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Your Voice, Your Rights

International Journal on Sexual and Reproductive Health

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Publisher Details

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

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

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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.

Editorial Board

International Journal on Sexual and Reproductive Health (SRH) by Family Planning Association of Sri Lanka

S Arulkumaran[1]

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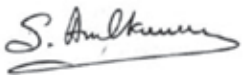
City St George's University of London

I am delighted that the Family Planning Association of Sri Lanka, the Sri Lankan Member Association of the International Planned Parenthood Federation (IPPF), is initiating a new peer-reviewed multidisciplinary Journal on Sexual and Reproductive Health. The Journal aims to provide a comprehensive platform for high-quality research, policy dialogue, and thought leadership across the full spectrum of SRH, including contraception, gynaecology, obstetrics, subfertility, abortion, HIV/STIs, and sexuality, while embracing medical, social, behavioural, and legal perspectives. This area of care is influenced by ethical, moral, legal and cultural norms. Hence, we need to consider sexual and reproductive health within the norms of the society with interaction between society, health care personal, legal experts, social care personal and policy makers. Such policies and practice should be based on ethical principles. Learning the history of health and social care has helped us to fulfill our commitment with dignity and integrity on an ethics and human rights-based principles. The practical application of these principles on ethics and rights has resulted in the knowledge as to how we should understand and implement our professional duty. Ethical Principle of **'Beneficence'** dictates that care must be supportive, individualised and value-based. It is best served as a partnership model and has proven to be beneficial. **'Non-maleficence'** dictates that we are expected to avoid harmful practices and we should avoid disrespect and abuse. **'Justice'** dictates that we should provide respect, dignity and informed choice. Care based on these rights-based approach, prevents exclusion and mal-treatment of individuals that are marginalised and socio-economically disadvantaged. We should provide free or affordable care with cost transparency. Respect every woman's right to access and receive non-discriminatory and free or affordable care throughout the continuum of parenthood. Promote wellness and the prevention of illness as the foundations of improving sexual and reproductive health. Ethical Principle of **'Autonomy'** dictates that each HCP that sees a woman should listen to what women and their families say and should communicate health knowledge and information in a culturally safe and sensitive manner, and in a language that the woman and her family understand and ensure her the right to informed consent and refusal.

These principles are practiced by the Member Associations of the IPPF. Past President of FIGO, Professor Mahmoud Fathalla who was an ardent supporter of IPPF put it succinctly that "Sexual and reproductive rights are not a new set of human rights but they are simply the application of the already recognised list of human rights to the area of sexuality and reproduction". Women's

Sexual and Reproductive Rights are different because of reproductive functions. These rights have been denied for centuries. Some have changed and some remain static. Some examples are – Sati – wife pushed into funeral pyre; Sex selective abortion; Female genital mutilation; Honor Killing + Dowry related deaths; *Domestic / sexual violence; Rights to appropriate contraception and abortion.* Many of the unacceptable practices in the arena of sexual and reproductive health has been eliminated or reduced by policy changes and empowering the girl child and women by providing the rights to education, nutrition, health care and employment.

The research, policies and practice expressed in the new multidisciplinary '*Journal on Sexual and Reproductive Health*' edited by knowledgeable and experienced Professors Indralal de Silva and Sanath Lanerolle will further improve the rights and health of women and the couples.



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ReproSex: International Journal on Sexual and Reproductive Health

ReproSex: A New Voice for Global Sexual and Reproductive Health

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Editorial

The conclusion of ReproSex-2024: The International Conference on Sexual and Reproductive Health marked more than the end of a successful event; it signalled the beginning of a lasting legacy. We are proud to launch ReproSex: International Journal on Sexual and Reproductive Health, Sri Lanka's first international journal dedicated exclusively to this critical field. Sexual and reproductive health (SRH) is central to human dignity, gender equality, and sustainable development. Yet across the globe, millions still face barriers to essential care; whether in access to contraception, safe childbirth, fertility services, or protection from HIV and other sexually transmitted infections. The issues are as diverse as they are urgent, and they demand a platform that is both multidisciplinary and globally inclusive.

ReproSex: International Journal on Sexual and Reproductive Health aims to fill that space. Covering topics from contraception, gynaecology, and obstetrics to subfertility, abortion, HIV/STIs, and sexuality, the journal will bring together perspectives from medicine, public health, sociology, behavioural sciences, and law. In doing so, it recognises that SRH cannot be understood or improved through any single lens. This journal is a collaboration between leading national and international institutions, professional bodies, and experts. Our commitment is to publish high-quality, evidence-based, and impactful work that informs clinical practice, shapes policy, and fosters innovation.

The SRH Landscape: Promise and Challenges

Sexual and reproductive health and rights (SRHR) are essential to both individual well-being and broader development goals [1]. In recent decades, the world has seen

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remarkable progress: global contraceptive use has expanded dramatically, with women using modern methods increasing from about 467 million in 1990 to 874 million in 2022 [2]. This expansion has contributed to declines in unintended pregnancies and maternal mortality. However, recent analyses underscore that progress is uneven and new challenges are emerging. For example, gains in maternal and newborn health have plateaued in many countries, and issues like infertility, adolescent pregnancy, and access to safe abortion persist as urgent concerns [3]. These trends remind us that the SRH agenda remains unfinished, and that innovation and evidence must continue to drive policy and programs.

In South Asia and in Sri Lanka specifically, demographic and SRH transitions are underway. Sri Lanka's total fertility rate has fallen close to replacement level, prompting research on the implications of an impending ultra-low fertility regime [4]. Contraceptive options have broadened, yet ensuring equitable access and informed choice remains a priority [5]. Attention to SRH education and services has grown: sexuality education in schools and improvements in menstrual hygiene management are now higher priorities for young people's health [6]. At the same time, legal and rights-based issues continue to shape the SRH landscape [3]. Gender norms, inequities, and the needs of vulnerable populations (such as sex workers or survivors of violence) remain critical frontiers [7, 8]. In short, South Asia is experiencing rapid change and urgent challenges in SRH, underscoring the need for localised evidence and solutions [3].

Emerging Frontiers in SRH Scholarship South Asia

The inaugural issue of ReproSex: The International Conference on Sexual and Reproductive Health acknowledges that the region is at the forefront of both new challenges and new opportunities in SRH research. Technological and medical innovations, for example, new contraceptive methods, are expanding reproductive choices [5]. Simultaneously, legal and policy reforms are creating openings to advance sexual rights and gender equity [7,8]. The COVID-19 pandemic, while disrupting services, has also spurred new research on resilience and remote education strategies in SRH [9]. By emphasising "frontiers," we invite contributions that look beyond traditional boundaries: addressing topics like digital health in SRH, transgender health, climate vulnerability and SRH, or innovative program models [3]. Our goal is to foreground work that has both local relevance and broader global resonance. In this front, the articles in this inaugural issue exemplify the breadth and depth of emerging SRH scholarship. They address key themes such as fertility, contraception, education, hygiene, legal rights, and the health of vulnerable groups:

1) **Demographic Changes:** An original research article by De Silva estimates Sri Lanka's Total Fertility Rate using alternative methods and compares trends with South Korea. The findings suggest Sri Lanka may be entering an ultra-low fertility phase and discuss the social and policy implications of this demographic shift [4].

2) **Contraception and innovation:** The leading article, by John Cleland, offers a global framework for understanding the "contraceptive revolution," emphasising that contraception is a foundation of SRH. It reviews how demand, supply, and cost factors interact to shape contraceptive uptake worldwide [10]. Complementing this, a brief report introduces the single-rod subdermal contraceptive implant as a new family planning option for

women in South Asia, highlighting how innovation in contraceptive technology can expand reproductive choices regionally [5]. In addition, Dr. Sharadha Jayalath's evidence-based review on contraception in perimenopause draws attention to the unique needs of women in this transitional life stage. The review highlights both the importance of preventing unintended, high-risk pregnancies and the non-contraceptive benefits of modern methods, while emphasising the need for individualised counselling and method selection to safeguard women's autonomy and quality of life.

3) **Education and menstrual hygiene:** Two original studies focus on young people's health in Sri Lanka. One examines menstrual hygiene management practices among schoolgirls in the Northern Province, illustrating the connections between school sanitation, gender norms, and health outcomes [11]. The other analyses the impact of the COVID-19 pandemic on sexual and reproductive health education in government schools, revealing how school closures and shifting priorities affected students' knowledge and access to information [9]. Together, these studies underscore the role of education and health systems in supporting adolescent SRH.

4) **Legal frameworks and rights:** This issue engages deeply with rights-based dimensions of SRH. A narrative review explores the legal environment and SRH challenges faced by female sex workers in Sri Lanka, a marginalised group often excluded from services [7]. Another article examines reproductive autonomy for survivors of sexual violence, comparing Sri Lankan laws and policies on consent and abortion for rape survivors [8]. Both pieces underscore the importance of legal protections, policy reforms, and human rights for ensuring SRH needs are met among vulnerable populations.

5) **Cross-cutting issues:** The commentaries in this issue broaden the discussion. One commentary reports a recent rise in conceptions among girls under 18 in England and Wales, calling it a "wake-up call" that has lessons for low- and middle-income countries on adolescent pregnancy prevention [12]. Another commentary reflects on how patriarchal norms in medicine continue to impact SRH rights globally [13]. These contributions remind us that local research gains meaning when connected to global movements and that SRH challenges often transcend national borders.

Each contribution, while rooted in a specific context or method, speaks to broader trends and questions in SRH. Together, these articles showcase the interdisciplinary, inclusive, and rights-based scholarship that ReproSex: International Journal on Sexual and Reproductive Health seeks to foster. We extend our deep gratitude to all who made this inaugural issue possible. We thank our distinguished Editorial Board for their guidance and commitment to academic excellence. We acknowledge the Family Planning Association of Sri Lanka for its leadership and vision in founding ReproSex: International Journal on Sexual and Reproductive Health. We are also grateful to RFSU (Sweden's Association for Sexuality Education), whose support has been instrumental in launching the journal. Finally, we thank all of the contributing authors and peer reviewers for their rigorous work and scholarship; this issue would not be possible without their contributions.

