that faith-driven norms frame SRHE as "immoral knowledge" that should be excluded from adolescents' curricula [11,14,17]. In such conservative settings, initiatives that align with community norms while protecting dignity have successfully reduced resistance to SRHE education [5,11]. Partnerships with religious scholars and community leaders may therefore play an important role in repositioning SRHE awareness as compatible with the country's moral and religious teachings, while supporting the co-development and integration of SRHE curricula into existing education systems [5,10,14]. Whereas, in Sri Lanka, engaging faith leaders and developing safe spaces for parent-teacher open forums for dialogue can create safe boundaries for discussion around SRHE in educational settings, while such inter-group interactions can help preserve core competencies related to safety and consent for adolescents and young people [11,26,37].

Why a National Framework Is Needed?

There is a dire need for a national SRHE framework that addresses the systematic failures associated with fragmented curricula, inadequately trained teachers, and unaddressed resistance, which have resulted in inconsistent quality and stalled progress across initiatives in this area [14,26]. Projects in Sri Lanka and Pakistan, supported by UNFPA, demonstrate potential, however, they remain fragmented and lack coordination at the national level [31]. As the needs of each age group differ, particularly during adolescence, an age-appropriate, unified SRHE framework with mandatory training for teachers and parents is crucial. Developing a digital system to collect and monitor data on early and unintended pregnancies among adolescents[38] can also provide real-time evidence to inform adaptations to existing systems and strengthen the promotion of SRHE.

To support adolescents' holistic development in reproductive and sexual health awareness, the centralized framework should incorporate digital safety, rural equity, cultural and faith considerations, and sensitivity to social norms in such discussions. Practical examples can be drawn from the WSWM-Malaysian project and guidance available from UNESCO and WHO [2,3,34]. Drawing on these examples and guidance, this narrative review synthesized existing empirical evidence, structural information, and reports to translate the evidence into an equitable and culturally responsive SRHE framework based on five-pillars for Sri Lanka and Pakistan.

Way Forward: Proposed National Framework

By synthesizing existing literature, the narrative review proposed a national framework outlining a practical pathway to introduce a culturally sensitive and age-appropriate SRHE approach for adolescents and young people aged 10 to 24 years in Sri Lanka and Pakistan. While rooted in the UNESCO spiral curriculum, which promotes the notion of introducing

topics to adolescents gradually and as they become emotionally mature, considering their psychological readiness for sexuality related information [26]. The proposed SRHE framework consists of three core principles:

- Rights-based learning
- Cultural sensitivity
- Community trust building

These core principles focus on the early involvement of the community, parents, and religious representatives in both countries (Pakistan and Sri Lanka). Structured content by age group is considered the first pillar of this five-pillar framework, which follows a gradual, systematic progression to reproductive-health education based on Aahung's LSBE model [8,34,36]. This model represents the UNESCO spiral curriculum guidelines, where revisiting key topics [3] each year increases depth as per Bruner's spiral learning model [39], and explains how younger adults (aged 10 to 12 years) learn basic body awareness and safety. Adolescents aged 13-15 are being introduced to relationships, consent, and mutual respect, whereas young people aged 16-24 years are guided on digital safety, online bullying, and safe social media use, and how they can protect themselves in virtual environments. The second pillar of this framework explains how crucial teacher training and certification are for the successful execution and upscaling of sexuality and reproductive health-related education initiatives in Sri Lanka and Pakistan, ensuring that teachers possess adequate knowledge and skills to teach sensitive topics without any stigma

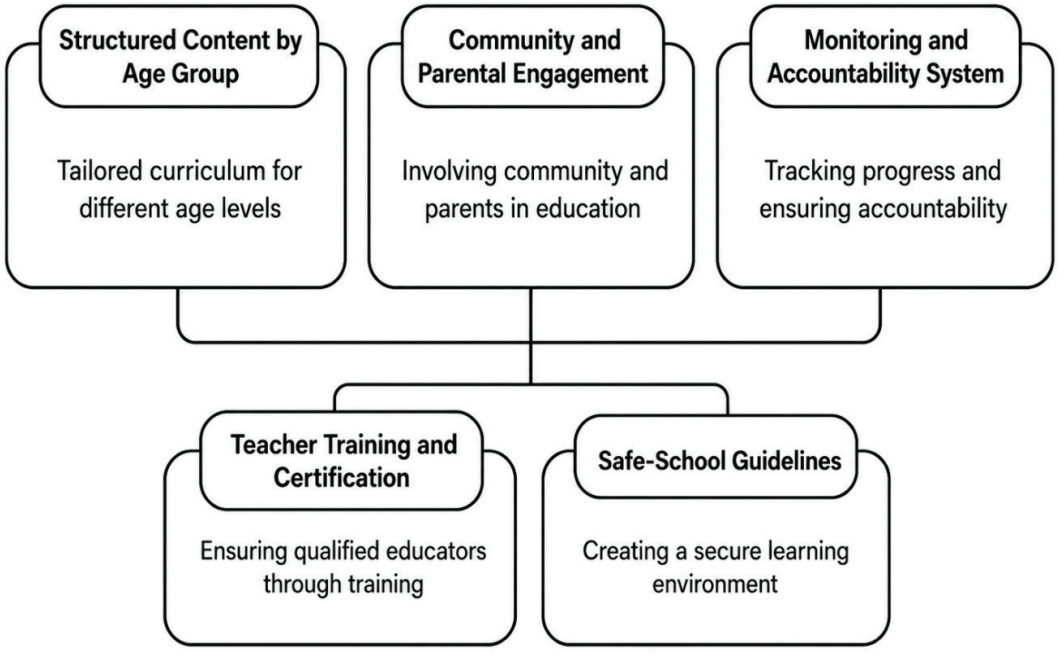


Figure 2. Proposed Five-Pillar Age-appropriate Sexual and Reproductive Health Education (SRHE) National Framework for Adolescents in Sri Lanka and Pakistan.

or predefined thought patterns about sexuality education, as recommended by WHO [2].

Taking into account the community and parental engagement as the third pillar of this proposed SRHE framework. Since attitudes towards sexuality education for children in schools are widely driven by faith and religious conservatism in Sri Lanka and Pakistan, it is suggested that the inclusivity of these religious leaders can bring meaningful change, as demonstrated by the World Starts with Me (WSWM) Asia model [34]. This model has already been successfully implemented in Muslim-majority countries such as Indonesia and Malaysia; therefore, these are practical examples for a Muslim-majority country, Pakistan, where the same model can be executed through culturally tailored participatory workshops, local community leaders, parents, and teachers to improve acceptability towards sexual and reproductive health education among adolescents [33,34,36]. Recently, Aahung has implemented a similar model while engaging in community consultations and culturally appropriate framing in a project titled "Life Skills Based Education" (LSBE), proven to be a successful execution in Muslim-dominant societies like Pakistan [8,16].

The fourth pillar of this SRHE framework is ensuring safe school guidelines for children, explaining the proper methods of how to respond to harassment, gender-based violence, and manipulation through social media or any digital risks. The fifth pillar is the monitoring and accountability of existing projects through student feedback forms, surveys, and building reporting systems while maintaining transparency in educational institutions, and deploying SRHE frameworks to promote sexual and reproductive health awareness.

Limitations

This narrative review included literature and evidence from Sri Lanka and Pakistan; this country-specific focus limits its generalizability. Studies were synthesized narratively; therefore, the results may be influenced by subjective biases. Limited local empirical evidence captured insufficient lived experiences of adolescents amid digital gender divides, as in Pakistan, where digital accessibility is more pronounced than in Sri Lanka.

Conclusion

This narrative review aimed to synthesize and map the existing evidence available on age-appropriate SRHE in two countries, i.e., Sri Lanka and Pakistan, for adolescents aged 10 to 24 years. Key findings suggested that policy implementation is fragmented in both countries, despite high rates of unintended and teenage pregnancies reported (47% in Pakistan and 33% in Sri Lanka), and a substantial lack of awareness of issues related to reproductive and sexual health. As proposed, the five-pillar sexual and reproductive health education framework is guided by the UNESCO spiral, Bruner's 3-step learning model, findings from The World Starts with Me (WSWM) Asia project, and Rutgers's rights-based initiatives.

The five pillars framework includes structured content by age group, with the first pillar providing gradual learning based on adolescents' developmental stages. The second pillar is teacher training and certification, which ensures that educators are fully equipped to deliver this sensitive knowledge in educational institutions with

skill and confidence, while incorporating community and parental engagement. Trust and acceptance from community leaders, teachers, and parents form the third pillar, which advocates for safe-school guidelines (addressing harassment, GBV, and digital safety). The fourth pillar addresses gender-based violence, risks associated with digital safety, and harassment. The fifth pillar of the SRHE framework supports a continuous monitoring and accountability system through surveys and transparent feedback mechanisms.

These pillars address the voids, offering an SDG-focused framework (SDG 3.7/5.6) for SRHE advancements through SAARC coordination in South Asian countries. The findings of this review suggest that countries like Pakistan should prioritize strengthening existing life skills-based education initiatives through government ownership and policy reforms while promoting public-private collaborations. Whereas Sri Lanka should focus on expanding its existing school-based curriculum initiatives, and both countries should expand the existing efforts into a comprehensive, centralized national-level curriculum, beyond biology, focused on addressing adolescents' emotional and psychological needs. The proposed five-pillar framework can provide a practical and culturally sensitive roadmap to strengthen adolescents' reproductive health education in both countries, as well as potentially across South Asia.

Ethical Approval

Ethical approval was not required for this study because it was a narrative review based exclusively on previously published literature and publicly available secondary data. The study did not involve human participants, collection of primary data, clinical interventions, or access to personally identifiable information.

Author Contribution

Sana Naz conceived the study, conducted the literature search, and completed the manuscript. Dr. Malathie Dissanayake provided academic supervision. Both authors read and approved the final manuscript.

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The authors declared no conflict of interests in publishing this study.

Data Availability Statement

Since this study has analyzed existing studies on sexual and reproductive health education, all included data and sources are publicly available.

Statement on the Use of AI

For language editing, refinement, and sentence structure alignment, Grammarly was used in this study.

Disclaimer

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

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Sri Lanka at the Threshold of Ultra-Low Fertility: Evaluating the Predictive Validity of Indirect TFR Estimates by de Silva and De Silva against 2024 Census Findings and Its Implications for Policy and Programmes

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Commentary

Abstract

Sri Lanka's recent sharp fertility decline has raised important questions about the timeliness of official demographic evidence and the usefulness of alternative estimation methods for identifying emerging population changes. This commentary assesses the concordance between the total-birth-number method employed by de Silva and De Silva, published in June 2025, and the Total Fertility Rate subsequently reported from the 2024 Census of Population and Housing in March 2026. The assessment was based on published aggregate secondary data. The independently estimated TFR for 2024 was 1.340, while the TFR calculated from the census age-specific fertility rates was 1.325, representing an absolute difference of 0.015 and a relative difference of approximately 1.1 per cent. This close agreement indicates that the total birth number method provided a useful early signal that Sri Lanka had reached the threshold of ultra-low fertility. Nevertheless, the comparison does not establish equivalence across all years or population groups, and the method remains dependent on the completeness and timing of birth registration and population estimates. The findings demonstrate the potential value of transparent indirect demographic methods when official fertility data and estimates are delayed. Policy responses should safeguard reproductive autonomy and promote a comprehensive, rights-based approach to family planning and sexual and reproductive health. Such responses should also address the broader conditions that influence reproductive decisions by strengthening access to subfertility and infertility services, affordable health and maternity insurance schemes, quality childcare facilities, marital and family counselling, and other forms of social and economic support for couples and families.

Key Words: ultra-low fertility, total fertility rate, indirect estimation, census-based fertility, Sri Lanka

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Introduction

The timely identification, rigorous assessment, and effective dissemination of critical issues at global, regional, and national levels are essential for societal well-being and effective policy formulation. This commentary underscores the responsibility of researchers to proactively identify and analyse emerging challenges, often before they are formally recognised by the state and international agencies. Such early scholarly engagement enables governments and international organisations to anticipate potential implications and to design and implement timely, evidence-based policies and programmes to mitigate their effects.

The total fertility rate (TFR), defined as the average number of children a woman would bear over her reproductive lifespan, is a key summary indicator widely used in demography to analyse fertility change within a population [1, 2]. Its principal advantage lies in the ability to condense age-specific fertility rates into a single, standardised measure that approximates average family size [2]. In Sri Lanka, the TFR declined from 5.3 births per woman in 1963 to 3.4 in 1981, followed by a more rapid reduction to 2.8 during 1982–1987 and further to 2.3 in 1988-1993 (Table 1) [1]. The average annual decline was relatively modest —approximately 1.4 per cent between 1963 and 1981 but accelerated markedly to over 6 per cent during the period from 1981 to 1982–1987 [1].

However, evidence from the 2006–2007 Demographic and Health Survey and the 2012 Census of Population and Housing, referring to the calendar year 2011, indicated a subsequent rebound above replacement level [3, 4]. The census-based TFR of 2.4 for 2011 confirmed this upward shift. Such a rebound is unusual in the Asian context, where countries that have reached below-replacement fertility have rarely experienced a sustained return above replacement level [1, 5]. The 2016 DHS subsequently reported a TFR of 2.2

Table 1. Total fertility rates in Sri Lanka, 1953 to 2024

Source	Year/Period (Reference)	TFR
Census of Ceylon, 1953	1953	5.30
Census of Population, Ceylon 1963	1963	5.30
Census of Population and Housing, 1971	1971	4.28
World Fertility Survey, 1975	1974	3.60
Census of Population and Housing, 1981	1981	3.45
Demographic & Health Survey, 1987	1982-87	2.82
Demographic & Health Survey, 1993	1988-93	2.26
Demographic & Health Survey, 2000	1995-2000	1.96
Demographic & Health Survey, 2006-07	2003-2006	2.33
Census of Population and Housing, 2012	2011	2.40
Demographic & Health Survey, 2016	2013-16	2.20
Census of Population and Housing, 2024	2024	1.32

Source: Adapted from [1, 3, 4, and 9].

for the period 2013–2016, indicating that the fertility decline may have resumed [3]. . Over the past 10–15 years, Sri Lanka has exhibited an unexpected reversal in its fertility transition, moving from below- to above-replacement levels [1]. Notably, the TFR recorded in 2011 (2.4) exceeds the level observed in 1993 estimated from the Demographic and Health Survey (DHS) for the period 1988–1993 [1, 3]. However, more recent evidence from the DHS 2016 (based on births in the preceding 36 months) reports a lower TFR of 2.2, suggesting a possible resumption of the fertility decline [3].

The global population experienced significant disruption during 2020–2022 due to the COVID-19 pandemic [6], followed by a period of economic contraction [7]. As a developing country with a relatively fragile macroeconomic base, Sri Lanka faced acute challenges across socio-economic and political domains [7]. These constraints had notable implications for demographic dynamics, particularly fertility [1, 6]. A pronounced decline in live births was observed during this period [8]. For instance, whereas the reduction in live births between 2014 and 2019 was relatively modest, approximately 5 per cent, the decline between 2019 and 2024 was substantially larger, at around 25 per cent [8]. This unprecedented drop in births has drawn considerable attention among demographers, prompting efforts to assess the trend using more robust and standardised indicators, particularly the TFR [1].

Purpose and Analytical Approach

This commentary has two purposes. First, it assesses the agreement between the 2024 TFR estimated by de Silva and De Silva using an indirect estimation method and the TFR subsequently calculated from the age-specific fertility rates published in the 2024 Census of Population and Housing. Second, it considers the implications of Sri Lanka's movement towards ultra-low fertility for population policy, family planning and broader sexual and reproductive health programmes.

De Silva and De Silva applied the "total number of births method", an alternative originally proposed by Huang, to estimate Sri Lanka's annual TFR. The method estimates TFR as 35×B/W, where B is the total number of live births registered during the year and W is the mid-year population of women aged 15–49 years. Unlike the standard method, it does not require births and female population data to be disaggregated by five-year age group. De Silva and De Silva first assessed the method using South Korean data by comparing its estimates with TFRs calculated through the standard age-specific fertility-rate method. They subsequently applied it to Sri Lanka to produce annual estimates through 2024 [1].

This work was undertaken by two researchers, de Silva and De Silva, who have extensively published articles and monographs on fertility trends in Sri Lanka [1]. Their findings were published in June 2025 by The Family Planning Association of Sri Lanka in ReproSex: International Journal on Sexual and Reproductive Health [1]. The study provides annual TFR estimates for the period 2012–2024 (Figure 1) [1]. Notably, the estimated TFR declines to as low as 1.34 births per woman - substantially below replacement level and comparable to, or even lower than, levels observed in many developed countries such as the United States, the United Kingdom, Germany, and Australia [1, 5].

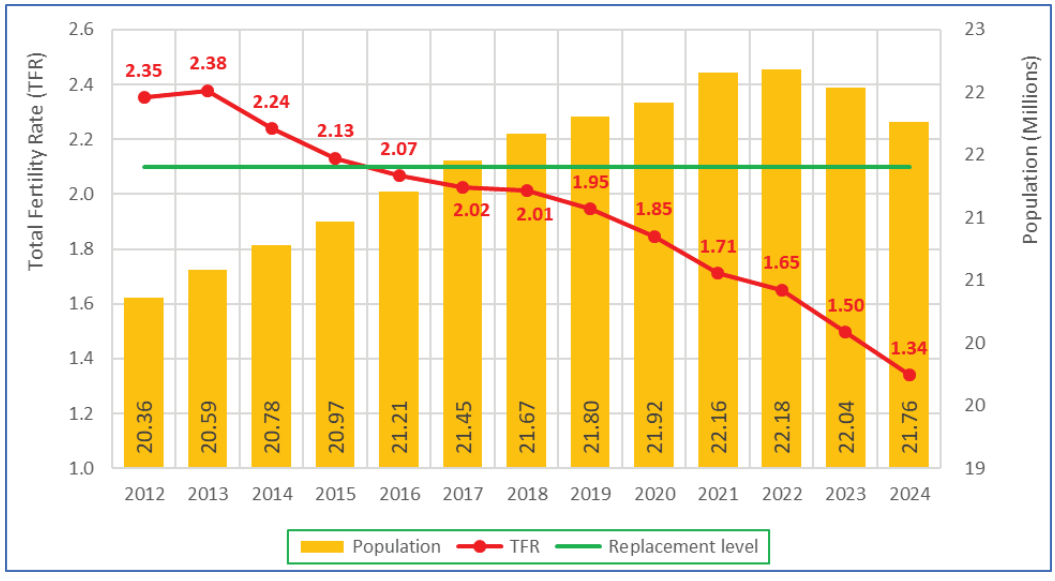


Figure 1. Mid-year population and estimated TFRs for Sri Lanka 2012-24.

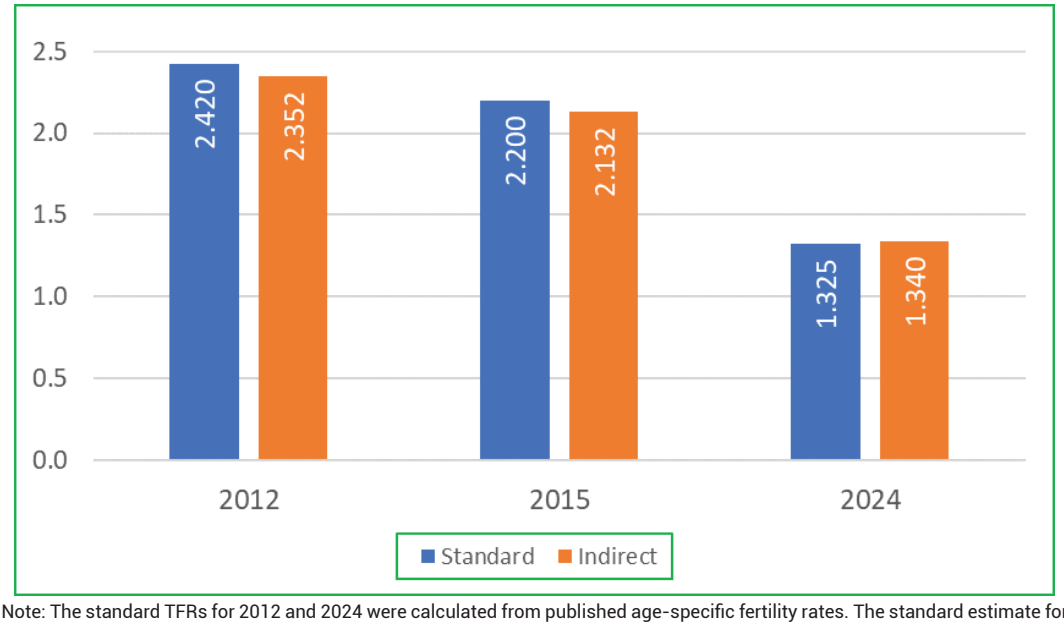
The present commentary did not reproduce the complete estimation exercise. Instead, it compared the published indirect estimate for 2024 with the subsequently released census-based estimate. Historical comparisons for 2012 and 2015 were also based on published census, survey and indirect estimates. No individual-level records were accessed or reanalysed.

Agreement between the Indirect and Census-Based TFR Estimates

At the time the indirect estimate was published, no official TFR estimate had been released after the 2016 DHS. Consequently, the estimate of 1.340 for 2024 could not be assessed immediately against a contemporary official benchmark [1, 3]. The release of age-specific fertility rates from the 2024 Census subsequently provided an opportunity to examine the agreement between the indirect estimate and a standard census-based calculation [9].

The age-specific fertility rates published from the 2024 Census yield a TFR of 1.325 [9]. This is closely aligned with the indirect estimate of 1.340 published by de Silva and De Silva one year before the official census-based estimate became available [1]. The absolute difference is |1.340 - 1.325| = 0.015 births per woman, equivalent to approximately 1.1 per cent of the census-based estimate. The close correspondence supports the usefulness of the total birth number method as an early indicator of rapid fertility change when standard official estimates are delayed. However, agreement at this time point should not be interpreted as complete validation of the method across all periods, population groups or geographical areas.

Furthermore, comparisons of the estimated TFR for 2012 with census-based data, and 2015 with estimate derived from the 2016 Demographic and Health Survey, also revealed only marginal differences of approximately 0.068 on both occasions



Note: The standard TFRs for 2012 and 2024 were calculated from published age-specific fertility rates. The standard estimate for 2015 is based on the 2016 Demographic and Health Survey.
Source: Authors' compilation based on [1, 3, 4, 9]

Figure 2. Comparison of TFR estimates obtained using the standard and total birth number methods.

(Figure 2) [1, 3, 4, 9]. This close alignment underscores the robustness and reliability of the methodology employed by de Silva and De Silva, while also highlighting the value of rigorous and anticipatory demographic analysis in contexts where official data are delayed [1, 9].

This underscores the importance of rigorous, evidence-based research. Scholars should play a proactive role in the accurate identification and analysis of emerging demographic and socio-economic challenges, while disseminating their findings through reputable international publications [1, 5].

Taken together, the census-based and indirect estimates place Sri Lanka at, or very close to, the conventional threshold of ultra-low fertility, generally described as a TFR of approximately 1.3 births per woman [1, 9]. Since 2022, Sri Lanka's population has declined as a result of the combined effects of a sharply reduced natural increase and substantial net out-migration. Sustained sub-replacement fertility is an important longer-term component of this demographic trajectory [1, 8, 9]. This development raises a critical policy question: should further fertility decline be actively mitigated through appropriate demographic and social policy interventions [1, 5, 9]? Policymakers in Sri Lanka should rigorously assess the demographic, economic, and social implications of this trajectory and consider appropriate, evidence-based interventions [1, 5, 9]. Such efforts should enable researchers, policymakers, and national and international agencies to better anticipate emerging challenges and to design and implement timely and well-informed policy responses [5].

Further research at national and sub-national levels is necessary to establish and validate fertility changes in the population, the causes of the observed trends, and the potential impacts on labour force trends, economic development and growth patterns in the country, changing welfare needs and the care deficit in the population. For instance, if the observed pattern continues for some time, the demand for maternal and child health services and school enrolment is likely to decline, with corresponding impacts on health and educational services in the country.

On the other hand, ultra-low fertility should not be interpreted as reducing the relevance of the national family planning programme. Instead, it calls for a reorientation of family planning from a fertility-reduction model towards a comprehensive, rights-based reproductive health education and service programme that enables individuals and couples to decide freely and responsibly the number, timing and spacing of their children, without coercion, discrimination or restriction [10,11]. When fertility intentions decline, the need for voluntary contraception may increase, particularly among couples and individuals who wish to postpone, space or avoid pregnancy; in legally restrictive abortion settings, failure to meet this need may contribute to unintended pregnancies and unsafe abortions [11,12]. The 2024 Census also indicates delayed marriage, with the Singulate Mean Age at Marriage increasing to 29.2 years among males and 25.6 years among females, compared with 27.2 and 23.4 years, respectively, in 2012 [9]. This postponement of marriage and childbearing may compress reproductive decision-making into later reproductive ages and increase demand for fertility counselling, preconception care, subfertility and infertility services, while maintaining access to voluntary contraception for those who wish to delay pregnancy [11,14].

As for factors contributing to this marked fertility decline, economic hardships faced by low-income households, particularly after the 2022 economic downturn, may be an important issue requiring further attention. The long-term impact of the civil war on the country's population dynamics is another factor to consider in the overall assessment. International labour migration of both men and women in reproductive age brackets, often leaving behind their marital partners in the home country, may also account for the notable decline in the average number of children per woman in childbearing ages below the replacement fertility level. The changing fertility trends in the country may therefore call for additional interventions within family planning services, not through coercive pronatalist measures, but by strengthening enabling conditions for reproductive choice, including economic security, gender-equitable family policies, childcare support, fertility services and accessible, high-quality sexual and reproductive health services [10,13]. In any case, this reported fertility decline in Sri Lanka calls for rigorous research on population dynamics and a serious policy dialogue among key policymakers and experts in relevant fields.

Limitations

This commentary has several limitations. First, it is based entirely on published aggregate secondary data and could not independently assess the completeness, timeliness or internal consistency of registered births, census information or mid-year population estimates. Delays in birth registration, international migration and population-estimation uncertainties may have affected the numerator or

denominator used in the indirect estimates, particularly during the COVID-19 pandemic and the economic crisis. Second, the total birth number method uses the total number of births and the total population of women aged 15–49 years and therefore does not directly account for changes in the age pattern of childbearing. Third, the close agreement between the indirect and census-based estimates for 2024, together with selected historical comparisons, does not establish equivalence across all years, districts or population groups. The findings should therefore be interpreted as evidence of strong concordance and useful early signalling rather than definitive validation of the method under all demographic conditions.

Data availability statement

No new primary data were generated or analysed for this commentary. The discussion and analysis are based entirely on publicly available secondary sources, including the original presentation, the original peer-reviewed journal article by de Silva and De Silva, and other published demographic, statistical and policy resources cited in the manuscript. The original presentation is publicly available at: https://www.youtube.com/watch?v=nS5zAfFWX9Y. The original journal article, "Sri Lanka is on the verge of entering ultra-low fertility: estimating total fertility rate through an alternative method validation with South Korea," published in ReproSex: International Journal on Sexual and Reproductive Health, is available at: https://reprosex.sljol.info/articles/10.4038/rsijsrh.v1i1.4. Other published resources used to support the commentary are listed in the reference section of the manuscript and are accessible through the cited URLs, DOIs or institutional websites.

Ethical approval

Ethical approval was not required because this commentary used only publicly available, aggregate and non-identifiable data and published literature. No individual-level records, identifiable personal information or biological materials were accessed, linked or reanalysed. Therefore, no additional participant consent was required for the present commentary.

Author Contributions

KTS and MSS jointly conceptualised the commentary and developed its overall analytical and policy framework. MSS led the literature review, compilation and synthesis of secondary data, comparison of the fertility estimates, preparation of tables and figures, and drafting of the manuscript. KTS contributed demographic expertise, interpretation of the findings, development of the policy implications, and critical revision of the manuscript for important intellectual content. Both authors reviewed and approved the final manuscript and accept responsibility for its content.

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Conflict of interest

The authors declare no conflicts of interest.

Statement on the Use of Artificial Intelligence Tools

Generative artificial intelligence tools, including ChatGPT by OpenAI, were used to support language editing and improve the clarity and organisation of the manuscript. Artificial intelligence was not used to generate data, conduct statistical analyses, verify references, or determine the scientific interpretations and conclusions. All AI-assisted content was critically reviewed, revised and verified by the authors, who take full responsibility for the accuracy, integrity and final content of the manuscript.

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Policy and Institutional Responses to Sexual and Gender-Based Violence during Disasters in Sri Lanka: A Post-Cyclone Ditwah Review of Progress, Gaps and Future Directions

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Commentary

Abstract

Disasters are recognized as environmental, humanitarian and social crises that may exacerbate existing gender inequalities and increase the risk of sexual and gender-based violence (SGBV). Within a post-disaster context, women and girls, people with disabilities, older adults, gender diverse groups, and internally displaced persons may become more vulnerable to domestic violence, sexual violence, exploitation, trafficking, unsafe shelter environments, and limited access to protection and sexual and reproductive health services. Sri Lanka has undertaken several initiatives to establish a robust legal and policy framework addressing SGBV and disaster risk management. The most recent of these initiatives include the Multi-Sectoral National Action Plan for Addressing Sexual and Gender-Based Violence in Sri Lanka for the years 2024-2028 and the Handbook on Gender, Sexual and Gender-Based Violence in Disasters. Nevertheless, significant gaps remain at the legislative, institutional, and operational levels; These include the absence of explicit provisions addressing SGBV in disaster legislation, inconsistent requirements for standards of protection in evacuation centres, inconsistent referral procedures, limited disaster-related SGBV data, and women's engagement in disaster-related decision-making. Cyclone Ditwah hit Sri Lanka in November 2025, displacing hundreds of thousands of people into government-run safety centres. Humanitarian assessments conducted into early 2026 showed ongoing risks for people living in shelters. Challenges such as inadequate lighting, lack of privacy, and poor sanitation persisted for months following the cyclone. The subsequent commentary argues that SGBV prevention and response must become a non-negotiable component of disaster risk management, requiring stronger legislation, clearly assigned institutional accountability, intersectoral coordination, survivor-centred service delivery, inclusive and disaggregated data systems, meaningful community and women's participation, and dedicated, sustained financing to translate existing policy commitments into protection on the ground.