Call to Action

The launch of ReproSex: International Journal on Sexual and Reproductive Health is a call to action for the SRH community. We encourage researchers to build on the studies in this issue and continue exploring the emerging SRH challenges in South Asia. We urge policymakers and program leaders to draw on this new evidence to inform national health and education programs, ensuring that policies are data-driven and rights-based. We invite civil society and practitioners to use this open-access platform to disseminate findings, foster debate, and advocate for equitable SRH services. The challenges in sexual and reproductive health are far from solved, but with collective action, collaboration, and innovation, we can advance toward healthier, more equitable futures. ReproSex: International Journal on Sexual and Reproductive Health is now part of that journey, and we look forward to growing this community of scholarship together.

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ReproSex: International Journal on Sexual and Reproductive Health

A Framework for Understanding the Contraceptive Revolution

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Leading Article

Abstract

Between 1960 and 1990, the proportion of couples in Asia and Latin America who were current users of contraception rose from about 10% to 60% but the timing and pace of change varied between countries. Trends in sub-Saharan Africa have been modest in comparison. The concepts of supply of children, demand for children and costs of regulating births, derived from Easterlin, are used as a framework towards a better understanding of reproductive change. Three main categories of countries are identified: (1) those with low demand and low costs where increased use of contraception is rapid; (2) those with low demand but high costs where, initially, contraceptive use rises slowly and unmet need persists for long durations; in these settings family planning programs have been of particular importance; (3) those with high demand and high costs, where changes in contraceptive use are slow.

Key Words: Contraceptive Use, Fertility, Family Planning Programs

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Introduction

Contraception is the cornerstone of sexual and reproductive health because of the breadth of its positive effects. The benefits for the health of mothers and children are well established. Modelling of data from 2015 indicated that a 90% reduction of unmet need, non-use of contraception by couples wishing to avoid pregnancy, would prevent 67,000 maternal deaths globally, with large downstream effects on still births, neonatal and child deaths [1]. Moreover, promotion of contraception was estimated to be the most cost-effective way of reducing maternal deaths in 74 low and middle-income countries [2]. Reduction of unmet need for birth spacing would also have substantial direct benefits for perinatal, infant and child survival because of the risks posed by short inter-birth intervals, particularly in less developed countries where unmet need remains high and infant survival low [3,4]. Contraception also brings potential benefits through socio-economic pathways. By allowing couples to choose smaller family sizes and permitting women to escape involuntary childbearing, it represents a huge leap in women's empowerment and facilitates their engagement in non-domestic activities. Women's participation in paid work tends to increase as the level of childbearing falls. Declining fertility rates, in response to contraceptive uptake, contributes to poverty-reduction and relieves pressure on health and education services.

In 1960, very few couples in Asia practiced any form of deliberate pregnancy-prevention. Instead, the level of childbearing was moderated by social customs, such as prolonged breastfeeding and restrictions on sexual intercourse. By 1990, close to 60 per cent of married couples in Asia were practicing contraception, mainly effective modern methods. Similar trends occurred in Latin America but contraceptive uptake in Africa has been later and slower. This profound and abrupt change in human behavior in little more than a single generation can rightly be termed a revolution. Unlike the earlier contraceptive transition in European populations, the shift in reproductive behaviour in Asia was typically fostered by the policies and programs of governments or large and well-funded non-government organizations. Sri Lanka was among the first countries to adopt policies and programs to promote contraception in the 1960s.

The pace of reproductive change has varied both within and between regions, in ways that are poorly understood and for reasons that are strongly contested. The purpose of this paper is to propose a framework towards a better understanding of trends in contraceptive use and fertility over the past seven decades.

Easterlin's Synthesis Framework

The Synthesis Framework of Richard Easterlin is the most appropriate because of its simplicity and breadth [5]. His framework has three main components: demand for children, supply of children, and costs of fertility regulation.

Demand, or desire, for children is regarded as the flow of benefits from offspring, both economic and emotional, to the parents or wider kin, set against the costs. Falling demand for children is seen, particularly by economists, as the key driver of contraceptive and fertility transitions. Modernization of societies, it is plausibly argued, reduces the benefits of children and raises their costs. Measures of demand come from surveys such as the World Fertility Survey and its successor, the Demographic and Health Surveys (DHSs), in the form of responses to questions on total desired family size and on whether any more children are desired.

Supply of children refers to the expected number of surviving children per couple in the absence of deliberate control. It is moderated by two main factors. In societies with strict codes of sexual behavior, marriage ages have a large potential effect on fertility, and prolonged breastfeeding is another major constraint. Though largely ignored by Easterlin, it is clear that mortality decline was the major force in increasing supply. In 1900, it may be inferred from the low rates of population growth that the average number of children surviving adulthood per couple in poor countries was close to two. By 1960, this number had risen to somewhere in the range of four to six.

The most convenient measure of supply is the *net reproduction rate* for societies at a time when fertility regulation was rare. This rate calibrates the number of daughters that an average woman can expect to survive to adulthood at prevailing fertility and mortality rates. Doubling the net reproduction rate gives an approximation of how many children of either sex will survive to adulthood. Estimates of the net reproduction rate are routinely available from the UN Population Division. In Sri Lanka, the net reproduction rate peaked around 1960 at 2.3, indicating that parents could expect, on average, to see between four and five children reach adulthood.

Costs of regulation assume importance when supply, or anticipated supply of children, exceeds demand. They determine whether or not prevention of births occurs. Costs extend beyond the obvious considerations of knowledge, affordability, and access to methods to include the moral and social concerns about the principle of breaking the nexus between sex and procreation and health worries about the use of particular methods.

Costs are extremely difficult to measure. Early DHSs routinely enquired whether respondents 'approved' of family planning and whether they had an intention to use contraception at any time in the future, but these are superficial indicators. The level of unmet need for family planning is the only possible quantitative, though indirect, indicator of costs because it reflects an inability or unwillingness to implement by contraceptive adoption a stated desire to postpone or limit pregnancy. More direct evidence can be derived from ethnographic and qualitative studies.

Application of the Framework

All three of Easterlin's components are implicated in contraceptive and fertility transitions. Consider supply of children first. Increased supply of children, driven primarily by sharp falls in mortality together with shortening of the length of lactational amenorrhea in many countries, was the lynchpin of classical theories that fertility decline is an inevitable though lagged response to improved survival. Supply of surviving children peaked in Asia and Latin America in the 1960s, before the advent of widespread contraception, at around 4 and 4.6 children per woman, respectively, and in sub-Saharan Africa two decades later at the same level as Latin America. Conventional explanations of the causal pathway between increased supply and reproductive change assume that adults perceive the change in survival probabilities of their children and thus no longer need to bear more children than they want as an insurance against the risk that some will die. There is scant evidence for this assumption. Most people are very poor at probabilistic calculation. But there is a much more obvious, compelling but overlooked causal pathway that does not depend on accurate perceptions of survival probabilities. The doubling, or even trebling, of the number of children surviving to adulthood represents a huge increase in the economic pressure on parents in terms of child care costs. Surely, the reproductive revolution that swept across Asia and Latin America and that is gathering pace in Africa could not have happened without

prior mortality decline. Increased supply is the chronologically remote but nevertheless fundamental underlying stimulus for mass adoption of contraception [6].

However, there is no uniform dose-response relationship between increased supply of children and reproductive change. Rather, wide inter-country variability is apparent. At the start of reproductive transition, the average couple in India and Indonesia could expect about 3.6 surviving children. In contrast, this expectation was close to six children in Kenya and Syria because of a combination of a high birth rate and high child survival. Clearly, there is no uniform threshold in supply beyond which reproductive change is inevitable. Easterlin's other two components, demand for children and costs of regulation, mediate the relationship.

Consider now demand for children. The earliest surveys in Asia and Latin America, conducted in the late 1950s and 1960s typically showed that most couples wanted to have two to four children and that many women aged in their 30s wanted to stop childbearing altogether [7]. In Sri Lanka in 1962, a survey of rural men indicted an average desired family size of 3.2 children and a survey of rural women showed that 57% of those with three living children wanted no more [7]. In sub-Saharan Africa, desired family sizes were (and remain) much larger and fewer women wanted to stop. For instance, World Fertility Surveys, conducted in the 1970s and early 1980s, showed that desired sizes among young women in seven African countries ranged from 5.2 in Ghana to 8.3 children in Senegal. By contrast, in only one (Syria) of fourteen Asian and Pacific countries did the mean desired size exceed five children. In thirteen Latin American and Caribbean countries, the highest desired size was 3.8 children in Mexico [8].

Why African reproductive desires are so different from those in other regions remains uncertain. One plausible explanation concerns social structure. In Asia and Latin America, the nuclear family is predominant and the costs of child rearing impinge directly on parents. In sub-Saharan Africa, the wider kinship network, or lineage, is much more important and childcare costs tend to be shared, and thus diluted, among a large number of kin. A related argument is made in Caldwell's wealth flows theory, namely that in Africa benefits of children flow upwards to the powerful patriarchal heads of kinship groups who therefore support high fertility aspirations [9]. Two other factors may be relevant. First, homo sapiens evolved in Africa, facilitating the evolution of often fatal parasitic diseases; the likely response to exceptionally high mortality is pronatalist sentiments. Second, the population of sub-Saharan Africa comprises a myriad of rival ethnic and linguistic groups with frequent conflict between them; safety lay in numbers, thus acting as a prop for high fertility aspirations.

Trends in desire or demand for children can be monitored from successive DHSs using the publicly available data base Stat Compiler. In most countries, demand has fallen, though more so in countries where it was initially high. A few examples using total desired number of children among women aged 20-29 years as an indicator will illustrate the point. In India between 1987 and 2020, average desired number fell from 2.7 to 2.0. The corresponding fall in Indonesia over a similar period was 3.0 to 2.6. In Malawi, desired size fell from 4.6 in 1992 to 3.4 in 2015 and in Senegal from 6.7 to 5.1 between 1986 and 2023.