Key Words: sexual and gender-based violence, disasters, Sri Lanka, disaster risk management, gender-responsive policy, Cyclone Ditwah

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Introduction

Disasters expose and amplify existing social inequalities. Although hazards such as floods, landslides, cyclones and public health emergencies are commonly understood in terms of physical damage and economic loss, their social consequences are shaped by gender, age, disability, poverty and displacement, and effective disaster risk reduction therefore requires inclusive, rights-based and people-centred approaches [1]. To examine the governance of SGBV in emergencies, this commentary employs a comprehensive framework that merges Social Vulnerability Theory with the IASC/ Sphere Protection and Risk Mitigation Continuum. Within this framework, the protection outcomes following a disaster are influenced by existing structural inequalities, the hazardous environment created by the disaster, and the robustness of the governance infrastructure [2].

SGBV is already a significant public health challenge in Sri Lanka. The 2019 Women's Wellbeing Survey, the country's first national prevalence survey, found that 1 in 5 (20.4%) ever-partnered women had experienced physical and/or sexual intimate partner violence in their lifetime, with under-reporting driven by shame, fear of blame and stigma [3]. Disasters have repeatedly been linked to heightened SGBV risk, although this has rarely been captured through systematic surveillance. Following the 2004 tsunami, a UNHCR-commissioned assessment documented widespread, largely unreported domestic and sexual violence in camps [4]; more recently, Cyclone Ditwah displaced over 150,000 people into government-run safety centres, where UNFPA identified overcrowding, poor lighting and lack of privacy as conditions that actively heightened GBV risk [5]. In every instance, the foundation of the evidence has depended on situational evaluations and agency communications, instead of specialized health information systems for surveillance. Additionally, the Epidemiology Unit's reports on notifiable diseases do not account for disaster-related sexual and gender-based violence (SGBV), leaving its actual extent unclear.

In humanitarian settings, the risk of SGBV escalates through various channels: displacement disrupts family and community support systems, crowded shelters diminish privacy and safety, financial instability amplifies dependency and coercive control, and interruptions in policing, health, and justice systems hinder reporting and referral processes [6,7]. Disasters therefore both amplify pre-existing gender inequalities and generate new, disaster-specific risks [1].

Sri Lanka is highly exposed to hydro-meteorological hazards [1,8]. Since the Disaster Management Act of 2005 established national disaster risk management structures [9], the country has also built a legal and policy framework addressing SGBV, including constitutional non-discrimination provisions, criminal law, the Prevention of Domestic Violence Act, and successive national SGBV action plans [10,11]. Integration between these two policy streams, however, remains incomplete. The 2024–2028 Multi-Sectoral National Action Plan represents a progression by introducing a dedicated Disaster Management sector that covers protective environments, sexual and reproductive health services, and survivor support [11], complemented by the DMC-UNFPA Handbook on Gender, Sexual and Gender-Based Violence in Disasters [12].

Despite this progress, Sri Lanka's disaster management systems have historically regarded SGBV as a secondary issue rather than an important one. This analysis is driven by the discrepancy between overarching policies and the real-life experiences of communities affected by disasters, a contrast that was sharply illustrated by Cyclone Ditwah in November 2025, which displaced more than 230,000 people into almost 1,000 safety centres and exposed recurring shortcomings, including poor lighting, the absence of gender-segregated toilets, and unsafe referral practices, months into the recovery period. This commentary therefore examines the extent to which Sri Lanka's legal, policy and institutional frameworks address SGBV in disaster contexts, highlighting progress, identifying persistent gaps, and proposing practical directions for strengthening pre-paredness, response and recovery [13-17].

Approach

The commentary is informed by an exploratory policy review of selected legislation, national policies, disaster management guidelines, SGBV action plans, government documents, UN agencies' guidelines, and scientific literature pub-lished between 2015 and 2025. Policy documents related to SGBV prevention, disaster management, health sector response, protection, gender equality, and humanitarian principles were reviewed.

The selected documents are analysed in terms of the following themes: identification of SGBV as a health emergency and protection risk during disasters; prevention and response to SGBV in disaster settings, responsibilities of institutions; coordination and referral; and accountability and implementation gaps.

Search Strategy and Keywords

To retrieve articles and relevant policy frameworks on sexual and gender-based violence and disasters from 2015 to 2026, a structured narrative search was undertaken through online database searches in Google Scholar and PubMed as well as grey literature searches in government portals, United Nations agencies, and humanitarian databases like ReliefWeb and OCHA.

Search concepts and keywords included: ("sexual and gender-based violence" OR "SGBV" OR "gender-based violence" OR "protection") AND ("disaster management" OR "emergency response" OR "evacuation shelter" OR "displaced population")

Sri Lanka Specific Context: ("Sri Lanka") AND ("Disaster Management Act" OR "Multi-Sectoral National Action Plan" OR "Cyclone Ditwah" OR "Disaster Management Centre")

Service Continuity & Health Interventions: ("sexual and reproductive health" OR "clinical management of rape" OR "Minimum Initial Service Package" OR "MISP") AND ("humanitarian" OR "disaster")

This commentary is also informed by national policies that include the National Disaster Management Policy, Sri Lanka National Disaster Management Plan 2013-2017, Sri Lanka Comprehensive Disaster Management Program 2014-2018, Sri Lanka Essential Health Services Package 2019, and national strategic frameworks for disaster preparedness and recovery.

As a commentary, this paper does not offer a systematic review or an empirical legal analysis. Instead, it provides a discussion intended to provoke debate on possible approaches to improving disaster

governance in Sri Lanka and ensuring the protection of vulnerable groups at risk.

Why SGBV Must Be Integrated into Disaster Governance

SGBV in emergencies is recognised as both a protection concern and a sexual and reproductive health issue. This may necessitate clinical management of rape, emergency contraception, prevention of pregnancy, HIV and other STI prophylaxis treatment, preventing and treating sexually transmitted infections, HIV post-exposure prophylaxis, psychosocial first aid, referral, legal aid, shelter protection, and follow-up. Global systematic reviews show that menstrual regulation, safe abortion, and post-abortion care have been repeatedly disrupted in disasters. These services should be provided as integral components of the emergency response rather than being considered as peripheral activities [18]. However, such services are often disrupted in emergency situations, especially due to weaknesses in health systems, transportation, policing, and community systems.

In line with international humanitarian guidelines, the risk mitigation of GBV needs to be integrated within all areas of humanitarian response, including shelter, health, water and sanitation, protection, education, food security, and camp coordination [6]. The Sphere Handbook equally underscores the requirement to evaluate gender and power dynamics, social exclusion, safety concerns, referral processes and feedback from the target population in the context of humanitarian intervention [19]. In line with international humanitarian standards, risk mitigation and delivery of services related to sexual and gender-based violence (SGBV) should be incorporated within all areas of emergency response, such as shelter, health, water and sanitation, and camp management. The core of this operational approach is the Minimum Initial Service Package (MISP) for Sexual and Reproductive Health in Crisis Situations, which was established by the Inter-Agency Working Group for Reproductive Health in Crises (IAWG) and adopted in the Sphere Minimum Standards. The MISP consists of lifesaving activities, which should be initiated right from the beginning of the disaster regardless of any needs assessment [20]. These principals are applicable to the disaster management framework of Sri Lanka in respect of evacuation centres, displacement contexts, community preparedness and post-disaster recovery processes.

Disaster management responses that overlooks the SGBV issue could inadvertently expose the target population to life-threatening risks. Lack of proper lighting in shelters, sex-segregated toilet facilities, lack of privacy, lack of confidentiality in reporting channels, lack of focal points and inadequate referral processes can put the target groups, namely women, children, persons with disabilities, older persons and gender minorities at risk. It is necessary, therefore, that the prevention of SGBV should not remain an exclusive activity to be considered after the disaster response phase but should be integrated into all aspects of disaster management, including preparation, risk assessment, evacuation, relief, health services, recovery and monitoring.

Legal and Policy Architecture in Sri Lanka

There are several aspects within Sri Lanka's legal system that can facilitate the prevention of and response to SGBV.

Firstly, the Constitution includes anti-discrimination laws. Secondly, there are criminal laws addressing rape, sexual abuse, sexual harassment, child sexual abuse and human trafficking and finally the Prevention of Domestic Violence Act [21-23]. The latter is especially important since the problem of domestic violence can emerge during crises both during and afterwards. Nevertheless, it might be difficult to apply this law during periods of displacement or while individuals are sheltered because survivors do not have the opportunity to access courts, the police, legal aid organizations, etc either due to displacement from the locality where they lived or because services providers are not sensitive enough to these specific risks.

The Disaster Management Act No.13 of 2005 established the National Council for Disaster Management and the Disaster Management Centre and represents the legal basis for the national disaster management process [9]. Nevertheless, the Act lacks any provision regarding SGBV as disaster-related protection concern. The lack of mandatory provisions for gender-responsive risk assessments and community education, survivor-centered care and referral systems, protection guidelines for evacuation centres, and monitoring of SGBV during emergencies is a key concern. Furthermore, there is no mention of the role of "appropriate organizations" with regard to SGBV during the pre-disaster, preparedness and recovery phase, emergency response and post-disaster phase. This constitutes one of the serious gaps in the legislation, as there are no mandatory provisions requiring SGBV considerations to be incorporated into relevant policies, which may result in SGBV being addressed only through project-based initiatives or other interventions outside disaster governance per se.

In the 2016-2020 SGBV National Action Plan of the country, five priority areas were identified within the disaster management sector: creation of awareness and development of capacities; gender equality in terms of preparedness, response, recovery, mitigation and reconstruction; protection, security and safety measures in relation to the disaster management process; reproductive health and psychological support in the event of disasters and policy mechanisms to tackle SGBV during crises [10]. Nonetheless, these priorities have not been institutionalized within the disaster management structure.

The 2024-2028 Multi-Sectoral National Action Plan represents an enhanced policy platform. The plan embraces a whole-of-government strategy and has disaster management as one of its sectors with elements such as public awareness, capacity development, safe and protective environments sexual and reproductive health services, support for survivors, and disaggregated data on gender among others. This is indeed a significant policy breakthrough. However, implementation of the plan will entail the formulation of operational indicators, accountability at the district level, integration of SGBV considerations within preparedness plans, and the allocation of dedeciated budget lines.

National Disaster and Health-Sector Frameworks

The Policy Framework and Multi-Sectoral National Action Plan to Address Sexual and Gender-Based Violence in Sri Lanka for the period 2024–2028, developed by the Ministry of Women Affairs, has recognised gender, vulnerability and the importance of community participation in disasters. The National Disaster Management Policy

promotes equitable service provision and gives priority attention to women and vulnerable groups, and recognises the importance of physical, social and emotional well-being during relief and recovery. However, SGBV is not explicitly identified as a post-disaster protection concern, and there is limited operational guidance on how relief, recovery and rehabilitation services should prevent and respond to SGBV.

The Sri Lanka National Disaster Management Plan 2013-2017 recognised women as an important consideration in disaster risk management, including community-based disaster risk reduction, evacuation and awareness programmes. However, women and disaster-prone communities were not consistently included in decision-making processes; which represents an important gap because affected women and community groups often possess practical knowledge about local risks, shelter safety, mobility constraints, caregiving responsibilities and service access barriers.

The Sri Lanka Comprehensive Disaster Management Programme 2014-2018 recognised the need for multi-stakeholder platforms, data collection and monitoring of implementation, and acknowledged gender and disability mainstreaming. However, long-term sustainability requires institutionalised capacity-building mechansims, including manuals, guidebooks, certified trainers, refresher training and practical tools that can be used across national, district, divisional and community levels.

The Sri Lanka Essential Health Services Package 2019 identifies SGBV as an important health concern and recognises the role of health providers in identifying SGBV situations, providing post-SGBV care and supporting referral systems. However, disaster-specific SGBV preparedness remains insufficiently developed. Health-sector disaster preparedness should include clinical management of rape, emergency contraception, STI and HIV prevention, psychosocial support, safe referral, non-discriminatory care and staff self-care for personnel supporting survivors. Holistic care should include supportive communication, prevention of pregnancy, HIV and STTI transmission, psychosocial first aid, and referral for legal and mental health services when needed.

In addition to the generic disaster framework and the essential services framework, the Ministry of Health has shown an ongoing commitment to tackling gender-based violence by developing clinical and policy guidelines in the area through its Family Health Bureau (FHB). These include established institutional resources like the National Guidelines for Health Sector Response to Gender-Based Violence, manuals for medical practitioners and protocols for setting up hospital-based support centres (Mithuru Piyasa / Gender-Based Violence Care Centres). Though these resources largely focus on the clinical aspect and do not contain specific strategies for use in disaster settings, there is an unequivocal acknowledgment of GBV as an important public health issue through these guidelines. Including these existing FHB protocols and training programmes in the disaster preparedness strategy will help address the significant gap and allow routine health sector GBV measures to function even when a disaster occurs.

Institutional Framework and Emerging Good Practices

Sri Lanka's institutional response to SGBV in disasters involves multiple actors.

The Ministry responsible for women and child affairs provides policy leadership on SGBV. The Disaster Management Centre coordinates disaster risk reduction, preparedness, emergency response and recovery. Police Women's and Children's Desks, the health sector, the National Child Protection Authority, social service officers, Women Development Officers, district and divisional disaster management committees, local government bodies and civil society organisations all have roles in prevention, response and relevant support.

The Handbook on Gender, Sexual and Gender-Based Violence in Disasters is a notable good practice. It provides practical guidance for policymakers, Disaster Management Centre staff and community groups to plan, coordinate, implement, monitor and evaluate gender-equitable disaster responses [12]. Together with the 2024-2028 Action Plan, it offers a foundation for moving from general gender sensitivity towards practical SGBV risk mitigation.

Recent Sri Lankan scholarship also emphasises that women's empowerment in disaster risk governance is essential for reducing vulnerability and strengthening resilience [8]. Women should not be framed only as vulnerable beneficiaries of assistance: they are rights-holders, decision-makers, community leaders and knowledge holders. Disaster governance should therefore ensure the meaningful participation of women, persons with disabilities and marginalised groups in disaster committees, risk assessments, evacuation planning, relief distribution, recovery programmes and accountability mechanisms.

Programmatic Initiatives and Functional Best Practices in Sri Lanka

Beyond policy frameworks, several ground-level programmatic initiatives demonstrate Sri Lanka's operational efforts to integrate Sexual and Gender-Based Violence (SGBV) prevention and Sexual and Reproductive Health in Emergencies (SRHiE). One of the main initiatives in this regard has been the implementation of the SPRINT Initiative (Sexual and Reproductive Health Program in Crisis and Post-Crisis Settings) in Sri Lanka, which is run by FPA Sri Lanka in collaboration with IPPF and DFAT. The SPRINT initiative operates under a multi-sectoral SPRINT Steering Committee, which includes key national stakeholders such as the Ministry of Health, Ministry of Women and Child Affairs, DMC, Sri Lanka Police, and others, for the implementation of the Minimum Initial Service Package (MISP). Under SPRINT, targeted interventions include:

1. Capacity Building for First Responders: Stakeholder workshops that train disaster personnel, public health teams, military medical units, and police on GBV case management, ethical risk assessments, and survivor-centered referral pathways.

2. Targeted Dignity and Protection Kits: Distribution of tailored SRH, maternity, adolescent, and gender-inclusive dignity kits to displaced populations during crisis responses.

3. Institutional Advocacy: Advocacy campaigns aimed at embedding MISP and SGBV risk mitigation into standard disaster management training curricula and national emergency protocols.

Concurrently, UNFPA Sri Lanka plays a central role in driving national disaster-related GBV interventions. UNFPA's strategic initiatives focus on three key operational pillars:

1. High-Level Government Advocacy: Partnering with the DMC and national ministries to institutionalise gender-responsive disaster guidelines and advocate for explicit SGBV accountability in emergency policies.

2. First Responder and Community Empowerment: Organizing joint simulation exercises and capacity-building programmes (such as the Gender-Responsive Emergency Action training with the Red Cross) for state officers, social workers, and community volunteers.

3. Safety Audits and Rapid Evaluations: Conducting real-time GBV Safety Verification audits in evacuation centres during active emergencies to evaluate lighting, privacy, and sanitation conditions, translating findings into immediate operational corrections [24,25]

Cyclone Ditwah: An Emerging Test Case

The practical relevance of these gaps was starkly illustrated by Cyclone Ditwah, which made landfall in eastern Sri Lanka on 28 November 2025 and triggered the country's most severe flooding and landslide disaster in over two decades, affecting more than 2.2 million people and claiming over 600 lives [26, 5]. At the peak of the response, more than 230,000 people were sheltering across nearly 1,000 government-run safety centres [5,27]. Humanitarian assessments conducted during the emergency and early recovery phases found that many of these centres suffered from inadequate lighting, insufficient privacy, and shared or non-segregated sanitation facilities, conditions that agencies explicitly linked to an increased risk of sexual and gender-based violence for women, girls, older persons and persons with disabilities [5,28]. Escalating rates of domestic violence, intimate partner abuse, and sexual and gender-based harassment were noted in both safety centres and long-term displacement in humanitarian situation reports (UN OCHA, UNFPA) and CBO monitoring conducted in the wake of Cyclone Ditwah. It was particularly noted that the consumption of alcohol by displaced men living in overcrowded safety centres led to a rise in domestic disputes, physical violence and increased vulnerability of women and girls. Sexual violence had very low levels of reporting despite increased exposure risks. UN situation reports made it clear that it was not the absence of sexual violence that explained the low reporting, but the absence of confidential reporting channels (26,29)

An assessment by the International Organization for Migration found that the physical layout of temporary shelters did not consistently meet Sphere and GBV-prevention standards, and called for gender-sensitive shelter design to become a mandatory feature of future disaster preparedness [15]. Situation reports issued as late as March 2026, nearly four months after landfall, continued to record inconsistent implementation of GBV risk-mitigation measures in safety centres still housing displaced populations [29]. The World Bank's post-disaster damage assessment further noted that pre-existing vulnerabilities meant the burden of displacement and unsafe housing fell disproportionately on women and female-headed households [30]. Cyclone Ditwah therefore functions as a live test of whether the 2024-2028 Multi-Sectoral National Action Plan and the DMC-UNFPA Handbook are being translated into operational practice and the persistence of the same shelter-level protection gaps identified

Table 1. Key Gaps in SGBV Prevention and Response within Sri Lanka's Disaster Management System

Gap area	Current situation	Consequence
Disaster legislation	SGBV is not explicitly recognised in the Disaster Management Act	Weak legal accountability for protection during emergencies
Institutional responsibilities	SGBV-related duties of disaster management, health, police, social services and local government are not clearly defined across the disaster cycle	Fragmented response and delayed referral
Emergency shelters	Protection standards are not consistently mandatory across evacuation centres	Increased risk of harassment, abuse and unsafe disclosure
Women's participation	Women and disaster-prone communities are not consistently included in decision-making	Preparedness and response may not reflect actual safety needs
Health preparedness	GBV care is recognised in health policy, but disaster-specific GBV preparedness remains limited	Survivors may face delayed clinical, psychosocial and referral support
Data systems	Limited disaster-specific SGBV data disaggregated by sex, age, disability and location	Weak evidence for planning, targeting and monitoring
Referral pathways	Survivor-centred referral mechanisms are not uniformly embedded in disaster plans, specifically in preparedness plans.	Survivors may face unsafe, delayed or incomplete care
Capacity building	Training, manuals and certified trainers are inconsistent across districts and sectors	Variable service quality and risk of re-traumatisation
Inclusive services	Limited operational attention to LGBTIQ+ persons, persons with disabilities, older women, adolescents and gender-diverse populations	Exclusion of groups at heightened risk
Financing	Dedicated disaster-SGBV financing remains limited	Weak sustainability and dependence on external support
Monitoring	Protection indicators are not systematically integrated into disaster management reporting	Limited accountability and learning

throughout this commentary, months into the response, suggests that this translation remains incomplete.

Key Policy and Implementation Gaps

Table 1 summarises the principal gaps identified across legislation, institutional responsibility, service delivery and accountability systems.

Recommendations for Strengthening Disaster Governance

Building on the gaps identified above, and drawing on national experience following the 2005 disasters together with international humanitarian standards, seven interrelated actions are proposed to move Sri Lanka from policy recognition towards operational implementation.

1. **Embed SGBV explicitly in disaster legislation.** Disaster legislation and related regulations should explicitly recognise SGBV as a disaster-related protection concern, consistent with national recommendations made after the 2005 disasters that gender be treated as a key factor in risk situations and that displaced persons be protected from gender-specific violence regardless of shelter setting. Explicit legal recognition would create a stronger basis for gender-responsive risk assessment, prevention, referral, survivor support, monitoring and accountability across the disaster management cycle, and would require the systematic collection of gender-specific information to inform responses for internally displaced persons.

2. **Develop survivor-centred standard operating procedures.** Standard operating procedures should be developed or strengthened for SGBV prevention and response during disasters, defining the roles of the Disaster Management Centre, health services, police, Women Development Officers, child protection actors, social services, local government and civil society organisations. In alignment with IASC and Sphere minimum standards, these Standard Operating Procedures (SOPs) should consider gender-related power dynamics and social marginalization. They should incorporate confidential reporting, informed consent, survivor-centered referrals, clinical management, psychosocial support, safe transportation, documentation, community feedback, and follow-up. Authorities involved in disaster management ought to implement policies that promote gender and diversity to ensure service delivery is safe, respectful, and inclusive.

3. **Mandate protection standards for evacuation centres.** Evacuation centres should be subject to protection audits before and during emergencies. Minimum standards should include safe lighting, sex-segregated and accessible sanitation, private spaces for breastfeeding and counselling, disability access, trained focal points, complaint and feedback mechanisms and clear referral information, which should be integrated into district preparedness plans and simulation exercises.

4. **Build inclusive, disaggregated data systems.** Disaster information systems should collect and use sex-, age- and disability-disaggregated data while protecting survivor confidentiality. Data should support planning for internally displaced persons and disaster-affected communities but should never expose survivors to stigma, retaliation or further harm.

5. **Strengthen women's leadership and community participation.** Women's empowerment and gender equality should be treated as core principles of disaster governance, in line with IASC gender-mainstreaming guidance. Grassroots women's groups, persons with disabilities, adolescents, older persons, and gender-diverse populations should be actively involved in risk assessments, shelter design, relief distribution, recovery planning, and programme evaluation. Resources and responsibilities must be assigned to community-level women's organizations. Participation should ensure genuine decision-making power and address the social, economic, and political factors contributing to women's

vulnerability, supported by ongoing dialogue between grassroots women and policymakers.

6. **Strengthen health-sector preparedness, including sexual and reproductive health.** Emergency response systems should ensure continuity of clinical management of rape, emergency contraception, STI and HIV prevention, psychosocial support, safe referral and non-discriminatory care, coordinated with protection actors at community, local and district levels. Health services should promote equity with respect to gender and gender identity, ensuring survivors and at-risk populations do not experience discrimination when seeking care.

7. **Invest in capacity building and dedicated financing.** Personnel involved in disaster response and SGBV service provision should receive training in survivor centered care, confidential referral, while those working directly with survivors should receive supportive supervision and self-care support to maintain service quality and prevent burnout. Sustainable progress is impossible without committed funding: it is crucial to have budget allocations for protection initiatives, secure facilities, medical supplies, mental health services, transportation, education, and oversight if the pledges in the 2024-2028 Action Plan are to be implemented consistently instead of relying on sporadic partner assistance [11].

To translate these operational priorities into actionable disaster governance, specific institutional mandates must be assigned to key state and non-state actors in Sri Lanka. Updating the national legal framework to explicitly recognize SGBV as a disaster-related protection concern requires direct action from the Ministry of Defence (Disaster Management Sector), the Disaster Management Centre (DMC), the Ministry of Justice, and Parliament, supported by the Ministry of Women, Child Affairs and Social Empowerment, the Legal Draftsman's Department, the National Child Protection Authority (NCPA), and the Human Rights Commission of Sri Lanka (HRCSL). Developing survivor-centered Standard Operating Procedures (SOPs) requires joint operational leadership from the Ministry of Women, Child Affairs and Social Empowerment and the DMC, working in close coordination with the Ministry of Health's Family Health Bureau (FHB), Sri Lanka Police Women and Children's Desks, Divisional Secretariat Women Development Officers and Social Service Officers, UNFPA, and civil society partners. Mandating protection standards across evacuation centres demands direct enforcement by the DMC, District and Divisional Secretariats, and Local Government Authorities, alongside frontline monitoring by the Tri-Forces, public health officers, the Sri Lanka Red Cross Society, and local community-based organizations.

Building inclusive, disaggregated data systems relies on institutional integration between the Department of Census and Statistics and the DMC's Emergency Operations Division, alongside health information units and partner UN agencies like UNDP. Strengthening women's leadership at the community level necessitates local governance platforms led by the Ministry of Women, Child Affairs and Social Empowerment, Provincial Councils, and local disaster management committees, ensuring grassroots women's networks and civil society organizations have genuine decision-making authority. Health-sector emergency preparedness,

particularly the delivery of Sexual and Reproductive Health (SRH) services and the Minimum Initial Service Package (MISP), must be spearheaded by the Ministry of Health's Disaster Preparedness and Response Division (DPRD) and the FHB, supported by Regional Directors of Health Services (RDHS), hospital-based Mithuru Piyasa care centers, and the Family Planning Association of Sri Lanka (FPASL) through the SPRINT Initiative Steering Committee. Finally, securing dedicated financing and building long-term institutional capacity requires strategic oversight from the Ministry of Finance, the Ministry of Planning, the DMC, and the Ministry of Women, Child Affairs and Social Empowerment, supported by training institutes like SLIDA and international development partners to move from sporadic partner-funded initiatives to sustainable, state-budgeted protection mechanisms. [9,11,13,14]

Conclusion

Significant strides have been made in the recognition of the nexus between disasters and SGBV in Sri Lanka. Including disaster management in the 2016-2020 and 2024-2028 SGBV action plans, alongside the DMC-UNFPA Handbook on Gender, Sexual and Gender-Based Violence in Disasters, indicates an increasing commitment at the policy level [10-12]. Nevertheless, the country's disaster governance system needs greater integration of SGBV prevention and response through legislative, institutional, and operational means. The urgency of this agenda was underscored in real time by Cyclone Ditwah in late 2025, whose aftermath revealed that many of the same protection gaps identified in this commentary inconsistent shelter lighting and sanitation standards, weak GBV risk mitigation in safety centres, and constrained access to sexual and reproductive health services persisted well into the recovery phase [26,29,30]. Moving from policy recognition to reliable, disaster-proof implementation is therefore not a theoretical exercise but an immediate operational necessity.

The next step should be to move from recognition to implementation. Explicit legal frameworks, survivor-focused SOPs, protection measures in evacuation centres, better coordination at the district level, data systems, financial allocations, and participation of women and other marginalized communities in disaster governance need to be put in place. Bringing Sri Lanka's disaster management systems in line with international humanitarian and disaster risk reduction standards will strengthen national preparedness and resilience. More importantly, it will ensure that disaster responses take into account not only the survival and livelihoods of those affected, but also their dignity, security, bodily autonomy, and freedom from violence.

Translating Sri Lanka's progressive policy commitments such as the 2024–2028 Multi-Sectoral National Action Plan and the DMC-UNFPA Handbook into life-saving operational realities requires bridging the gap between high-level governance and ground-level execution. The aftermath of Cyclone Ditwah demonstrated that while pre-existing gender inequalities are deeply magnified during displacement, disaster contexts simultaneously generate unique, emergency-specific risks such as unlit shelter layouts, compromised privacy, and the collapse of routine police and health referral networks. Addressing these dual dynamics demands an integrated

framework that embeds the Minimum Initial Service Package (MISP) for Sexual and Reproductive Health as a non-negotiable operational standard from the onset of any crisis. Sri Lanka already possesses functional, proven models of multi-sectoral coordination and capacity building, as demonstrated by the FHB-supported Mithuru Piyasa care centres, UNFPA safety audits, and the SPRINT Initiative Steering Committee, bringing together health, disaster, police, and civil society actors. However, these programmatic successes must be institutionalized nationwide rather than remaining isolated or partner-dependent pilots. Achieving sustainable disaster governance requires explicit legal mandates under a revised Disaster Management Act, enforced protection audits for evacuation centers, confidential disaggregated data systems, and dedicated state financing. Assigning clear, statutory accountability across lead entities, including the DMC, Ministry of Women and Child Affairs, Ministry of Health, Sri Lanka Police, and local government bodies ensures that disaster response mechanisms protect not only physical safety and livelihoods, but also actively uphold the dignity, bodily autonomy, and fundamental rights of vulnerable women, girls, and marginalized populations.