We turn now to the third of Easterlin's components, the costs of regulation, broadly defined. In some societies, there appears to

have almost no social or moral resistance to the novel concept of pregnancy-prevention within marriage. When, for instance, the intrauterine device was introduced in Taiwan and Thailand, women flocked to have the device fitted. Conversely, in Bangladesh, the advent of female family planning workers caused an initial social uproar [10]. In Pakistan, one of main obstacles to contraceptive adoption was identified as fear of social disapproval [11]. Disquiet about contraception is often expressed in terms of health. In Nepal, all contraceptive methods were seen by women to carry profound health risks [12]. Abundant ethnographic evidence shows that many African women view contraception with considerable fear about health and possible permanent impairment of future childbearing [13-16]. Trends cannot be derived from qualitative studies but can be inferred from levels of unmet need. Between 1970 and 2010, the level of unmet need among married women in Asia and Latin America fell from around 30% to about 10%, while in sub-Saharan Africa, with much lower contraceptive uptake, the level remains high [17].

Towards a Crude Grouping of Countries

As countries vary in demand for children and costs of regulations, a crude classification or grouping can be attempted. Demand for children and costs of regulation may be high or low. When demand is low, or least moderate, and costs are low, contraceptive and fertility transitions are likely to be rapid and the success of policies and programs to reduce fertility is guaranteed. A ready clientele for contraceptive services exists. Indeed, state policies and programs may be unnecessary, as illustrated by the European example between 1880 and 1930. Most countries of East and South-East Asia and Latin America fall into this category. In Latin America, 'light touch' programs, typically initiated by non-government organisations such as Bemfam in Brazil, Profamilia in Colombia and Mexfam in Mexico, proved sufficient for widespread and rapid uptake of contraception. The same may have proved sufficient in the countries of East and South-East Asia but, in the 1960s and 1970s, this was not apparent and many implemented strong policies, notably in China, Vietnam and Indonesia.

A second category comprises countries where demand for children is modest but costs are high, at least initially. Most countries of South Asia belong here, as evidenced above for Bangladesh, Pakistan and Nepal. In these countries, motivation to regulate fertility existed but was latent or fragile. Well-designed programs, with a strong communication component, are likely to be effective, though not immediately. Unmet need is high but slow to attenuate. The temptation for governments was to press too hard on the accelerator of change and deploy strategies that threatened the voluntary principle, as happened in India between June 1975 and March 1976 when Indira Ghandi ruled by emergency decree and initiated coercive sterilization campaigns.

Whether Sri Lanka belongs in the South Asian or in the East/South-East Asian grouping is an interesting question. I am unaware of any evidence of resistance to modern contraception. Yet, the government thought it necessary to introduce financial incentives for those willing to be sterilized in January 1980 and raised the payment from Rs100 to Rs500 in October of that year, achieving a substantial response [18]. It is also the case that Sri Lankans have been suspicious of hormonal methods, as is also true in India. Contraceptive use has been dominated by sterilization and periodic abstinence, with low use of hormonal methods.

As the combination of high demand for children and low costs of regulation is improbable, we are left with a third category where both demand for children and costs of regulation

are high. Most of the countries of sub-Saharan Africa belong in this group. Early DHSs in West Africa showed that less than half of women approved of contraception and stated intention to use in the future was similarly low. Abundant ethnographic evidence, cited above, gives similar indications. No doubt the perception by political elites that large families were highly valued delayed the introduction of family planning programs with strong political backing. The HIV pandemic then sucked energy and funds away from family planning. And when serious programs have been launched, success has been elusive in many countries.

The prevalent desire for large numbers of children in Africa brings to the fore the crucial question of whether or not programs to promote contraception can reduce pronatalist attitudes. The dominant view is negative. Desired fertility, it is argued, is firmly rooted in social institutions and economic fabric and can only be shifted by structural change. But there are two possible ways in which programs may have an influence. The first is simply by exhortation, namely communication of the advantages of small families. The second is more subtle but probably more powerful. Motives and means are likely to interact. The legitimation of contraception and the advent of reproductive choice may prompt a re-consideration of how many children are wanted. An analysis comparing similar countries but with divergent family planning policies and programs suggested that strong programs can reduce family size preferences [19].

Concluding Comments

Economists and other social scientists, when asked about the underlying cause of the contraceptive and fertility transitions that have swept across Asia and Latin America since 1960, typically assert that the fundamental reason is declining demand, or desire, for children owing to structural changes that raise the costs of child raising and erode the benefits. Most demographers would also note that improved survival, or supply, of children is also an important underlying factor. Rather few would assert that improvements in the ability and willingness to act upon reproductive desires (i.e. reductions in costs of regulation) are a major cause.

A small specialist literature exists on the relative contributions of demand and implementation of childbearing preferences to rises in contraceptive use and falls in fertility. Estimates vary widely. Pritchett (1994) concluded that falling demand was almost entirely responsible for fertility declines while Ibitoye. Casterline and Zhang (2022) estimated that implementation was the prime driver of changes in contraceptive use with only a 10-15% contribution from demand. A recent critique of studies revealed methodological shortcomings in most analyses [22]. Bongaarts's conclusion is that both falling demand and rising implementation have made major and perhaps approximately equal contributions to reproductive transitions. Precise estimates are probably impossible because demand and implementation, or costs of regulation, interact. When couples come to believe that use of modern contraceptive methods is both safe and socially acceptable, they are likely to reassess the number of children that they wish to have. That is why falls in demand usually accompany rises in contraceptive use rather than preceding them. Similarly, falls in demand may encourage couples to overcome perceived costs of regulation.

This conclusion has little practical relevance in Asia where the level of contraceptive is very high though scope always exists for improving the quality of contraceptive services and widening the method-mix. However, it remains relevant for much of sub-Saharan Africa

where high demand and high costs persist. The enduring rationale for family planning programs is to reduce costs of regulation and thus enable couples to avoid unwanted pregnancies. Successful reduction of costs is likely to have the additional effect of reducing demand.

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Sri Lanka is on the Verge of Entering Ultra-Low Fertility: Estimating Total Fertility Rate Through an Alternative Method Validation with South Korea

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Original Article

Abstract

Introduction: The Total Fertility Rate (TFR) of Sri Lanka has been unavailable since 2016, when the Demographic and Health Survey (DHS) reported a TFR of 2.2 live births per woman. Estimating TFR for the period 2016–2024 is crucial, particularly from a sexual and reproductive health (SRH) perspective, given the possible impacts of the COVID-19 pandemic and economic crisis on fertility behaviour.

Objectives: First, it aims to assess the validity of an alternative method by comparing its TFR estimates for South Korea with those obtained through the standard technique. Second, based on the demonstrated validity of the two sets of estimates for South Korea, the alternative method is applied to estimate the TFR of Sri Lanka. Further the analysis explores the broader demographic and socio-economic implications of fertility change.

Methods: Initially, the alternative method is applied to estimate the TFR for South Korea, a country with up-to-date statistics. These estimates are then compared with standard TFR figures to assess the method's validity. Upon confirming a high degree of validity between the two sets of estimates, the alternative method is used to estimate the TFR for Sri Lanka.

Results: Sri Lanka's TFR fell below replacement level by 2016 and has continued to decline, reaching an estimated 1.4 in 2023 and 1.3 in 2024. These figures indicate that the country is on the verge of entering an ultra-low fertility regime, typically defined as a TFR below 1.3. Sri Lanka began experiencing population decline from 2022, when the total population peaked at 22.1 million. This demographic shift is primarily driven by a sharp decline in natural increase and a substantial net out-migration rate between 2022 and 2024.

Conclusion: Sri Lanka's transition toward ultra-low fertility has significant macro-level implications, including a rapidly ageing population, a shrinking labour force, and mounting pressure on healthcare and social protection. These trends underscore the urgent need for evidence-based policy interventions to stabilize/reverse fertility levels.

Key Words: Ultra-low fertility, Alternative methods, TFR estimates, Sri Lanka and South Korea

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Introduction

Fertility is a key demographic component shaping population size, structure, and growth, with broad implications for labour supply, economic stability, and social support systems. Fertility is influenced by trends in marriage, the practice of contraception and abortion. However, these three subcomponents are influenced by economic conditions, social norms, access to education, gender equality, and government policies such as maternal and parental leave and financial incentives. While there are many measures to estimate the fertility level of a country, the Total Fertility Rate (TFR), the average number of children a woman is expected to have based on current age-specific fertility rates, is the most widely used measure. The standard approach to calculating the TFR is to sum Age-Specific Fertility Rates (ASFR) across five-year age groups and multiply by the class width.

In Sri Lanka, the official TFR from 1953 to 2016 has been estimated using the standard method, drawing on data from population censuses, the World Fertility Survey (WFS), and Demographic and Health Surveys (DHS) (Table 1). The most recent available estimate reported in the 2016 DHS indicates a TFR of 2.20 children per woman for the period 2013–2016. However, this figure reflects fertility conditions from approximately a decade ago and may not represent the current demographic situation in the country.

Although the World Fertility Survey and Demographic and Health Surveys (DHS) include a number of questions on fertility, the 2012 population census contains a few questions on fertility, which helps to calculate TFR directly [4]. Nevertheless, previous censuses used two sets of data to calculate TFR on the standard method: female population of reproductive age from the population census and data of births per woman across five-year age groups (age 15-19 to 45-49 years) from the Registrar General's Department. The total fertility rate has shown a continuous decline from 5.3 births per woman in 1953 to 2.3 for the period

Table 1. Total fertility rate (live births per woman) in Sri Lanka, 1953 to 2016

Source	Year/Period	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	1982-1987	2.82
Demographic & Health Survey, 1993	1988-1993	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	2013-2016	2.20

Source: Department of Census and Statistics [1-3].

1988-93, and it further declined to 1.96 was measured in DHS for the period 1995-2000, which was ever below the replacement level. But the next 2006-07 DHS and 2012 Census reported a sudden jump in fertility level and again a drop in the latest 2016 DHS; 2.2 births per woman (Table 1).

Alongside, total live births in Sri Lanka are showing a rapid decline over the past 10 years: Births dropped from 335K in 2015 to 319K by 2019 – the decline was only 4.7%. However, from 2019 to 2023, the decline was 22.3% meaning the decline is more than 71,000 births. With the significant drop in births, net negative international migration and rising deaths suppressed the growth of the Sri Lankan population. The estimated mid-year population in 2022 was 22.181 million, dropping to 22.027 million in 2023 and further dropping to 21.763 million in 2024 [5].

Along with a massive drop in births, one would assume a significant drop in the TFR of Sri Lanka. However, the most recent TFR value is available only from the DHS 2016. Thus, beyond 2016, no reliable measure is available to assess the fertility behaviour of the Sri Lankan population.

Against this backdrop, the paper estimates the TFR of Sri Lanka through 2024 using an alternative estimation method, as proposed by Huang in 2020, with recently available data [6]. We benchmark the estimation error from using the alternative method with South Korean fertility data. The method also allows us to assess annual changes in the natural growth rate (the difference between annual births and deaths) and its impact on population growth in Sri Lanka. Finally, we discuss the macro-level implications of the estimated TFR trend.

Approaches to Calculating TFR

As per the standard definition of the Total Fertility Rate, age-specific fertility data is typically needed to calculate the measure. To estimate age-specific fertility rates, data on the number of live births according to the age of the mother, along with age-sex disaggregated population data for a given period, are required. Due to the unavailability of such data on many occasions, researchers have explored several alternative methods to estimate TFR with available data.

Recently, new approaches for estimating TFR over time from multiple data sources of varying quality have been proposed and applied for seven West African countries [7]. In their article, the United Nations published period TFRs for many years. A regression model is used to estimate TFR on the data quality covariates and subtracted from the observation while estimating the measurement of error variance and assessing the uncertainty of TFR estimates [7].

Two regression models were carried out by ordinary least squares assumptions to estimate TFR for 13 sub-regions of Nepal using Nepal Demographic Health Survey data [8]. In the model one, the relationship between TFR and Contraceptive Prevalence Rate (CPR) was established. Again, a similar type of regression model was established using a relation between TFR and a new predictor variable, which is an additive combination of CPR and the proportion of currently married females having an open birth interval. The model with new predictor gives higher R2 value compare to the first model with only CPR as a predictor which explains data better in Model 2 than Model 1 [8].

An indirect method to estimate TFR on the basis of the movements of age distribution of women in reproductive age was proposed by Singh and others in India in 2021 using the fourth round of the National Family Health Survey conducted during 2015-16. The model conceptualizes the relationship between TFR

and the age distribution of currently married women of reproductive age, and it provides a fairly reliable estimate of TFR [9].

More recently, Huang introduced a new method in 2020 to estimate TFR using the number of births and the population of women at childbearing age. The relative difference in TFR estimates between standard method and the proposed method was found to be less than 5 percent. The approach further showed that the TFR is proportional to the crude birth rate and proposed a method to estimate the scaling coefficient to calculate the TFR from the crude birth rate. Our paper applies Huang's method to Sri Lankan data to estimate the TFR for Sri Lanka [6].

Data and Methods

The Standard and Alternative Approaches to Deriving TFR

TFR is derived by cumulating the age-specific fertility rates (per woman) of women in age 15-19 to 45-49 years. When rates are calculated for the seven conventional 5-year age groups, the TFR is the sum of the rates for each age group, multiplied by five (the width of the age-group interval) [10].

$TFR = n * \sum nFx$ where:

${}_nW_x$ = Mid-year number of women aged x to x + n

${}_nB_x$ = Number of births to women aged x to x + n during the year

${}_nF_x = {}_nBx / {}_nW_x$ = Age-specific fertility rate for age interval x to x +n

This approach is referred to as the "standard" method for calculating TFR [11].

In 2020, Huang proposed an alternative method to calculate TFR. His computation argues if the women of childbearing age range in age from 15 to 49 years, for a total of 35 years, then the standard method for calculating TFR can be reduced to [6]:

$TFR = 35 * {}_{35}F_x = 35 * B/W$

Where B is the total number of births in the year, and W is the total number of women at childbearing age (15-49 years) in the same year. The data requirement for calculating the total fertility rate reduces to the number of births and the number of women at childbearing age for each year. We refer to this approach as the "total birth number" method and apply it to our estimation of TFR for Sri Lanka.

Data

Three main data sources are used for our estimation. Data from the Department of Census and Statistics of Sri Lanka, Registrar General's Department of Sri Lanka, and Department of Immigration and Emigration of Sri Lanka were used to obtain estimated mid-year population, the estimated female population in 5-year age groups, the estimated total female population between the ages of 15-49, the number of live births by age of the mother in 5-year age groups, and migration flows. Published TFR values were taken from past Demographic Health Surveys and Population Census reports.

As an initial exercise to validate the total birth number method, the TFRs for South Korea are calculated and compared with reported TFRs, which were calculated using the standard method. KOSIS (Korean Statistical Information Service), the national statistical database, is used to fetch relevant data for South Korea [12].

The same exercise will then be conducted to calculate Sri Lankan TFRs and to compare these estimates with reported TFRs in particular years. Specifically, TFR estimates will also be calculated for the 2019-2024

period based on the alternative method using available provisional data.

Results

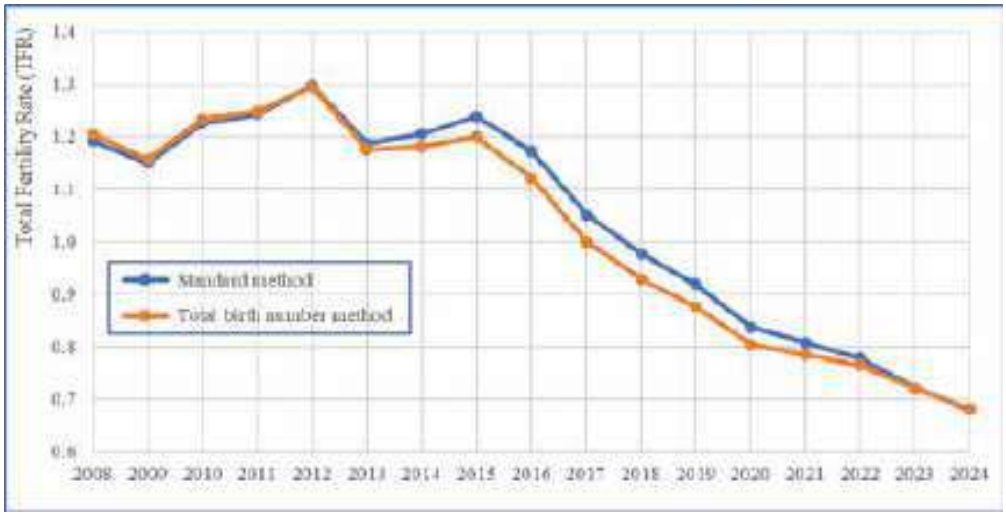
Calculated TFRs for South Korea on the total birth number method, TFRs on the standard method and percentage deviation are given in Table 2.

TFRs on the total birth method were calculated using the above equation, and figures on the standard method are published data (Table 2). Five TFR values on the total birth method are higher than the standard method (years 2008-11 and 2024). The rest of the values for the total birth method are lower than the standard method. The absolute difference between the two fertility rates (TFR on the standard method and total birth method) is minimal, all less than 0.05. The relative difference (percentage deviation) ranges from -1.09% to 4.93% with a mean of 1.81% and a standard deviation of 2.18.

Table 2. South Korean TFRs on standard and total birth methods 2008-24

Year	Number of live births	Number of women (15-49)	Total Fertility Rate		Deviation (%)
			Standard method	Total birth method	
2008	465,892	13,531,767	1.192	1.205	-1.09%
2009	444,849	13,460,877	1.149	1.157	-0.67%
2010	470,171	13,346,797	1.226	1.233	-0.57%
2011	471,265	13,215,175	1.244	1.248	-0.33%
2012	484,550	13,095,781	1.297	1.295	0.15%
2013	436,455	13,001,757	1.187	1.175	1.02%
2014	435,4351	12,909,337	1.205	1.181	2.03%
2015	438,420	12,796,169	1.239	1.199	3.22%
2016	406,243	12,677,816	1.172	1.122	4.31%
2017	357,771	12,520,068	1.052	1.000	4.93%
2018	326,822	12,311,964	0.977	0.929	4.91%
2019	302,676	12,088,187	0.918	0.876	4.54%
2020	272,337	11,857,169	0.837	0.804	3.96%
2021	260,562	11,620,204	0.808	0.785	2.87%
2022	249,186	11,403,123	0.778	0.765	1.69%
2023	230,028	11,198,424	0.721	0.719	0.29%
2024	218,000	11,186,913	0.680	0.682	-0.30%

Source: KOSIS KOrean Statistical Information Service [12].



Source: KOSIS KOrean Statistical Information Service [12].

Figure 1. South Korean TFRs on standard and total birth methods 2008-24.

Trends of TFRs on the standard and total birth number method follow a similar pattern with an overall downward trend from 2008-24 (Figure 1). In the beginning 6 years (2008-13), both the figures are almost the same, and subsequently, it shows an increase in TFR figures on the standard method compared to the birth number method from 2014 to 2022, widening the difference. Again, in the last 2 years (2023-24), both the figures are coincident.

TFR estimates of Sri Lanka up to 2024

Calculated TFRs for Sri Lanka using the total birth method are presented in Table 3 along with the number of live births, the 15-49 aged women population, TFRs on standard method and the percentage deviation from standard to total birth method for the period 1971-2024. Provisional data of number of live births for 2016-2018 was taken from the Registrar General's Department (RGD).

The absolute difference between the TFRs calculated under the two different methods is less than 0.47 for all 23 years, less than 0.09 for 1 years, 0.10 for 3 years, and between 0.11-.21 for 6 years. The percentage deviation ranges from -20.35% to 8.70% with the mean of -4.54% and standard deviation 6.49. There are seven data points with a percentage deviation of above 5% absolute value in 1981, 2001, and 2011 Census years and years 1987, 1993, 2000, and 2016 refer DHS. Graphical presentation of TFRs on 2 methods and the replacement level is shown in the Figure 2.