Ethical Approval

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The Demographic Squeeze: Sexual and Reproductive Health and Rights at the Intersection of the Climate Crisis and Ageing Societies

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Commentary

Abstract

The global community is currently navigating a volatile poly crisis defined by two colliding macro-trends: the accelerating climate crisis and unprecedented population aging across the Global North and East Asia. While environmental degradation induces physical health risks and pervasive generational eco-anxiety that suppresses childbearing motivations, population aging triggers acute macroeconomic alarmism regarding shrinking labour forces, collapsing tax bases, and unsustainable dependency ratios. This commentary demonstrates that these dual forces exert a structural "demographic squeeze" on sexual and reproductive health and rights. To keep their economies growing, governments manipulate reproductive health policies using pro-natalist rhetoric, financial birth incentives, and restricted access to care. This state-centric approach co-opts bodily autonomy, treats individuals as demographic capital, and places a compounding "double burden" of unpaid care work disproportionately on women amidst climate-disrupted health infrastructures. To navigate these intersecting crises ethically, this paper advocates for a paradigm shift from manipulative demographic engineering toward a rights-based framework of demographic resilience rooted in reproductive justice. Achieving demographic resilience requires decoupling economic output from perpetual population growth via technological automation, dignified migration management, and publicly funded care economies. Furthermore, ethically closing the structural fertility gap through non-transferable paternal leave, affordable housing, and universal assisted reproduction: combined with aggressive climate mitigation, environmental toxicity regulation, and climate-proofed digital health networks: ensures that bodily autonomy and reproductive freedom remain the non-negotiable bedrock of democratic, healthy societies.

Key Words: reproductive justice, climate change, ageing populations, bodily autonomy pro-natalism

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Introduction

For decades, the field of Sexual and Reproductive Health and Rights (SRHR) has fought for the fundamental principle of bodily autonomy. The international community has established that reproductive choices must be free from coercion, discrimination, and violence. However, as we progress through the mid-21st century, we are witnessing an unprecedented collision between two macro-trends: the accelerating climate crisis [1] and the rapid aging of the global population.

This collision creates what can be termed the "demographic squeeze." On one side of this squeeze, the climate crisis exacerbates resource scarcity, health infrastructure failure [2, 3], and "eco-anxiety" a profound, rational apprehension among younger generations regarding the viability of bringing children into an ecologically unstable world [4, 5]. On the opposite side, ageing populations create concerns within state systems regarding shrinking labour forces, collapsing tax bases, and unsustainable dependency ratios [6, 7].

The intersection of these forces is where SRHR is currently being contested and re-engineered. Governments facing perceived "demographic decline" are increasingly utilizing SRHR policy not as a tool for public health or human rights, but as a macroeconomic lever.

Pillars of Contemporary Instability

The Climate Crisis

The climate crisis is no longer merely an environmental issue; it has evolved into a structural determinant of SRHR [1]. Extreme weather events, prolonged heat waves, and shifting disease vectors directly compromise maternal and foetal safety [2]. For instance, climate-induced natural disasters disrupt access to essential reproductive health services, sever contraceptive supply chains, and destroy clinics in vulnerable regions [3].

Beyond these direct physical threats, the climate crisis exerts a severe, insidious psychological toll. The manifestation of this environmental degradation is a pervasive, generational phenomenon known as "eco-anxiety" [4]. Emerging empirical data indicates that climate anxiety significantly predicts diminished childbearing motivations, shaping long-term reproductive intentions and leading many young adults to desire fewer children or forgo parenthood entirely [4,5].

When young people view the climate outlook with existential dread, their reproductive choices represent a rational response to global instability [1]. Yet, this decision is frequently pathologised by policymakers and media commentators as "selfish" or "short-sighted." This framing intentionally ignores the reality that choosing not to reproduce under such conditions is often an expression of deep ethical responsibility and care for future generations who would inherit an inhospitable planet.

The Aging Paradox

Simultaneously, a parallel demographic shift is unfolding. Low fertility rates are directly linked to rapid population ageing and demographic decline across the Global North and East Asia [6]. While rising life expectancy is a triumph of modern medicine and public health, our dominant economic models remain structurally rigid, relying entirely on a continuously expanding youth labour force to support a shrinking, retired cohort.

Consequently, population ageing carries major consequences for labour supply, shifting dependency ratios, and long-term economic growth [6, 7]. Rather than evolving economic models to accommodate an ageing society: such as reforming pension systems or redefining productivity: many states are engaging in acute "demographic alarmism." This political framing positions low birth rates as an existential national security threat and an economic catastrophe, shifting the blame from rigid financial institutions onto individual reproductive behaviours.

The Pro-Natalist Turn in SRHR Policy

The synthesis of these two pillars: climate anxiety suppressing birth rates and population ageing triggering economic panic: has catalysed a global resurgence of aggressive pro-natalist rhetoric and policy. We are witnessing a distinct trend where SRHR is being highly instrumentalised. Rather than treating reproductive healthcare as an end in itself, states are treating the reproductive body as a factory for future taxpayers [11, 12].

From the financial incentivisation of births to targeted restrictions on reproductive healthcare, governments are attempting to artificially force fertility rates upward [8, 9]. In this environment, bodily autonomy is treated as a secondary luxury that can be compromised to meet the state's fiscal requirements. The individual right to choose is being subverted by an economic mandate to reproduce.

The Co-optation of the Reproductive Body

The fundamental danger of the demographic squeeze is the re-instrumentalisation of the reproductive body by state actors. Historically, SRHR movements have fought to remove state intervention from reproductive choices, establishing that individuals have the absolute right to decide if, when, and how to reproduce. However, history demonstrates that restrictions on reproductive rights have frequently been used as coercive tools of state population policy [9].

When a government frames reproductive choices as a "civic duty" or an economic necessity, it undermines a rights-based approach to health. This nationalist rhetoric often masks profound failures in domestic social policy. Instead of addressing the structural barriers that make raising children genuinely difficult, such as hyper-inflation, the high cost of living, widening gender pay gaps, and a lack of affordable housing: states frequently pivot to restricting abortion, limiting access to emergency contraception, or dismantling comprehensive sex education. They attempt to increase the birth rate through coercion and systemic deprivation rather than by building a supportive, liveable society.

This approach is inherently unsustainable and unethical. It treats women and gender-diverse individuals as demographic capital rather than autonomous human agents. Furthermore, forcing childbearing into a world defined by intensifying climate volatility does not solve macro-economic problems; instead, it exacerbates systemic stress on families, leads to poorer maternal and child health outcomes, and deepens public distrust in governing institutions.

The "Double Burden" of Care

The intersection of climate change and aging societies creates an acute, compounding burden that falls disproportionately on

women. Globally, women already provide the vast majority of unpaid care and domestic work [10]. The demographic squeeze severely complicates this unequal division of labour. As populations age, the demand for eldercare increases exponentially; simultaneously, as the climate crisis intensifies, extreme weather events damage healthcare infrastructure, disrupt essential public services, and increase localized health risks [2, 3].

When climate disasters disrupt community infrastructure, the resulting care gaps are almost exclusively absorbed by women within the household. A society that encourages or forces higher birth rates without investing heavily in robust, state-supported care infrastructure traps women in a catastrophic cycle of "double duty." Women are expected to replenish the future workforce through higher fertility while simultaneously sustaining the vulnerable elderly population through intense, unpaid caregiving: all without receiving enhanced economic, social, or climate protections.

Any critical discussion of SRHR in this era must advocate for a reorganization of the care economy. The international community must firmly reject the patriarchal assumption that the private family unit can endlessly absorb the systemic shocks of an ageing society and a changing climate.

Toward Reproductive Justice

To navigate the Demographic Squeeze without compromising fundamental human rights, the SRHR and international policy communities must abandon outdated paradigms and adopt a multi-faceted approach centred on Reproductive Justice. Reproductive Justice defines reproductive freedom as the human right to have children, the right not to have children, and the right to parent and raise children in safe, healthy, sustainable environments [5]. Moving away from demographic engineering requires a transition toward demographic resilience: a framework that respects bodily autonomy while proactively building the structural conditions necessary for human communities to thrive.

Policymakers must completely abandon the coercive goal of "fertility maximization." Instead, public policy should prioritize the quality of life, well-being, and rights of existing and future populations. If an ageing population poses genuine economic challenges, the ethical solution is not to force births, but to adapt our economic frameworks:

- **Technological Innovation:** Utilizing automation, artificial intelligence, and advanced technological changes can maintain or enhance economic productivity, effectively offsetting natural declines in labour supply without requiring an ever-expanding population [7].

  Ethical Migration Management: Facilitating safe, legal, and dignified migration is the fastest mechanism to balance demographic deficits [6]. Wealthy, ageing nations must avoid predatory "brain drain" practices: such as poaching essential healthcare workers from developing nations in a manner that collapses those nations' local health systems. Migrants must be embraced as full rights-holders with clear pathways to citizenship, rather than treated as disposable, temporary labour to fix a demographic math problem. In many ageing societies, individuals actually desire to have more children

than they end up having. However, their fertility intentions are blocked by acute structural barriers, prolonged economic uncertainty, and bleak perceptions of future stability [8]. Closing this "fertility gap" ethically means fulfilling existing human desires rather than coercing or manipulating new ones:

- **Eliminating Economic Coercion:** Massive public investment in universal, high-quality childcare and affordable, stable housing dramatically reduces the structural barriers to family planning and has been shown to increase fertility intentions in developed countries [8]. This ensures that the choice to have a child does not sentence a family to structural poverty.

- **Dismantling the "Motherhood Penalty":** Implementing non-transferable, paid parental leave mandates for fathers balances the professional playing field, prevents women from being penalized in the labour market, and shifts domestic cultures toward true gender equality in household labour [10].

- **Universal Assisted Reproduction:** Making Assisted Reproductive Technology (ART) and IVF fully accessible through public healthcare systems ensures that the right to parent is a universal health right, rather than a luxury reserved exclusively for the wealthy.

Integrating Climate-Resilient Health Infrastructure

Finally, SRHR must be integrated into national climate adaptation strategies. Health facilities must be "climate-proofed" through decentralization and renewable energy micro-grids to prevent total operational failure during natural disasters. Furthermore, digital health and telehealth networks must be expanded to ensure that comprehensive reproductive care, counselling, and safe abortion access remain available even when physical infrastructure is severely compromised by climate shocks.

Conclusion

The Demographic Squeeze represents a defining structural challenge of the coming decades. It is fundamentally a test of global values: whether we choose to protect human rights and bodily autonomy, or prioritize short-term macroeconomic growth indicators and rigid financial systems. The current impulse toward coercive pro-natalism is a reactionary, fear-based response to a changing world.

The task for the global SRHR community is to counter this systemic fear with a robust framework of demographic resilience. We must consistently argue that the right to bodily autonomy is entirely non-negotiable. Whether a society is young or old, wealthy or developing, stable or climate-stressed, reproductive freedom remains the bedrock of a healthy, democratic society. By shifting our global focus from manipulative demographic engineering to genuine, rights-based support structures, we can successfully navigate this squeeze without crushing the very individuals the state is meant to serve.

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Statement on the Use of Artificial Intelligence

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"Bridging the Gaps: Why Undergraduates' Perceptions of Sexual and Reproductive Health Matters"

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Commentary

Abstract

Sexual and Reproductive Health (SRH) is a major concern among youth, particularly among undergraduates. It primarily focuses on the use of contraceptives, prevention of sexually transmitted infections, protection from sexual and gender-based violence, and maintaining safe, healthy relationships. Undergraduates who are in the first year and often in a period of social transition are more vulnerable to unhealthy sexual relationships and adverse SRH outcomes. Persistent stigma surrounding open discussions, knowledge sharing, and seeking knowledge on SRH among undergraduates, along with prevailing myths and beliefs, further exposes the younger generation to misinformation and negative experiences. Further, the lack of awareness, lack of a reliable information system, insufficient formal education, inadequate supportive organisations and staff, and absence of prior knowledge on sexual health and reproductive health collectively contribute to dilemmas, discomfort, and misconceptions among the young generation as well. In Sri Lanka, several programmes address this issue and educate youth about it. This discussion will examine the perceptions of undergraduates regarding SRH, gaps and myths, why the universities need to take the lead in taking action, along with the implications.

Key Words: implications, perceptions, sexual and reproductive health, Sri Lanka, undergraduates

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Introduction

The youth are at a pivotal stage of life and experience important stages of physical, mental, and emotional development. The unique vulnerabilities of this stage in life can place young people at risk of unwanted pregnancy, sexually transmitted infections (STIs), and sexual violence [1]. For many years, sexual and reproductive health (SRH) has been identified as a significant health concern globally [2]. SRH experiences and needs change dramatically during this time, and young people frequently lack access to appropriate, non-judgmental SRH services and information from providers trained in youth-friendly SRH care [3]. Worldwide access to appropriate, youth-friendly SRH services is often more limited for youth living in low-resource settings [4]. In Sri Lanka, SRH issues remain highly sensitive and frequently treated as taboo, resulting in limited open dialogue both in educational settings and at home. Consequently, one of the key factors contributing to SRH-related problems among youth is their hesitancy to express their concerns to a trustworthy adult [1]. In Sri Lanka, although school curricula cover biological aspects of reproduction, they rarely address important topics like contraception, consent, healthy relationships, or STI prevention comprehensively or practically. Nevertheless, school education on SRH plays a vital role in the enhancement of essential knowledge and decision-making ability to maintain their SRH [2]. Further, only 58% of the students are satisfied with current school-based SRH education, and the teachers are not confident in delivering related topics, while they prefer those topics to be delivered by an external party [1]. As a result of inadequate delivery of sexuality education within the secondary education system, many young adults may enter university with significant knowledge gaps, misconceptions, and discomfort about SRH issues. In Sri Lanka, there is often a lack of information and access to SRH care, despite its importance from adolescence onwards [5]. Comprehensive SRH awareness helps to reduce these risks by promoting safe sexual behaviours, understanding consent, healthy relationships, and respect for personal boundaries. Furthermore, strong SRH literacy contributes to better mental health, gender equity, and long-term reproductive success. Against this backdrop, this discussion aims to highlight the importance of understanding and improving undergraduates' perceptions of SRH not only for their own health and well-being, but also for broader public health outcomes. By examining existing challenges and advocating for university-led interventions, this critique emphasizes its urgency.

Perceptions on SRH, its rights and why it matters?

Undergraduates' perceptions of SRH have a significant impact on how they understand their interpersonal relationships, healthy sexual relationships, and health-related decisions because of a lack of SRH education and awareness during their school years. This includes cultural and religious beliefs, myths, attitudes, and individuals' interpretations of aspects like STIs, contraception, and sexual behaviours as well [6]. A recent study conducted among Sri Lankan state university undergraduates found that when a person reaches 18 years of age, they perceive the freedom to engage in sexual relationships, while considering willingness to have sex as an important factor. Peer influence, exposure to social media, and persistent social stigma surrounding STIs contribute to adolescents underestimating their risk of acquiring an STI and holding misconceptions about

contraceptive methods, particularly the belief that contraceptive use may still lead to unwanted pregnancies and abortions [7]. However, fear of unintended pregnancy is a key motivating factor for many adolescents, especially university students, to use contraceptives such as condoms. Furthermore, in Sri Lanka, although the knowledge regarding contraceptives is relatively high, the data on the use of contraceptives among unmarried adolescents remains limited [3]. The other concern is having strong trust in the sexual partner, beyond thinking of personal sexual protection, and the development of a sense of invulnerability, along with this trust, it will lead to disastrous situations in their sexual relationship [8]. When discussing the perception of SRH rights among undergraduates, they know that 'awareness of rights helps not to exceed limits in a relationship. Knowing SRH rights can also be useful in helping those who suffer due to the violation of their rights [7]. Understanding how undergraduates perceive SRH is therefore critical, because correcting these misconceptions and reshaping attitudes is a critical step toward promoting safer behaviours, protecting student well-being, and improving public health outcomes within the university community and beyond.

Current gaps/ myths in SRH perceptions

Even though sexual and reproductive health is a significant factor among youth, especially for university undergraduates, a proper system to deliver the required knowledge to young people is currently not widely implemented or well-known in Sri Lanka [7]. The inadequacy of proper education on SRH reveals some perceived norms among youth, such as lifelong infertility due to contraceptives, the absence of STIs in familiar sexual partners, the belief that STIs are manifested only through visible signs, and also the belief that intercourse cannot result in pregnancy during menstruation. [9,10]. Additionally, reliance on peers, pornography, or unreliable internet sources has contributed to distorted perceptions of sexual behaviours, body expectations, and relationship dynamics. Cultural stigma further reinforces the notion that discussions surrounding SRH are "embarrassing" or "immoral", discouraging students from seeking professional care or accurate information [11]. Collectively, these gaps highlight persistent myths and misconceptions that negatively influence SRH perceptions among university students.

Why must universities act?

Universities are an essential setting for SRH intervention because they have a significant influence on young adults' behaviour, health, and general well-being. Specifically, first-year students are the most vulnerable group due to rapid social transitions and being away from parents or guardians, they may explore new experiences within a context of unrestricted freedom, new social and peer relationships, and psychological stressors. Sexual consent, coercion, and rape are key terms that align with healthy sexual relationships. Legally, consent is defined as a person agreeing to participate by choice, with the freedom and capacity to choose [12]. However, it was found that university students' awareness of sexual consent, coercion, and rape is not satisfactory, which indicates the need for potential educational materials at the university level [2]. A study conducted in Sri Lanka among female undergraduates on romance, sex and coercion found that there was a dominance of male partners in their relationships, resulting in

coercion, which is unacceptable to female undergraduates [13]. Further, awareness of the risk of non–consensual sex among university students is also lower, while a high percentage of girls are subjected to victimization through verbal harassment, unwanted touch, fondling, and penetrative sexual intercourse [14]. Universities hence can become the most accessible and reliable setting for delivering accurate, evidence-based information because most Sri Lankan students arrive with little or no SRH knowledge [1,7], as well as strong cultural taboos that prevent open discussion. These cultural taboos will also be addressed in the presence of a multicultural community inside the university. Negative SRH perceptions have a direct impact on academic achievement, mental health, and long-term health outcomes that need to be addressed. Students who lack knowledge are more susceptible to STIs, unwanted pregnancies, unsafe abortions, sexual violence, and emotional distress, all of which have detrimental effects on both individual and societal health. Universities can empower students with knowledge, dispel damaging myths, promote healthy relationships, and lessen the stigma associated with SRH by stepping in early. Moreover, mentoring and guiding students to develop critical thinking skills and become better educated and informed on SRH will directly contribute to reducing unsafe sexual behaviours and abortions and prevent them from dropping out of university due to unplanned pregnancies. Attending to SRH needs is crucial to making sure that students flourish academically, socially, and emotionally in a secure and encouraging university setting. Further, it will empower people and save lives, which ultimately reduces healthcare costs and contributes positively to economic advancement in the country [7].

Practical solutions

As the cornerstone of the nation, the universities in Sri Lanka, possess a responsibility to develop necessary information systems ensuring the reliability and accuracy of SRH-related data. As a step forward in addressing this problem, the Family Health Bureau of Sri Lanka, has introduced a course, 'Adolescent Sexual and Reproductive Health', which is freely available on the website; (https://erhmis.fhb.health.gov.lk/ebridge/course/index.php?categoryid=7) for the relevant target groups to follow. [15]. The universities can make this course compulsory for completion during orientation programmes for freshers or can integrate suitable content by including sessions on SRH and sexual and reproductive health rights. As freshers are the most vulnerable group within a university, it is crucial to address this issue at the very beginning of university education based on the aforementioned factors [16]. Moreover, conducting continuous awareness programmes, workshops and online courses by field experts on this content will further enhance their knowledge and understanding of it. Directing students to follow such education programmes and strengthening the university medical centres to promote counselling services, HPV vaccination programmes, conducting SRH awareness programmes mainly on STIs and contraceptives, developing digital web portals to address the students' questions, and integrating SRH into the curricula of relevant faculties are some possible interventions to bridge the gap in this major concern.

Conclusion

SRH among university students in Sri Lanka remains a pressing public health issue that

requires urgent and targeted interventions. Due to a lack of formal education and societal stigma surrounding SRH, they are not well exposed to SRH information and services. Arranging workshops or awareness sessions with experts on sexual health education, sexual health researchers, professional counsellors and legal officers from the Bureau for the Investigation of Abuse of Children & Women, Sri Lanka can be incorporated into these programmes. Additionally, promoting counselling services and vaccination programmes are some of the essential steps to promote the individual's sexual health and well-being.

Ethical Approval

Ethical approval was not required for this commentary, as it is based solely on previously published literature and publicly available information and did not involve primary data collection from human participants or animals.

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Use of AI statement

The authors declare that no artificial intelligence tools were used in the preparation of this manuscript.

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The Role of Artificial Intelligence in Contraceptive Care: Applying the United Kingdom Medical Eligibility Criteria Framework (UKMEC)

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Brief Report

Abstract

Artificial intelligence (AI) is an emerging modality increasingly influencing global healthcare systems [4,5]. Adopting complex guideline recommendations within limited time is always challenging. Navigating through the UK Medical Eligibility Criteria (UKMEC) is time consuming, and it's difficult to select the appropriate contraceptive method due to the complexity of the guide as well as the presence of multiple medical conditions. This article addresses how integrating AI with the UKMEC framework can simplify and support the selection of appropriate contraceptive options. [1]. We suggest a hybrid AI model that combines rule-based safety logic with probabilistic machine learning [6]. Deterministic rules encode UKMEC Categories 1–4 to preserve absolute contraindications, while probabilistic modeling enhances individualized risk awareness [1,2]. AI integrated decision making can reduce cognitive burden, enhance safety and individualized patient centered counselling and save time [7,11]. However, its effectiveness relies on data governance and algorithm transparency.[8]. Bias mollification, clinical validation and evaluation of patient centered outcomes are mandatory before widespread implementation [9,10].

Key Words: artificial intelligence, UKMEC (United Kingdome Eligibility Criteria), contraception counselling, Clinical Decision Support Systems (CDSS), patient safety

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Introduction

Contraceptive counselling is a collaborative process that incorporates reproductive autonomy, fertility expectations, cultural beliefs, medical safety and preventive medicine. The consultation requires clinicians to integrate the principles mentioned above within a short time period during busy clinics, postpartum reviews and cases where emergency contraception is necessary.

The United Kingdom medical eligibility criteria (UKMEC) is a globally recognized and well established guideline for contraceptive use, providing comprehensive guidance on the suitability of different contraceptive methods for individuals with various medical conditions. But in practice, manually cross referencing comorbidities can be challenging due to time constraints and the possibility of errors [1,2].

In medicine, clinical judgment is always crucial. AI offers an opportunity to augment clinical judgment but not to replace it. This article proposes a transition from guideline based consultation to Clinical Decision Support Systems (CDSS) that optimize UKMEC guided decision making [4, 7, 11].

AI as a clinical companion

We propose a hybrid AI model where patient safety is considered the core principle. At the foundation lies a deterministic rule-based system. Here, UKMEC Categories 1 through 4 are encoded into structured decision trees [1]. These rules act as non-negotiable safety barriers. For example, combined hormonal contraception in a patient with deep vein thrombosis (DVT) classified as UKMEC Category 4, would be automatically excluded, and this recommendation could not be bypassed by statistical prediction or an AI algorithm [1,2].

Upon this safety layer, there is a machine learning layer, which learns patterns from clinical data to recognize signals that may influence the suitability of a contraceptive method including compliance, previous history of intolerance and risks that are not immediately apparent such as thrombosis and malignancy risk. Nevertheless, these probabilistic assumptions do not override UKMEC recommendations but generate structured and safety filtered suggestions for clinicians.

Integrating UKMEC into Complex Clinical Scenarios

Consider women with hypertension, type 2 diabetes, obesity and who are 2 weeks postpartum. In usual practice, clinicians must check UKMEC tables for diabetes and hypertension, assess vascular complications and cross reference obesity and breastfeeding status to suggest a suitable contraceptive method, which is time consuming, error prone and cognitively demanding.

On the other hand, an AI enabled Clinical Decision support System (CDSS) could automatically extract data on BMI, diabetes and hypertension status, lactation details and map each condition according to the UKMEC to identify the worst case scenario(UKMEC 3/4) for each contraception modality and present it in a defined colour coded system. For example, UKMEC 1/2 (LARC) in green and UKMEC 3/4 (COCP) in red. This allows clinicians to focus on targeted counselling rather wasting time on cross referencing, while keeping human interactions intact [1].

Technical Ethical Challenges

Sexual and reproductive data are highly sensitive. Privacy of the data, with robust

encryption, transparent well informed consent processes and clinical governance is essential [8]. Algorithms should be auditable and explainable where clinicians must have an understanding of the reason for the recommendation rather than accepting it blindly.

From a technical point of view safeguarding against automation bias, handling incomplete or contradictory data and accepting the possibility of technical errors are paramount. [9,10]. One must keep in mind that clinical judgment, cultural sensitivity, beliefs and situational awareness are irreplaceable.

Most importantly contraception counseling is not merely about considering or adhering to guideline recommendation or eligibility; it's about shared decision making, autonomy, life goals and values, where it should never be totally replaced by an AI modality [11].

Conclusion

Artificial intelligence provides an opportunity to support clinical decision making by integrating the UKMEC framework by combining deterministic safety rules with probabilistic insights [4,5]. It reduces cognitive burden, enhances safety and precision while promoting technological advancement in modern health care practice. It should be designed so that it does not replace the clinician but rather helps to simplify complex scenarios, allowing conversations to remain grounded in trust, clarity and choice.

Ethical Approval

This is a narrative and conceptual commentary based exclusively on published literature and established clinical guidelines. It did not involve human participants, animal subjects, identifiable patient information, or the collection of primary data. Therefore, institutional ethical approval was not required.

Author Contribution

D.G.M. Chamikara conceived the manuscript, conducted the literature review, developed the concept, and drafted the manuscript as the principal author. T. Padeniya and B. Perera supervised the work, provided critical intellectual input, and reviewed the manuscript. C.D. Weerawardhane and C.N. Dissanayaka contributed to the literature review. S.C. Desmen assisted with manuscript preparation and document formatting. All authors reviewed and approved the final version of the manuscript.

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Conflict of interests

The authors declare no conflict of interests.

Data Availability Statement

No primary datasets were generated or analyzed during the preparation of this article. The manuscript is a narrative and conceptual review based on publicly available sources, previously published literature and the author's own analysis and perspectives. Relevant references are appropriately cited throughout the manuscript.

Statement on Artificial Intelligence Use

Artificial intelligence (AI) tools were used solely to assist with grammar and spelling correction, improve the clarity and

readability of the manuscript and to identify relevant references for consideration by the authors. All scientific content, interpretation of evidence, clinical opinions, manuscript structure, and final editorial decisions were independently conceived, developed, reviewed, and approved by the authors. The authors accept full responsibility for the accuracy, integrity, and originality of the manuscript.

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Judicial Pathways to Incorporating Comprehensive Sexuality Education in Sri Lanka: Navigating Religious and Cultural Normative Claims

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Policy Paper

Abstract

Despite the scientific evidence, religious and cultural pressures often obstruct the incorporation of Comprehensive Sexuality Education (CSE) in Sri Lanka. From a legal perspective, this raises a conflict between the right to CSE and religious and cultural rights. This study evaluates how CSE could be incorporated as a legal right in Sri Lanka under the current human rights framework, while considering the cultural and religious rights that may be invoked to challenge it. The study aims to evaluate the human rights framework applicable to CSE and assess the feasibility of incorporating CSE as a legal right in Sri Lanka, so that it may be claimed against the State when challenged or restricted on various religious and cultural grounds. This is a qualitative doctrinal legal research study based on primary and secondary legal sources. The Constitution, fundamental rights cases in Sri Lanka, and international human rights conventions and judgments that explicitly/implicitly relate to the right to CSE were used, along with journal articles as secondary legal sources. It is evident that Sri Lanka has acceded to a series of international instruments that recognise the right to CSE. However, in the absence of enabling legislation, these instruments cannot be recognised as part of domestic law. The Fundamental Rights Chapter of the Constitution is silent on many socio-cultural rights, and although Article 27(2)(g) and Article 27(13) of the Directive Principles have significant implications, they remain unenforceable. The only way for a right to CSE to be incorporated is through judicial interpretations of the Right to Education and the Right to Life, with the latter being the relatively more robust pathway at present. For this, the interpretation of the Right to Life and Education should be broadened through the integration of Directive Principles and international conventions. On the other hand, this article posits that the religious rights in the Constitution cannot impede CSE, so long as the curriculum remains objective and pluralistic, without unduly burdening the right to the free exercise of religion. Therefore, it is concluded that the right to CSE can be incorporated into the existing human rights framework in Sri Lanka through the interpretation of the Right to Education and the Right to Life, properly accompanied by the international instruments to which Sri Lanka has acceded and the Directive Principles of State Policy. Despite all the positive evidence, only the formal incorporation of CSE as a right would protect it from normative challenges based on religious and cultural values.