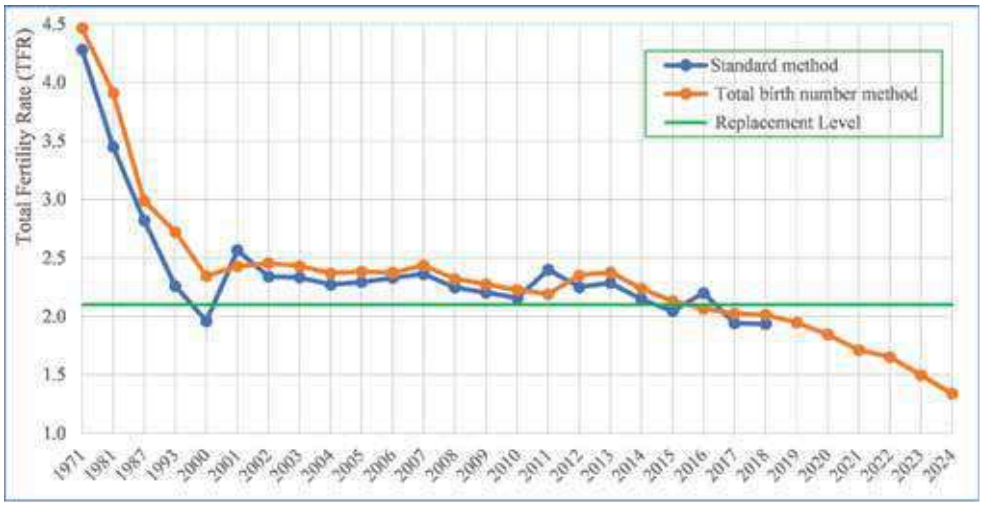
Table 3. Sri Lankan TFRs on standard and total birth methods 1971-2024

Year	Number of live births	Number of women (15-49)	Total Fertility Rate		Deviation (%)
			Standard method	Total birth method	
1971	385,678	3,023,155	4.280	4.465	-4.33%
1981	423,684	3,792,251	3.450	3.910	-13.34%
1987	357,628	4,191,000	2.820	2.987	-5.91%
1993	350,572	4,511,000	2.260	2.720	-20.35%
2000	347,622	5,187,000	1.960	2.346	-19.67%
2001	358,463	5,168,600	2.565	2.427	5.36%
2002	367,534	5,238,000	2.341*	2.456	-4.91%
2003	370,482	5,334,000	2.334*	2.431	-4.16%
2004	364,587	5,386,000	2.273*	2.369	-4.23%
2005	370,630	5,442,000	2.293*	2.384	-3.96%
2006	373,425	5,504,000	2.330	2.375	-1.91%
2007	386,466	5,551,000	2.362*	2.437	-3.16%
2008	373,501	5,629,000	2.248*	2.322	-3.31%
2009	368,172	5,666,000	2.204*	2.274	-3.19%
2010	363,815	5,722,000	2.157*	2.225	-3.17%
2011	361,935	5,781,000	2.400	2.191	8.70%
2012	359,787	5,355,092	2.251*	2.352	-4.47%
2013	365,668	5,382,000	2.287*	2.378	-3.98%
2014	349,685	5,465,000	2.147*	2.240	-4.31%
2015	336,059	5,516,000	2.045*	2.132	-4.27%
2016	329,465	5,579,000	2.200	2.067	6.05%
2017	326,263	5,643,000	1.942*	2.024	-4.20%
2018	328,156	5,701,000	1.936*	2.015	-4.06%
2019	319,010	5,736,000	NA	1.947	-
2020	301,706	5,722,000	NA	1.845	-
2021	284,848	5,829,000	NA	1.710	-
2022	275,321	5,835,000	NA	1.651	-
2023	247,900	5,797,000	NA	1.497	-
2024	220,761	5,766,000	NA	1.340	-

NA: Not Available (Data on live births by mother's age is not available).

* Calculated based on ASFRs (Births per mother's age from RGD and estimated women's population in reproductive age (15-49) in 7 age groups by DCS).

Source: [1]Registrar General's Department of Sri Lanka [13-14] and Department of Census and Statistics, [15-16].
[2]Department of Census and Statistics [15, 17, 18, 19-29, 2] and Registrar General's Department of Sri Lanka [30].
[3]Department of Census and Statistics [15, 17, 31, 32-34, 1-3].



Source: Registrar General's Department of Sri Lanka [13, 30, 14].
Department of Census and Statistics, [15, 17, 31, 18, 32-34, 1-3].

Figure 2. Sri Lankan TFRs on standard and total birth methods 1971-2024.

Patterns of 2-line graphs seem to follow the same trend with a few deviation points. TFRs on the standard method crossing replacement level on two occasions in 2000 and 2015, where the total birth method crosses the replacement level in 2016 and has not reached it since. The standard TFR dropped sharply to 1.96 (below the replacement level) in 2000 and picked up to a comparable high value of 2.565 in 2001, disrupting its overall trend. Again, standard TFR values in 2011 and 2016 highlight 2 peaks compared to the total birth method. However, beyond the year 2000, TFR figures of both methods demonstrate a significant compatibility.

Although during the past 10 years, TFR values are not available for Sri Lanka, that gap has been filled by the total birth method. This alternative method is able to estimate the current TFR for Sri Lanka as 1.497 births per woman in the year 2023, and it further dropped to 1.340 births per woman in 2024. The TFR crossed the replacement level in 2016 (2.067 births per woman), and further followed a downward trend.

Change of the Sri Lankan population: impact of demographic components

The mid-year population from 2000-2024, total births and deaths for each year, and net migration of Sri Lankans are presented in Table 4 below. Mid-year population for 2001 is an extrapolated figure as the 2001 census covered only 18 of the total 24 districts of the country. Mid-year population for 2012 and 2024 are observed values, while estimated mid-year populations are presented for other years. Birth, death, and net migration rates are calculated per 1,000 persons, while the natural increase in population is calculated as the difference between the birth rate and death rate. Since data on arrivals and departures for 2024 is available only for the first 6 months, total arrivals and departures for 2024 are estimated based on the bi-annual pattern of the years 2022 and 23.

Table 4. Sri Lankan population, key demographic rates and natural increase 2000-24

Year	Mid-year population[1]	Total births[2]	Total deaths[3]	Net migration[4]	Birth rate	Death rate	Natural increase	Net migration
2000	18,776,300	347,749	116,200	-9,764	18.5	6.2	12.3	-0.52
2001	18,797,257	358,583	112,858	-17,985	19.1	6.0	13.1	-0.96
2002	19,007,000	367,709	111,863	-39,618	19.3	5.9	13.5	-2.08
2003	19,252,000	370,643	115,495	-30,524	19.3	6.0	13.3	-1.59
2004	19,462,000	364,711	114,915	-33,258	18.7	5.9	12.8	-1.71
2005	19,668,000	370,731	132,097	-44,132	18.8	6.7	12.1	-2.24
2006	19,886,000	373,538	117,467	-22,314	18.8	5.9	12.9	-1.12
2007	20,010,000	386,573	118,992	-44,487	19.3	5.9	13.4	-2.22
2008	20,246,000	373,575	123,814	-65,522	18.5	6.1	12.3	-3.24
2009	20,476,000	368,304	127,776	-48,202	18.0	6.2	11.7	-2.35
2010	20,675,000	363,881	130,337	-40,795	17.6	6.3	11.3	-1.97
2011	20,892,000	362,044	123,183	-28,339	17.3	5.9	11.4	-1.36
2012	20,359,439	359,959	122,741	-57,878	17.7	6.0	11.7	-2.84
2013	20,585,000	365,762	127,183	-60,923	17.8	6.2	11.6	-2.96
2014	20,778,000	349,744	128,185	-47,579	16.8	6.2	10.7	-2.29
2015	20,970,000	336,097	132,011	5,657	16.0	6.3	9.7	0.27
2016	21,209,000	331,073	130,765	37,218	15.6	6.2	9.4	1.75
2017	21,453,000	326,052	139,822	41,796	15.2	6.5	8.7	1.95
2018	21,670,000	328,112	139,498	13,768	15.1	6.4	8.7	0.64
2019	21,803,000	319,010	146,053	142,411	14.6	6.7	7.9	6.53
2020	21,919,000	301,706	132,431	15,905	13.8	6.0	7.7	0.73
2021	22,156,000	284,848	163,936	35,501	12.9	7.4	5.5	1.60
2022	22,181,000	275,321	179,792	-232,758	12.4	8.1	4.3	-10.49
2023	22,037,000	247,900	181,239	-213,109	11.2	8.2	3.0	-9.67
2024	21,763,170	220,761	171,194	-222,655	10.1	8.1	2.0	-10.23

Source: [1]Department of Census and Statistics [19-29, 16, 35, 5].
[2,3]Department of Census and Statistics [16].
[4]Department of Immigration & Emigration [36-45] and Sri Lanka Tourism Development Authority [46].

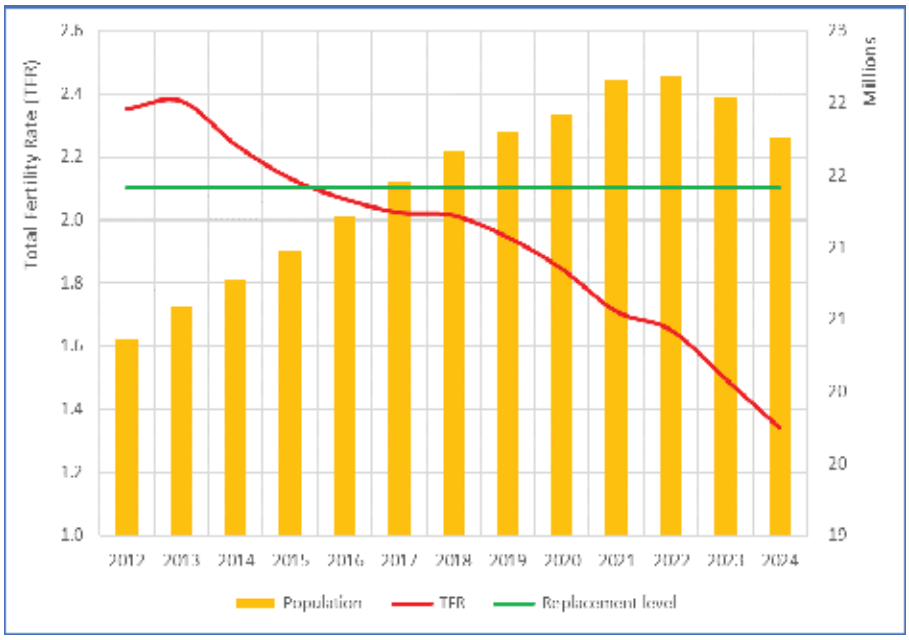
The birth rate has reduced over the period of 24 years from 18.5 per 1,000 persons in 2000 to 10.1 in 2024, which is almost a drop by half. A gradual declining birth rate is disturbed by two sudden peaks in 2007 (19.3 per 1,000 persons) and 2013 (17.8 per 1,000 persons). Comparatively, the death rate has a stable pattern with an average of 6.2 per 1,000 persons over the period of 20 years from 2000-20. It has shown 2 slight peaks in 2005 and 2019 (6.7 per 1,000 persons each). The death rate began increasing from 2021 onwards, largely due to COVID-19-related deaths, reaching 8.1 per 1,000 persons in 2024. Due to the behaviour of birth and death rates, the natural increase is showing a decline from 12.3 per 1,000 persons in 2000 to 7.9 in 2019, and it further declines sharply from 2020 to 2024. The ever-recorded lowest natural increase of 2.0 per 1,000 persons in Sri Lanka was recorded in 2024.