Key Words: right to sex education, comprehensive sexuality education, human right to sex education, legal secularism, right to education

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Introduction

Greeks such as Socrates considered knowledge to be virtuous. Knowledge encompasses all aspect of human life, and sex, as an integral part of life, has been studied with awe and sanctity since the beginning of civilizations. In Vedic theology, *Kama*, or the satiation of the sex drive, was considered one of the four goals of life [1]. Mead asserts that in tribal societies such as Samoa, children possessed extensive knowledge of the human body and its functions, including a detailed understanding of sex and autoerotic acts such as masturbation, acquired through the tribe's customary practices [2]. Sexology, the scientific and interdisciplinary study of human sexuality, was first coined as a term by Iwan Bloch in the early 20th century and later advanced through the influential research of Kingsley, Masters and Johnson, and other scholars [3]. Studies on lovemaking in the East predate the scientific inquiries of the West. Scriptures such as the *Kama Sutra* were not necessarily tainted by lust, but rather informed by knowledge [1]. The faith in *Ishta Devatha*, or demigods, also reflects a spiritual dimension of sex and conveys that cultural norms recognised sex as something to be learned, trained, and understood [1].

Despite its rich cultural history, sex and sexual education have now become taboo in many Eastern cultures, Sri Lanka being no exception [4]. The controversy and dissent surrounding *Hathe Ape Potha*, a supplementary reader on sexuality education, serve as a recent and prominent example of societal resistance (or resistance from powerful factions within society) toward sexual education [5]. The recent attempt by PM Amarasuriya to introduce age-appropriate sex education, based on recommendations from the Health Ministry, the Family Health Bureau, and the National Child Protection Authority, was criticised by a high-ranking religious leader as an 'inappropriate sexual education initiative' [6]. Superficially, this may appear to be a clash between clergy and health authorities; yet for legal scholars, it is, at its core, a conflict between competing interests, a clash of rights.

Science alone cannot incorporate CSE, nor can it defend it against religious and cultural opposition. The path out of this labyrinth lies in establishing CSE as a legal right [7]. Only this approach guarantees the public a remedy when their right to CSE is violated by state actors, *ubi jus ibi remedium*. Hence, this article aims to evaluate the human rights framework relating to CSE and assess the feasibility of incorporating CSE as a legal right in Sri Lanka, while analysing the plausibility of religious and cultural challenges to CSE through a legal lens.

Accordingly, this article evaluates international human rights frameworks, the Fundamental Rights and Directive Principles of the Sri Lankan Constitution, and the relevant jurisprudence to assess the feasibility of incorporating such a right through existing legal structures. The findings suggest that, despite the absence of a direct right, judicial interpretations of Article 12 of the Constitution could be further extended to include the right to CSE. Moreover, the analysis could assist CSE lobbyists in understanding what changes may be required to the Fundamental Rights framework to provide CSE with rights-based protection. Subsequently, the potentially conflicting religious and cultural rights under the Sri Lankan Constitution with CSE are outlined and analysed. This analysis suggests that CSE could not, and

should not, be rejected on the basis of religious and cultural rights, whether from a positivistic or normative perspective.

Methods

This research adopts a qualitative, doctrinal methodology. While outlining the human rights framework, the study relies exclusively on primary legal sources such as the Constitution of Sri Lanka, selected Sri Lankan fundamental rights cases and Supreme Court determinations, and international conventions that explicitly or implicitly refer to sexuality education. These materials were screened for relevance and authenticity and obtained through the verified websites of the Parliament, the Supreme Court, and the UN. The analysis further draws on judicial decisions delivered specifically on sexuality education in jurisdictions such as the EU, the US, and India, as well as decisions of human rights courts such as the Inter-American Court of Human Rights. Furthermore, the study draws upon selected secondary legal sources to support and contextualise the research analysis. Peer-reviewed journal articles on the contemporary human rights framework of Sri Lanka were used to identify landmark cases and to analyse the legal framework.

International Human Rights Framework for CSE

CSE: An Intimate Companion to Human Rights

The sanitationist ideology, which gained momentum in the mid-nineteenth century, inter alia emphasised the importance of improving education and encouraging voluntary participation in public efforts to combat disease [8]. However, it was during the third wave of sexology in the 20th century, that modern approaches to sex education emerged. These approaches focused more on a preventive approach aimed at reducing unintended pregnancies and sexually transmitted diseases [3,9]. The contemporary approach to sexuality education as developed and promoted by the UN Educational, Scientific and Cultural Organization (UNESCO), and the UN Population Fund (UNFPA), is Comprehensive Sexuality Education (CSE). CSE is a curriculum-based process of teaching and learning about the cognitive, emotional, physical and social aspects of sexuality [10].

Comprehensive Sexuality Education (CSE) is distinctive for two reasons: first, CSE is an evidence based approach, supported by extensive research; second, it represents the most comprehensive rights-based approach to sexuality education [11]. As the name suggests, this goes beyond the conventional understanding of sex education. It aims to equip children and youth with the knowledge, values, and practical skills needed to lead healthy, dignified lives, build respectful relationships, make thoughtful decisions, and safeguard their rights over time [11].

International Human Rights Framework

The WHO Constitution (1946), in its preamble, declares the highest attainable standard of health as a fundamental human right, emphasising that access to medical, psychological, and related knowledge is essential to the full realisation of this right [12]. Subsequently, when Article 26(2) of the Universal Declaration of Human Rights (1948) which states that "education shall be directed to the full development of the human personality and to the strengthening of respect for

human rights and fundamental freedoms" is read together with Article 25, which guarantees the right to a standard of living adequate for health, it may be argued that education should include knowledge of diverse aspects of sexuality, since such knowledge constitutes a component of the standard of living necessary for adequate health. The UNESCO Convention against Discrimination in Education (1960) also declares that "education shall be directed to the full development of the human personality."

In the International Covenant on Economic, Social and Cultural Rights (ICESCR) the basis for sexual education derives from the Right to the Highest Attainable Standard of Health (Article 12) and the Right to Education (Article 13) [13]. ICESCR General Comment No. 14 recognises access to health-related education and information, including sexual and reproductive health information, in interpreting the right to health [14]. The Committee on Economic, Social and Cultural Rights has further identified that a failure to "ensure that all educational institutions incorporate unbiased, scientifically accurate, evidence-based, age-appropriate, and comprehensive sexuality education into their required curricula" may amount to a violation of international obligations [15].

Article 10(h) of the Convention on the Elimination of All Forms of Discrimination Against Women (1979) is unique in international human rights law, as it is the only human rights treaty to expressly mention family planning [16]. It obligates States Parties to ensure that women have access to "specific educational information to help to ensure the health and well-being of families, including information and advice on family planning" [16]. Article 16(e) reinforces this by guaranteeing access to the information and education required for women to exercise these rights. This includes information about contraceptive measures and their use, and access to sex education [17]. Furthermore, States Parties are recommended to prioritise the prevention of unwanted pregnancies and sexually transmitted diseases through family planning and sex education.[18] Taking a step further, Article 10(c) of CEDAW mandates the revision of educational aids and the elimination of gender stereotypes in the field of education.

The Convention on the Rights of the Child (1989) is a cornerstone of the human rights framework on sexuality education, as it establishes the child as an independent rights-holder. Article 24 obliges States Parties to ensure that children have access to information and education on, inter alia, "the advantages of breastfeeding, hygiene," etc. Article 17 guarantees the child's right "to access information and material from a diversity of...sources, especially those aimed at the promotion of his or her social, spiritual and moral well-being and physical and mental health" The CRC General Comment No. 4 places a duty on States Parties to provide young people with access to sexual and reproductive health information, covering contraception, family planning, the risks of early pregnancy, and the prevention and treatment of HIV/AIDS and other STDs [19]. Further, Article 29 (1) which focuses on education states that education must be directed to "the development of the child's personality... to their fullest potential". The CRC General Comment No. 1, which addresses the aims of education recommends that States Parties provide children with the life skills needed to make well-balanced decisions and maintain good social relationships [20]. Importantly, the Committee on the Rights of the Child has recommended that "CSE

should be part of the mandatory school curriculum and reach out-of-school adolescents" [21].

The International Conference on Population and Development (1994) had a monumental influence on the matters discussed above, serving as the pioneering forum that highlighted globally the importance of CSE. Paragraphs 4.29, 7.37, 7.41, and 7.47 of its report specifically deal with sexual education and urge States to provide sexuality education that supports adolescent well-being [22]. They stress that this education should start early, be age-appropriate, and take place both in schools and communities. The goal is to help young people make mature decisions and promote gender equality. They also call on governments and NGOs to cover key topics such as gender relations, violence, contraception, family life, responsible sexual behaviour, and STI/HIV prevention [22-23]. The United Nations Special Rapporteur on the Right to Education has also issued reports that directly frame sexuality education as a human right. These reports build on the need to provide CSE and critiques other approaches, such as abstinence-only education [24]. It is further acknowledged by the UNFPA Operational Guidance for Comprehensive Sexuality Education, states that "programmes which do not provide comprehensive and accurate information are not fulfilling young people's right to information" [25].

Domestic Application of International Human Rights Framework

Although the Sri Lankan State has signed, ratified, or acceded to the instruments discussed above, such rights remain unenforceable. This is because Sri Lanka, by convention, is a dualist country. A dualist country requires legislative action to incorporate international treaties into its domestic law. In the Singarasa judgment, it was unequivocally stated that the ICCPR could not be directly enforced, as it had not been incorporated domestically through enabling legislation at that time [26].

Therefore, instruments such as the ICESCR remain unincorporated into Sri Lankan domestic law, while the partial domestication of treaties like the CRC and CEDAW through policy frameworks does not provide a robust legal foundation for safeguarding the right to CSE. Nonetheless, the relevance of these treaties to judicial interpretation is undeniable and will be discussed later in this article.

Navigating Through the Constitutional Silence on Sexuality Education in Sri Lanka

Blindness of 'The Fundamental Rights Chapter'

The above analysis on international human rights principles suggests that sexual education may be incorporated through broader rights such as the right to education, the right to a dignified life, the right to health, and the right to information. Of these, only the right to information is presently guaranteed as a fundamental right under the Sri Lankan Constitution; however, it generally remains framed as a civil and political right. This is evident when Article 14A of the Constitution is read together with the Preamble and Section 3(1) of the Right to Information Act, No. 12 of 2016, which stipulates that the right to information is framed as the citizen's right to access information in the possession, custody, or control of a public authority.

Hence, in the absence of socio-economic rights in the Fundamental Rights Chapter,

the Directive Principles of the Constitution should be analysed, as they provide a framework for recognising socio-economic rights.

Sterility of the 'Directive Principles of State Policy'

Article 27(1) of the Constitution declares that the Directive Principles of State Policy guide the Parliament and the Executive in the enactment of laws and the exercise of governance. Among other objectives such as the realisation of fundamental rights, the promotion of welfare, and the assurance of adequate living conditions and opportunities, Article 27 (2) pledges that the State is committed to the complete eradication of illiteracy and the assurance to all persons of the right to universal and equal access to education at all levels. Further, the State is duty-bound to raise the moral and cultural standards of the People and ensure the full development of the human personality [27].

When these articles are read together, the State's duty to provide CSE could be inferred, as CSE constitutes a major component of an individual's physical, social, and mental well-being. The correlation between CSE and the reduction of intimate partner violence, improved social learning, and enhanced emotional empathy is supported by extensive evidence and meta-analyses [28]. CSE is also identified as an effective strategy for reducing causal risk factors of sexual violence (1) sex, gender, and violence-related risk factors; (2) child abuse-related risk factors; (3) sexual behaviour-related risk factors; and (4) social–emotional intelligence-related risk factors and protecting children and youth from exploitation, thereby advancing the objectives of the pledged Directive Principles [29]. This evidence suggests that CSE is a means of achieving the State's obligations under the Directive Principles, including the responsibility to promote with special care the interests of children and youth, ensure their full development, and protect them from exploitation. The rights-based approach of CSE could further guide the State towards realising the just and free society envisioned in Article 27(1).

Vladimir Lenin famously observed that "theory without practice is sterile, and practice without theory is blind." Likewise, the effectiveness of the Directive Principles is limited by Article 29 of the Constitution, which expressly stipulates that the Directive Principles "do not confer or impose legal rights or obligations and are not enforceable in any court or tribunal." Nonetheless, they have played a crucial role in constitutional interpretation. The courts have found a beacon of hope in the Directive Principles of State Policy, which, in combination with the Bill of Rights, constitute the conscience of the Constitution [30].

Judicial Expansion of Fundamental Rights

In a context where relevant international instruments remain unincorporated, the Constitution is largely silent on socio-economic rights, and the Directive Principles are unenforceable, the Supreme Court has broadly interpreted the existing fundamental rights so as to encompass, *inter alia* the rights to health, life, and education. Is there sufficient room within these interpretations for the journey towards establishing CSE as a right to be undertaken or must we instead proceed along the road illuminated by international conventions and the Directive Principles of State Policy?

Although the country maintains a free healthcare policy, the recognition of the right to health remains limited [7,31]. Only a passing reference made while analysing a matter concerning civil and political rights can be found in cases such as *Gerald Mervin Perera v. Officer-in-Charge, Police Station Wattala,* which briefly refers to Article 12 of the International Covenant on Economic, Social and Cultural Rights (ICESCR) [31].

On the contrary, the right to education has been incorporated unambiguously. As Bandaranayake J. held in *Kavirathne v. Pushpakumara*, "by way of application of Article 12(1) of the Constitution, the Supreme Court, from time to time, has upheld the right to education" [32]. This makes clear that any claim for CSE should be grounded in this precedent, and one may fairly opine that the path towards establishing the right to CSE has already been paved. Yet, an understanding of the said right may also suggest that the road ahead is neither a bed of roses nor a pleasure cruise.

The judiciary's approach to incorporating the right to education has consistently been a merger of Article 12(1) which states the fundamental right that "all persons are equal before the law and are entitled to the equal protection of the law" and Article 27(2)(h) of the Directive Principles, which emphasises the complete eradication of illiteracy and the assurance of universal and equal access to education at all levels [32]. This approach has effectively narrowed the broader right to education to a guarantee of equal access to education [33]. *Accessibility* constitutes only one element within the 4-As framework of the right to education, which also encompasses availability, acceptability, and adaptability [34]. The fulfilment of all human rights through education is fundamentally anchored in *adaptability* [34]. The current judicial recognition of the right to education does not explicitly guarantee this dimension. However, the observation of the Supreme Court in its determination on the *Holidays (Amendment) Bill* that "any attempt to undermine the overall objective of education by limiting, restricting, or attaching undue prominence to textbook-related or school-curricular exam-oriented education will erode the Right to Education" may be a harbinger of future developments [35].

Until then, any claim based on the right to education should be reinforced by three approaches: (1) invoking the international obligations to which Sri Lanka has acceded; (2) interpreting the right to education in conjunction with Article 27(13) of the Directive Principles, thereby directing education towards the interests of children and youth, ensuring their full physical, mental, moral, religious, and social development, and protecting them from exploitation and discrimination; and (3) linking the right to education with the right to life.

Since the days of *Sriyani Silva v. Iddamalgoda*, the Courts have declared that Article 13(4) of the Constitution encompasses the right to life [36]. The contemporary approach, as pronounced by Thurairajah J. in *Tharanga Lakmali v. Niroshan Abeykoon*, is relatively broad. According to Thurairajah J., although "the Fundamental Rights Chapter in our Constitution does not expressly refer to a right to life, constitutional interpretation should be informed by the values embodied in it." The Preamble (Svasti) of the Constitution recognises the dignity and well-being of the People as fundamental values that should be furthered by assuring to all People freedom, equality, justice, and fundamental human rights" [37]. Thus,

the Court considered that the right to life furthers these fundamental values [37].

This approach serves as an invitation to revisit the right to life through values such as well-being and a dignified life, thereby potentially imposing a burden on the State to provide CSE. In simple terms, would not the curriculum-based process of teaching and learning about the cognitive, emotional, physical, and social dimensions of sexuality be essential to the full development of an individual, which ultimately contributes to a dignified life? The vast body of literature from biology, psychology, sociology, pedagogy, and related disciplines scientifically demonstrating the necessity of CSE, provides evidence of the correlation between a dignified life and CSE.

The Way Forward

So far, we have discussed the avenues available to a claimant seeking to establish the right to CSE. Despite their individual shortcomings, the collective strength of international human rights instruments, Fundamental Rights, Directive Principles, and judicial interpretations should not be undermined or overlooked. Thus, in the quest for a rights-based claim to CSE, the primary legal sources of the claim should be the right to education and the right to life. The supporting sources should be the international human rights standards and Directive Principles discussed above, along with the scientific evidence in support of CSE.

Legal Hurdles Along the Way

When the *Hathe Ape Potha* project was initiated, a few Buddhist monks vehemently criticised it, claiming that it would promote masturbation. These are common myths that have been scientifically debunked [38].

The burden on legal scholars, however, is to assess the legal hurdles that might arise along the way and examine potential challenges to the establishment of a right to CSE.

A believer in positive science may question whether objective grounds exist to challenge sex education. However, normative grounds found in Articles 9, 10, 14(1)(e), and 27(2)(g) of the Sri Lankan Constitution may potentially conflict with CSE. The above hindrances were identified through the Supreme Court's determination on the Gender Equality Bill (2024), together with foreign judgments, including *Lemon v. Kurtzman* (1971), *Wisconsin v. Yoder* (1972), and *Mahmoud v. Taylor* (2025), where religious and cultural claims were advanced against sex education and sexuality education [39].

Health is the Ultimate Profit (Arōgyā Paramā Lābhā)

Article 9 of the Constitution states: "the Republic of Sri Lanka shall give to Buddhism the foremost place and accordingly it shall be the duty of the State to protect and foster the Buddha Sasana, while assuring to all religions the rights granted by Articles 10 and 14(1)(e)." The possibility of raising Article 9 and other religious rights to curtail CSE can be challenged as follows:

On the one hand, the objective of embedding such an Article was not necessarily to render State policies non-secular, but rather to safeguard against the neglect of Buddhism, as had occurred during the colonial era. This historical context is discussed *In the Matter of an Application by Rev. Sumana Thero to be Admitted and Enrolled as an Attorney-at-Law* [40]. The courts have further noted that granting foremost recognition to one religion does not necessarily render a

constitution non-secular [41]. The secular nature of the State has been affirmed in cases such as *Ghouse v. Ghouse* and *Ashik v. Bandula* [42,43]. Thus, evidence based and secular education, which fosters various goals of a free democratic society, cannot be arbitrarily curtailed by Article 9. On the other hand, Buddhism emphasises the supreme importance of health, a prime example being verse 204 of the Dhammapada, which states: "Health is the greatest profit" (Arōgyā paramā lābhā). Accordingly, CSE does not neglect or undermine the principles of Buddhism but, in fact, can support them.

Dialogues Concerning the Two C's: Culture and CSE

Contentiously, further arguments may be raised that CSE conflicts with the cultural and moral values of the country. These arguments are not without legal support. For instance, the Sri Lankan Supreme Court, citing *inter alia* Article 27(2)(g), which obliges the state to "raise the moral and cultural standards of the People and ensure the full development of the human personality," has held that same-sex marriages would bear significant cultural and moral implications for the existing moral fabric of Sri Lankan society [44].

The soundness of the claim that the right to CSE conflicts with the cultural standards of Sri Lanka is questionable, as CSE is both scientific and culturally adaptable. This becomes evident when the principles of CSE, as codified in the United Nations' *International Technical Guidance on Sexuality Education*, are analysed [45]. According to the Guidelines for a programme to be considered truly 'comprehensive,' it must be scientifically accurate, incremental, and age and developmentally appropriate, curriculum-based and cover a wide range of topics, while also being grounded in a human rights approach and committed to gender equality [45]. Moreover, CSE must be culturally relevant and contextually appropriate, transformative aim to challenge harmful social norms, and cultivate essential life skills such as critical thinking, communication, and negotiation [45].

A consequentialist may also question whether a body of knowledge designed to reduce the risks of STDs, adolescent pregnancies, and sexual harassment could genuinely erode the moral fabric of society [7,28,29]. This approach is evident in *Guzmán Albarracín v. Ecuador,* decided by the Inter-American Court of Human Rights, where the Court identified that the absence of sexual education deprives children of 'an adequate understanding of the implications of sexual and emotional relationships,' thereby rendering them vulnerable to sexual harassment [46].

These reasons have prompted countries with strong cultural identities and rich cultural heritages to adopt CSE, with recent examples emerging across the Palk Strait. The position of the Indian Supreme Court is clear and unequivocal: 'Sex education should be provided to children from a younger age and not from Class IX onwards. It is for the authorities concerned to apply their mind and take corrective measures, so that children are informed of the changes that happen after puberty and the care and cautions to be taken in relation thereto' [47].

Battle Inside the Chalk Circle

The final focus is to examine the potential conflict between the individual right to religion and the right to CSE. Article 10 of the Sri Lankan Constitution provides that 'every person is entitled to freedom of thought, conscience and religion, including

the freedom to have or to adopt a religion or belief of his choice.' Further, Article 14(1) guarantees that 'every citizen is entitled to the freedom, either by himself or in association with others, and either in public or in private, to manifest his religion or belief in worship, observance, practice and teaching.' These constitutional protections may give rise to two potential points of conflict with CSE: (1) individual religious rights may be invoked to challenge the incorporation of CSE, and (2) parents may seek to assert a right to withdraw their children out of such instruction.

When religious beliefs conflict with scientific findings, the latter does not gain legal supremacy merely by virtue of their scientific basis or epistemological authority. This position is evident in *Premalal Perera v. Weerasuriya*, where Ranasinghe J. observed that "beliefs rooted in religion are protected, and a religious belief need not be logical, acceptable, consistent, or comprehensible in order to be protected" [48]. The Court further held that a regulation which is "unduly burdensome" on the exercise of religion would be struck down [48]. Judicial involvement in clashes between educational curricula and religious beliefs is not novel to the field of law. When the State of Arkansas made it a crime to teach evolution in public schools, the U.S. Supreme Court invoked the Establishment Clause of the First Amendment, holding that the Clause requires governmental neutrality both among religions and between religion and non-religion [49]. Article 10 of the Sri Lankan Constitution likewise reflects a commitment to such neutrality, as it refers to freedom of thought and conscience; and in a free society, multiplicity of opinions is an inevitability. As Thilakawardane J. observed, "a truly free society is one which can accommodate a wide variety of beliefs, diversity of tastes and pursuits, customs and codes of conduct."[48] This view of Thilakawardane J. resonates with the Svasti and Article 27(1) of the Constitution, which stipulate an unwavering commitment to the establishment of a just and free society [50]. Thus, my observations are that CSE should not be struck down by invoking religious rights for two reasons: (1) CSE is not burdensome on the exercise of religious rights; and (2) a free society should embrace multiplicity and scientificity in order to advance its true democratic values.

The subsequent legal issue concerning the parental right to opt their children out of CSE is intricate and remains without consensus. Recently, the U.S. Supreme Court in *Mahmoud v. Taylor*, upheld parents' right to opt their children out of LGBTQI+-inclusive instruction, ruling that the rescission of an opt-out policy violated the free exercise of religion [51]. Even the UDHR under Article 26(3) recognises the right to education, while also recognising the prior right of parents to choose the kind of education to be given to their children. However, authors such as Packer argue that this right is not absolute, but rather subject to the best interests of the child [52]. The European Commission of Human Rights, in *Hendriks v. The Netherlands* upheld this view and stated that the best interests of the child should prevail over parental choices [53]. A similar issue arose in *Kjeldsen, Busk Madsen and Pedersen v. Denmark* (1976), where a group of parents argued that compulsory sex education infringed their right to ensure that their children received an education in accordance with their religious and philosophical convictions. In response, the Court emphasised that education must promote pluralism and tolerance, not indoctrination. Provided that the State's instruction remained objective and pluralistic, and parents retained the freedom to impart their own

beliefs, compulsory sex education was not considered inconsistent with the Convention [54].

The child, therefore, stands at the centre of the chalk circle of a dignified life, while the biological parents and the State, both bearing responsibilities towards the child's education, pull from opposing sides. The question is not simply who has the stronger claim, but who ultimately serves the best interests of the child. Like Azdak in Brecht's *The Caucasian Chalk Circle*, the challenge is to determine which claim should prevail when the competing interests of adults must yield to the welfare of the child.

Conclusion

Following a comprehensive study of international instruments, constitutional rights and duties, and judicial extensions to existing fundamental rights, this study asserts the feasibility of incorporating a right to CSE through an expanded judicial interpretation of the right to education and the right to life, supplemented by the Directive Principles of State Policy and the international conventions to which Sri Lanka has acceded. Provided the curriculum remains objective and pluralistic, the likelihood of challenging CSE on the grounds that it infringes religious rights are limited. However, it is only by recognising CSE as a right that its implementation can be protected from challenges based on religious and cultural normative claims.

Incorporating CSE as a right, however, is only the tip of the iceberg. The ultimate conflict before us resembles that faced by Copernicus and Galileo during the Renaissance, the imperative to change established paradigms. Russell, as early as 1926, set out two rules in answering questions on sex: namely, to be truthful and to regard sexual-knowledge as exactly like any other form of knowledge. The identification of CSE as a right is thus not merely a commitment to justice; it is equally a commitment to truth. Moreover, judicial intervention even in the form of a lone dissenting judgment when the majority submits to dogma, would mark a significant step towards normalising CSE as knowledge like any other form of knowledge.

Ethical Approval Statement

This study is doctrinal in nature and does not involve human participants or personal data.

Author Contribution Statement

All research, analysis, and writing were undertaken independently by the author.

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Statement on the Use of AI

Artificial intelligence tools were used solely to support brainstorming and idea generation. All analysis, interpretation, and writing were conducted by the author, who retains full responsibility for the content of the article.

Disclaimer

The views and interpretations expressed herein are those of the author alone and do not necessarily reflect the positions of any institution. Any errors or omissions remain the sole responsibility of the author.

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Annex 1

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Annex 3

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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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Annex 4

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6) The number of words in the manuscript, exclusive of the abstract, acknowledgements, references, tables, figures, and figure legends.

Abstract

The abstract should concisely summarise the key elements of the study and provide sufficient context to help readers understand the significance of the work. It must include the study background, clearly state the objectives, outline the methods (including participant selection, setting, measurements, and analytical techniques), present the main findings (with effect sizes and statistical or significance where applicable), and conclude with the principal conclusions.

For original articles and review articles, the abstract must be structured using the following subheadings: Introduction, Objectives, Methods, Results, and Conclusions, and should not exceed 300 words. For Brief Reports, an unstructured abstract is required and should be limited to a maximum of 200 words. The abstract should stand alone and not include citations, abbreviations, or undefined terms.

Main Text

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.

References

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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].

Citations of articles or books that have been accepted for publication but not yet published must include the journal or publisher's name and the anticipated year of publication. References to unpublished work or personal communications may be included within parentheses in the text, but must be accompanied by a written letter of permission from the individual being cited, which should be submitted with the manuscript. All references should be accurate, complete, and up-to-date, and authors are responsible for verifying all citations prior to submission.

Before submission, the reference list should be fully formatted as examples given below.

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When citing journal articles, list the surname followed by the initials of each author, placing a comma only after each author's name. Only the first word of the article title and proper nouns should be capitalised. The journal name should be abbreviated and italicised according to the standard indexing style (e.g., PubMed or Index Medicus). Include the year of publication, volume number, issue number in parentheses, and page range. The DOI must be provided at the end of the reference, without including the date of access.

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1. Talagala N. Unsafe abortions in Sri Lanka – Facts and risk profile. *J Coll Community Physicians Sri Lanka* 2010; 15(1): 1-13. https://doi.org/10.4038/jccpsl.v15i1.4934/
2. Tavakol M & Dennick R. Making sense of Cronbach's alpha. *Int J Med Educ* 2011; 27(2):53-55. https://doi.org/10.5116/ijme.4dfb.8dfd
3. Kaluarachchi A, Tissera S, Jayatilleke AC, Suranga S, Guest P, Srinivasan K, Ganatra B. Service provider perceptions of the trend in severity of symptoms and complications in women admitted following an incomplete abortion. *J Family Med Prim Care* 2018; 7(6): 2-7. https://doi.org/10.4103/jfmpc.jfmpc_188_18

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When referencing a dissertation or thesis, use sentence case for the title — only the first word and proper nouns should be capitalised. Do not capitalise every word of the title. Provide the author's name, the full title of the thesis, the type of degree, the institution, and the year of submission. If the document is publicly available online, include the URL at the end of the citation.

Example:

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

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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/

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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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Annex 5

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21. Advertisements are published either before or after the scientific content, never within it.
22. The *ReproSex* website does not currently display any advertisements as of 31st March 2026.

Annex 6

Acknowledgements

The Editorial Board of *ReproSex: International Journal on Sexual and Reproductive Health* wishes to express its sincere gratitude to the National Science Foundation of Sri Lanka (NSF) for its valuable assistance and support in strengthening the quality, visibility, accessibility, and dissemination of the journal.

We sincerely appreciate the NSF's assistance in facilitating access to the Sri Lanka Journals Online (SLJOL) platform. Availability through SLJOL has enhanced the online publication, accessibility, discoverability, and wider dissemination of the journal's research articles and other scholarly content among national and international audiences.

Furthermore, we particularly acknowledge the NSF's support in circulating the journal's Call for Papers through the Science and Technology Management Information System (STMIS). This important assistance enabled the Call for Papers to reach a broader network of researchers, academics, practitioners, students, institutions, and professionals interested in sexual and reproductive health. It also supported the journal's efforts to attract relevant scholarly contributions from diverse disciplines and settings.

The Editorial Board is also deeply grateful to the NSF for providing access to Turnitin plagiarism-detection software. This facility has strengthened the journal's editorial review and quality-assurance processes by supporting originality checks, promoting academic integrity, and helping the Editorial Board maintain the ethical standards expected in scholarly publishing.

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The Editorial Board Members

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