Negative net migration rate is reported from 2000 to 2014, with an average of -1.96 per 1,000 persons and it is not widely spread. It started taking positive values from 2015 (0.27 per 1,000 persons) till 2021 (1.60 per 1,000 persons) with an uneven distribution. Net migration rate has drastically declined to -10.49 per 1,000 persons due to the ever-highest number of negative net migration and then the subsequent figures for 2023-24 are also not much deviated. The latest pattern of international migration indicates massive outbound migration from Sri Lanka than inbound migration. Consequent to the massive decline in natural increase and large net negative international migration contributed to the decline of Sri Lanka population since 2022. Mid-year population follows an increasing trend reaching the highest population in 2022 (22.18 million) and starts declining for the next 2 years with a negative growth rate.

The mid-year population of Sri Lanka and the estimated TFRs using the total birth method for the 2012-24 period are graphically presented in Figure 4. TFR has shown a declining trend from 2013 (2.38 births per woman) and reached below replacement level in 2016 (2.07 births per woman). It has never picked up again and maintains a further declining trend till 2024 (1.34 births per woman). The Sri Lankan population starts negative growth from 2023, while the highest population is recorded in 2022.

Source: Department of Census and Statistics [19-29, 16, 35, 5].
Department of Immigration & Emigration [36-45] and Sri Lanka Tourism Development Authority [46].

Figure 3. Population, birth, death, natural increase and net migration rates 2012-24.



Source: Department of Census and Statistics [19-29, 16, 35, 5] and Table 3 above.

Figure 4. Mid-year population and estimated TFRs for Sri Lanka 2012-24

Discussion

The method used to calculate the Total Fertility Rate requires only the number of births and the total number of women in childbearing age. The equation for calculating TFR is deterministic, and it is not necessary to determine any empirical parameters. Method validation exhibits less than 5% of the relative error for all the points with South Korean data, while Huang (2020) has found the same relative error in most cases for data from China and the United States [6]. Though the DHS survey of 2000 has measured (reported) Sri Lankan TFR of 1.9 live births per woman, which is below the replacement level, fertility followed an upward trend, showing 2.33 live births per woman in DHS 2006. This method calculated TFR for 2006 as 2.375 per woman only with a -1.91% deviation. Calculated TFRs on the standard method using available data (number of live births per mother's age and estimated women population in 7 age groups from 15-49) after 2005, 2011 Census and 2016 DHS closely coincide with TFRs estimated by the total birth number method. Reaching replacement level occurred in consecutive years 2015 and 2016 for the standard and total birth number method. Our estimation proves that Sri Lankan fertility is demonstrating a rapid decline after reaching below replacement level in 2016.

GBD 2021 Fertility and Forecasting collaborators assess current and future fertility for 204 countries and territories, and they estimate TFR for Sri Lanka in 2021 is 1.85 (1.64-2.08) births per woman [47]. Our estimation of 1.71 births per woman is close and within their confidence interval. Sri Lanka's current Total Fertility Rate (TFR) of 1.3 places the country on the verge of entering the ultra-low fertility regime. This threshold – defined

as a TFR below 1.3 births per woman – has been highlighted by Gavin W. Jones in 2019 as markedly lower than the replacement level of 2.1 [48]. Given the prevailing demographic and socioeconomic trends, it is likely that Sri Lanka's fertility rate will decline even further in the near future.

Sri Lanka has demonstrated below replacement level fertility since 2016 with steadily declining TFR values. Important macro-level effects due to below replacement level fertility are increasing the older age population and declining population size [49]. The Sri Lankan population has experienced a rapid increase in the ageing population (60+ population) and the proportion of the aged population to the total population. During the past six-and-a-half decades, the Sri Lankan population has grown 3 times, while the 60+ population has grown 7 times from 1946 to 2012. Eventually, the percentage contribution of the 60+ population to the total population has increased from 5.4 to 12.4 per cent [50-51]. The proportion of 12.4 per cent is the highest among South Asian countries, where all other countries demonstrate below 9 per cent, and Afghanistan has the lowest of 3.8 per cent. Undoubtedly, the 60+ population will show a rapid increase in Sri Lanka, with estimates of almost one fourth (24.7 per cent) of the total population in 2042, while Afghanistan is expected to remain at 5.5 per cent [52].

Sri Lanka will inevitably have to face the challenge of providing proper health systems, including caring for elderly people. Subsequently, their social, economic, health and psychological requirements needed to be addressed. Due to higher life expectancy for females than males, the sex ratio for the population aged over 80 will be female-biased, resulting in more widowed women in older age groups. This will create resource allocation challenges, as a large sum of money will need to be dedicated to social security, particularly pensions and elderly support activities.

With the changing of the age structure, the shrinking of the labour force would be another consequence. Labour force participation rate of the Sri Lankan population of age 15+ has dropped by 6.1 per cent from 2016 (53.8 per cent) to 2024 (47.7 per cent), which indicates a gradual decline in the future [53]. A shrinking labour force will result in slower economic growth, as a smaller labour force can reduce productivity. With decreasing live births and increasing elderly population, significant changes could be expected in dependency ratios, especially Child dependency (<15 years) and Old age dependency (60+ years). Child dependency has decreased from 71.3 to 40.4 from 1971 to 2012, while old-age dependency has increased from 11.6 to 19.8 for the same period [54].

Another important area which will be impacted following the rapid decline of fertility is school education in Sri Lanka. According to the Annual School Census 2023 for Sri Lanka, 10,096 government schools are functioning. Of 10,096 schools, 9,106 are eligible for Grade 1 admission. 3,144 schools have fewer than 100 students [55]. Assuming there is no Grade 1 admission to the private schools, 220,761 students (live births) in 2024 will be eligible for Grade 1 admission in 2029, need 6,307 classrooms (35 students per class), which is less than the number of schools. Operating schools with fewer students and smaller class sizes will lead to imbalances in the student-teacher ratio and result in inefficient use of government resources.

Conclusion

The method employed in this paper to estimate the Total Fertility Rate (TFR) is simple yet effective, requiring only two key data inputs: the number of registered live births and the estimated number of women of reproductive age. In Sri Lanka, vital statistics are collected through a well-established civil registration

system, which maintains a high-coverage, regularly updated birth registry. As population censuses are conducted every ten years, mid-year population estimates are used to approximate the number of women aged 15–49. Estimating TFR for the period 2016–2024 is particularly critical from an SRH perspective, as it provides essential insights into recent fertility dynamics, including the potential effects of the COVID-19 pandemic and the ongoing economic crisis on reproductive behaviour, access to family planning, and maternal health services.

Using the alternative estimation method, Sri Lanka's Total Fertility Rate (TFR) has been found to have declined to an ultra-low level of 1.34 live births per woman by 2024. This unanticipated drop in fertility, combined with sustained high levels of outbound migration, is expected to accelerate the decline of both the total population and the labour force in the coming years. From an SRH perspective, such a sharp fertility decline raises serious concerns about heavy utilization of induced abortion, changing fertility intentions, and the broader socio-demographic context influencing reproductive decision-making. Policymakers must urgently recognize the implications of ultra-low fertility and take proactive steps to design and implement evidence-based policies aimed at stabilising fertility levels. Failure to act could lead to a rapid intensification of population ageing, placing increased strain on health systems, social protection, and intergenerational support mechanisms.

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Conflicts of Interest

Authors declare that there are no conflicts of interest.

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Menstrual Hygiene Practices Among School Students in a District of the Northern Province, Sri Lanka: A Cross-Sectional Study

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Original Article

Abstract

Introduction: Menstrual hygiene (MH) is vital for the health, dignity, and academic performance of adolescent girls, particularly in resource-constrained regions. Sociocultural, economic, and infrastructural factors shape MH practices. This study examines MH practices among students aged 16 in District of Northern Province, Sri Lanka, exploring the influence of sociodemographic factors, school facilities, and related challenges. To investigate menstrual hygiene practices and their association with sociodemographic characteristics among students aged 16 in District of Northern Province, Sri Lanka.

Methods: A descriptive cross-sectional study was conducted over 4-5 months in 2024, targeting students aged 16 across 82 schools in district of northern province. Using stratified random sampling, 385 students were selected. Data were gathered via a structured questionnaire assessing MH practices and an observation checklist evaluating school sanitation facilities. Descriptive statistics and chi-square tests were employed for analysis.

Results: The sample was predominantly Hindu 75.1% (n=289), with mothers often more educated than fathers, positively influencing menstrual hygiene (MH) management. Most families 73.5% (n=283) earned below 25,000 LKR monthly, limiting access to sanitary products. While 92.2% (n=355) had home toilet access, only 76.5% (n=13) of schools had adequate girls' toilets, and 47.1% (n=8) provided proper sanitary disposal. Comfort discussing menstruation was moderate, with 70.9% (n=273) somewhat comfortable and 24.4% (n=94) very comfortable. Sanitary pads were universally preferred, with 100% using them during school hours, indicating a positive MH shift.

Discussion: Significant deficiencies in school MH infrastructure, including private toilets, disposal systems, and water access, were identified. Educational initiatives to reduce menstrual stigma and promote open dialogue are critical. Comprehensive interventions, including infrastructure upgrades and awareness programs, are essential to improve MH practices and support students' health and education.

Key Words: Menstrual Hygiene, Adolescent Girls, School Sanitation Facilities, Sociodemographic Factors, Northern Province

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Introduction

Menstrual hygiene is a vital component of adolescent health, profoundly impacting physical health, educational attainment, and gender equity worldwide. Menstruation, a natural biological process signaling the onset of womanhood, involves a sophisticated hormonal cascade orchestrated by the hypothalamus, pituitary gland, ovaries, and uterus, Recent studies indicate that the median age at menarche in urban Sri Lankan girls is now approximately 13-13.5 years, with girls in better socio economic and nutritional environments experiencing it even earlier (~11.8 years). These figures suggest a downward secular trend compared to earlier decades [1]. Menstruation is a natural biological process marking reproductive maturity in adolescent girls. Its management is influenced by a range of socio-cultural, economic, and infrastructural factors, which are critical to adolescent health, education, and overall well-being [1,2].

Globally, menstruation is often steeped in cultural taboos, myths, and stigma, fostering shame and misunderstanding. These societal attitudes shape menstrual hygiene practices, which remain an under addressed public health concern [3,4]. Challenges in menstrual management vary significantly due to socio-economic disparities, cultural norms, and inadequate infrastructure. In low- and middle-income countries, limited access to hygienic menstrual products, clean water, and sanitation facilities hinders effective menstrual hygiene, increasing risks of urinary tract infections (UTIs), reproductive tract infections (RTIs), and other gynecological issues [1,5,6]. Such health challenges can impair long-term reproductive health, potentially contributing to infertility [3,7].

Menstrual hygiene also intersects with education and gender equality (6,8). The absence of adequate sanitation facilities, coupled with stigma and lack of affordable menstrual products, leads to school absenteeism among girls, with United Nations Educational, Scientific and Cultural Organization (UNESCO) estimating that one in ten girls in Africa misses' school during menstruation [2,9]. This disrupts academic progress, increases dropout rates, and perpetuates gender disparities [10]. Economically, the cost of menstrual products strains household budgets in impoverished communities, forcing many to resort to unsafe alternatives like rags or leaves. Infrastructure gaps, such as the lack of private toilets and waste disposal systems, further complicate hygienic menstrual management [3,11,12].

Global initiatives, including those by United Nations International Children's Emergency Fund (UNICEF), World Health Organization (WHO), and Non-Government Organizations (NGOs), advocate for improved menstrual health through education, product access, and policy reform. Events like Menstrual Hygiene Day (May 28) aim to destigmatize menstruation and foster inclusive dialogue [13]. Innovations such as menstrual cups and reusable pads, alongside digital platforms for education, are transforming menstrual hygiene management, offering sustainable and accessible solutions [9,14,15].

In Sri Lanka, menstruation is deeply entwined with cultural traditions, shaping perceptions and practices. Often viewed as a taboo, menstruation lacks open discussion, perpetuating misconceptions and inadequate hygiene practices. Socio-economic barriers exacerbate these issues, particularly for low-income families who struggle to afford sanitary products, resorting to unhygienic alternatives [2,13-17]. Educational institutions frequently lack proper sanitation facilities and menstrual health education, hindering effective management [18].

Efforts by NGOs, international agencies, and local groups aim to address these challenges through education, product distribution, and advocacy. Despite progress, rural and marginalized communities often remain underserved [7,19]. Cultural beliefs imposing restrictions on menstruating girls, such as limiting social or educational participation, further entrench gender inequality [17,20,21]. Recent advancements, including affordable reusable products and digital education platforms, are fostering greater awareness and accessibility, yet sustained efforts are needed to ensure all girls manage menstruation with dignity [5,22].

Sri Lanka's Northern Province, scarred by decades of civil conflict, faces unique challenges in menstrual hygiene management. The war disrupted healthcare and education infrastructure, particularly in areas like district of Northern Province, Sri Lanka, leaving schools without adequate sanitation or clean water [12, 23, 24]. Cultural stigmas surrounding menstruation limit open dialogue, contributing to poor hygiene practices and health risks [25]. Poverty and economic instability restrict access to menstrual products, while limited healthcare services hinder menstrual health education and support [3,26].

The lack of proper facilities leads to school absenteeism among girls, undermining educational outcomes. NGO and government initiatives strive to improve conditions, but funding and logistical barriers persist [27]. Rebuilding infrastructure, enhancing menstrual health education, and challenging are critical to improving menstrual hygiene in the Northern Province.

The study district, at the heart of the Northern Province, grapples with the legacy of conflict, poverty, and inadequate infrastructure. Schools often lack separate, well-maintained toilets and clean water, making menstrual management challenging for adolescent students. Cultural stigma and methods, limited education foster poor hygiene practices, compounded by psychological stress from post-conflict trauma [13,18,28,29]. Many girls rely on unhygienic absorbents due to financial constraints, facing social isolation and emotional distress during menstruation.

This study explores the menstrual hygiene practices, challenges, and support systems among aged 16 years girls in a district of the Northern Province, Sri Lanka, aiming to inform policies that uphold their dignity and well-being. By addressing infrastructural, cultural, and educational barriers, it seeks to empower girls to navigate menstruation confidently in a post-conflict context [18,30].

Menstrual hygiene practices depend on the choice of absorbents, influenced by cost, availability, and cultural preferences. Reusable cloth pads are common in rural areas for their affordability and sustainability, requiring proper washing and drying [31]. Commercial sanitary pads dominate urban settings for convenience but are costlier and less eco-friendly [32]. Menstrual cups and reusable tampons offer sustainable alternatives, though awareness and initial costs limit adoption. Innovative products like bamboo, banana fiber, and water hyacinth pads provide eco-friendly options, while disposable products contribute to environmental waste [26,33]. Promoting access to sustainable absorbents is key to improving hygiene and reducing environmental impact [34].

Menstrual hygiene is a critical public health issue with far-reaching implications for adolescent girls' health, education, and empowerment, particularly in district of Northern Province, Sri Lanka, a region marked by post-conflict challenges. Poor hygiene practices increase risks of infections like UTIs and RTIs), which can lead to subfertility

and long-term health issues [18, 35, 36]. Absenteeism due to inadequate facilities and stigma hinders academic progress and perpetuates gender inequality. This study addresses gaps in understanding menstrual hygiene practices among at the age of 16 years, offering evidence to guide targeted interventions, improve access to products, and foster gender equity.

Menstrual hygiene involves using clean menstrual products (e.g. pads, tampons, cups), maintaining personal hygiene through regular changes and washing, and ensuring hygienic disposal of menstrual waste. Access to clean water, sanitation facilities, and private spaces is essential to manage menstruation with dignity, minimizing health risks and environmental impact [37-40].

This cross-sectional study investigated menstrual hygiene practices among students who are at the age of 16 years in a district of the Northern Province, Sri Lanka, with a focus on their relationship to sociodemographic characteristics. Recognizing that menstrual hygiene is a vital component of adolescent health and education, the study aimed to describe existing practices, identify challenges and barriers in menstrual hygiene management, and evaluate how factors such as age, parental education, family income, and access to basic sanitation facilities influenced these practices.

Materials and Methods

A descriptive cross-sectional study was conducted over a five-month period in 2024 to assess menstrual hygiene practices among 16-year-old students in a district of the Northern Province, Sri Lanka. The study population included students who had attained menarche at least six months prior, were regularly attending school, and provided informed assent and parental consent. Students who did not meet these criteria, or who were absent, ill, or unwilling to participate, were excluded.

This district of the Northern Province in Sri Lanka comprises 82 secondary schools distributed across four administrative divisions. Schools were stratified by division and type (National, Type 1AB, Type 1C), and 17 schools were selected as multistage cluster samples to ensure representativeness across geographical and socio-economic strata. Within each selected school, eligible students were systematically sampled from class registers. The required sample size was calculated using a single population proportion formula for simple random sampling [2,5,42]:

$$n = \frac{Z^2 \cdot p(1-p)}{E^2}$$

The required sample size was determined using the single population proportion formula, assuming a 95% confidence level (Z=1.96), a proportion (p) of 0.5 to ensure maximum variability, and a 5% margin of error (E=0.05), resulting in 385 participants. Here, the *confidence level* refers to the probability that the estimated range contains the true population value, the *margin of error* indicates the range of uncertainty, and the *proportion* represents the estimated prevalence of the characteristic being studied. Although cluster sampling was employed, a design effect was not applied due to logistical constraints.

Two instruments were used: a self-administered questionnaire comprising 10 items assessing menstrual hygiene knowledge and practices, and a 24-item observation checklist evaluating school-based menstrual hygiene facilities. A pilot test with 15 students from three schools yielded Cronbach's alpha values of 0.805 for the questionnaire and 0.927 for the checklist, indicating strong internal consistency.

Data collection was conducted by trained Development Officers from the Zonal Education Department, experienced in adolescent counselling. Data collection was facilitated by trained Development Officers from the Zonal Education Department who possess experience in adolescent counselling and health-related school programmes.

Although monetary compensation was not provided, their involvement was secured through official approval from the Zonal Education Director, recognizing the public health importance of the study. These officers were willing to participate voluntarily as part of their broader commitment to student welfare and community-based educational initiatives. Their familiarity with the school environment and ability to build rapport with adolescents ensured ethical, respectful, and effective data collection, especially given the sensitive nature of menstrual hygiene topics. Questionnaires were completed in classroom settings, with officers available for clarification. Facility observations were conducted concurrently using the checklist. Ethical clearance was obtained from the Ethics Review Committee, Faculty of Medicine, University of Kelaniya (Ref: P/03/01/2024). Participation was voluntary, with confidentiality assured.

Data was entered into Microsoft Excel, cleaned, and analyzed using IBM SPSS Statistics version 26. Descriptive statistics (frequencies, means, standard deviations) summarized participant responses. Associations between categorical variables were examined using Chi-square tests, with statistical significance set at $p<0.05$.

Results

This chapter presents the findings of a descriptive cross-sectional study conducted in 2024 to assess menstrual hygiene practices among 385 students aged 16 years, selected through a multistage cluster sampling technique from 17 of the 82 government schools in a district of the Northern Province, Sri Lanka. w

Socio-Demographic Characteristics

Table 1. Socio-Demographic Characteristics of Students

Variable	Category	Frequency (n)	Percentage (%)
Religion	Hindu	289	75.1
	Christian	93	24.2
	Muslim	3	0.8
Father's Education Level	Primary education	154w	40.0
	Ordinary Level (O/L)	172	44.7
	Advanced Level (A/L)	38	9.9
	University degree	3	0.8
Mother's Education Level	Primary education	109	28.3
	Ordinary Level (O/L)	182	47.3
	Advanced Level (A/L)	73	19.0
	University degree	12	3.1
Monthly Family Income (LKR)	< 25,000	283	73.5
	25,000-50,000	81	21.0
	> 200,000	6	1.6
	Other / Not specified	15	3.9

As described in Table 1, the sample is predominantly Hindu 75.1% (n=289), followed by Christian 24.2% (n=93) and Muslim 0.8% (n=3). Hindu cultural norms likely shape menstrual hygiene practices, influencing attitudes and taboos. Most fathers, 44.7% (n=172) and mothers, 47.3% (n=182), have Ordinary Level education, with 40.0% (n=154) of fathers and 28.3% (n=109) of mothers having primary education.

Mothers show higher attainment, with 19.0% (n=73) at Advanced Level and 3.1% (n=12) with university degrees, compared to 9.9% (n=38) and 0.8% (n=3) for fathers. Maternal education may enhance health literacy, benefiting daughters' hygiene practices.

A majority, 73.5% (n=283) of families earn less than 25,000 LKR monthly, reflecting economic hardship. Only 21.0% (n=81) earn 25,000-50,000 LKR, with minimal representation in higher brackets (1.6% >200,000 LKR).

Low income restricts access to menstrual products, potentially leading to less hygienic alternatives and impacting attendance. Continuing from the previous description, the dataset highlights a group of young individuals, predominantly adolescents, with an average age of 15.3 years Standard Deviation (SD)= 0.684).

The mean age at menarche, 12.97 years (SD=1.271), reflects a typical range for the onset of menstruation, though with some variation. The average duration of menstrual periods is 5.38 days (SD=1.273), indicating moderate consistency in cycle length.

Family composition shows an average of 1.14 sisters (SD=0.992) and 1.2 brothers (SD=0.956), suggesting slightly larger numbers of male siblings in relatively small families. These metrics provide a concise snapshot of the demographic and physiological characteristics of the group studied.

Table 2. Overview of basic factors related to students' menses

Variable	Response Category	Frequency (n)	Percentage (%)
Covered toilet facility at home	Yes	355	92.2
	No	30	7.8
Menarche attained	Yes	383	99.5
	No	2	0.5
Length of menstrual cycle	< 28 days	252	65.5
	28-32 days	129	33.5
	> 32 days	4	1.0
Comfort discussing menstrual hygiene	Somewhat comfortable	273	70.9
	Very comfortable	94	24.4
	Not comfortable	18	4.7
Mean age of participants	-	15.3 years	(SD=0.684)
Mean age at menarche	-	12.97 years	(SD=1.271)
Average menstrual duration	-	5.38 days	(SD=1.273)
Average number of sisters	-	1.14	

The dataset reveals that 92.2% (n=355) of students have covered toilets at home, aiding hygienic menstrual management, while 7.8% (n=30) without such facilities face privacy and infection risks. Nearly all 99.5% (n=383) have attained menarche, highlighting the need for menstrual hygiene support, with only 0.5% (n=2) yet to reach it.

Menstrual cycles vary, with 65.5% (n=252) shorter than 28 days, 33.5% (n=129) between 28-32 days, and 1.0% (n=4) longer than 32 days, indicating diverse product needs. Comfort discussing menstrual hygiene is moderate, with 70.9% (n=273) somewhat comfortable, 24.4% (n=94) very comfortable, and 4.7% (n=18) not comfortable, suggesting persistent stigma and a need for fostering open conversations.

Menstrual Absorbents and Practices

Table 3. Menstrual Absorbents and Practices

Variable	Response	Frequency (n)	Percentage (%)
Type of absorbent used in schools	Sanitary pads	385	100.0
	Cloth	0	0.0
Frequency of changing absorbents	Every few hours	135	35.1
	Once daily	44	11.4
	Less than daily	114	29.6
	Not sure	92	23.9
If cloth were used: drying method	Dried indoors	58	15.1
	Dried outdoors	327	84.9
If cloth were used: storage method	Not stored cleanly	221	57.4
	Stored cleanly	164	42.6
Disposal method of used sanitary materials	Thrown into the trash	129	33.5
	Burned	129	33.5
	Flushed down the toilet	69	17.9
	Buried	22	5.7
	Other (e.g., river, pit, etc.)	36	9.4

According to Table 3, all students 100% (n=385) use sanitary pads, indicating strong accessibility or cultural preference, though the lack of cloth use may reflect distribution programmes while raising environmental concerns due to disposable waste.

Only 35.1% (n=135) change pads every few hours, while 11.4%(n=44) change once daily, 29.6% (n=114) less frequently, and 23.9% (n=92) are unsure. suggesting that limited facilities or supplies may contribute to infrequent changes, increasing infection risks.

If cloths were used, 15.1% (n=58) would dry them indoors, risking bacterial growth, and 57.4% (n=221) would not store them cleanly, underscoring the need for education on reusable absorbents. Disposal practices are varied, with 33.5% (n=129) using trash, 33.5% (n=129) burning, 17.9% (n=69) flushing, 5.7% (n=22) burying, and 9.4% (n=36) using other methods; flushing and burning pose environmental and infrastructural challenges, highlighting the need for improved disposal facilities.

Menstrual Hygiene Practices

Table 4. Menstrual Hygiene Practice of Students

Hygiene Practice	Response	Frequency (n)	Percentage (%)
Daily bathing during menstruation	Yes	385	100.0
Cleaning the genital area before sleep	Yes	382	99.2
Use of water for genital cleaning	Yes	369	95.8
Handwashing after using the toilet	Yes	383	99.5
Handwashing with soap after changing absorbents	Yes	381	99.0
Use of separate undergarments during menstruation	Yes	383	99.2

As illustrated in Table 4, students exhibit strong hygiene practices 100% (n=385) bathe daily, 99.2% (n=382) clean genitalia before sleep, 95.8% (n=369) use water for genital cleaning, 99.5% wash hands after toilet use, 99.0% (n=381) wash hands with soap after changing absorbents, and 99.2% (n=383) use separate undergarments. The small minority not in adherence may face resource or awareness gaps, but overall, practices are robust.

School Menstrual Hygiene Facilities (Student Perspective)

In this study, 95.3% (n=367) of students reported that health and physical education were included in their school curriculum, suggesting broad coverage of menstrual health topics, though the 4.7% (n=18) gap may reflect inconsistent implementation or awareness.

Despite this, only 68.3% (n=263) of students had access to clean water and sanitation facilities during menstruation at school, indicating a significant infrastructural shortfall. While 76.4% (n=294) perceived no deficiencies in menstrual hygiene resources, 23.6% (n=91) identified existing gaps.

Reported challenges included inadequate water and toilet cleanliness 52.0% (n=200), stigma and shame 22.0% (n=85), school absenteeism 15.8% (n=60), and fear of sudden leakage 10.2% (n=40), revealing both structural and socio-cultural barriers.

Statistical analysis demonstrated significant associations between access to water and sanitation facilities and key hygiene behaviours, including absorbent changing practices ($p=0.002$), pad change frequency ($p<0.001$), and disposal methods ($p=0.018$), underscoring the need to improve school infrastructure to support effective menstrual hygiene management.

We can observe from Table 5 that, while 76.5% (n=13) of schools provide adequate separate toilets, only 64.7% (n=11) have locks, 52.9% (n=9) maintain cleanliness, and 47.1% (n=8) offer disposal bins, compromising hygiene and privacy.

School Toilet Facilities

Table 5. Access to Clean and Functional Toilets

Variable	Yes (%)	No (%)
An adequate number of toilets for girls	76.5 (n=13)	23.5 (n=4)
Locks on toilet doors	64.7 (n=11)	35.3 (n=6)
Regular toilet maintenance	52.9 (n=9)	47.1 (n=8)
Proper disposal bins are available	47.1 (n=8)	52.9 (n=9)

Table 6 illustrates that the majority of schools, 88.2% (n=15), provide access to clean and safe water near toilet facilities, supporting menstrual hygiene management, though 11.8% (n=2) lack this resource. However, only 64.7% (n=11) of schools offer soap and handwashing facilities with running water, leaving 35.3% (n=6) without adequate means for proper hygiene, which could increase health risks for students during menstruation.

Table 6. Water Supply

Variable	Yes (%)	No (%)
Clean and safe water near toilets	88.2 (n=15)	11.8 (n=2)
Soap and handwashing with running water	64.7 (n=11)	35.3 (n=6)

As indicated in Table 7, while 82.4% (n=14) provide privacy features, only 58.8% (n=10) have changing spaces, 70.6% (n=12) offer adequate lighting/ventilation, and 52.9% (n=9) provide seating, indicating gaps in comfort. Only 41.2% (n=7) of schools have sanitary napkin dispensers or vending machines, limiting access to menstrual products, while 82.4% (n=14) offer emergency supplies, indicating stronger support for addressing unexpected menstruation, though 17.6% (n=3) still lack such provisions.

Just over half of schools, 52.9% (n=9), have proper disposal systems for used sanitary materials and regular hygienic waste collection, while 47.1% (n=8) lack these facilities, posing hygiene risks. Additionally, 58.8% (n=10) provide clear instructions for students on disposing of sanitary materials, but 41.2% (n=7) do not, indicating significant gaps in effective waste management practices.

Privacy and Comfort

Table 7. Privacy and Comfort

Variable	Yes (%)	No (%)
Designated changing space	58.8 (n=10)	41.2 (n=7)
Adequate lighting/ventilation	70.6 (n=12)	29.4 (n=5)
Resting/seating provision	52.9 (n=9)	47.1 (n=8)
Privacy curtains/doors	82.4 (n=14)	17.6 (n=3)

Education and Awareness

Table 8. Education and Awareness

Variable	Yes (%)	No (%)
MH awareness materials displayed	5.9 (n=1)	94.1 (n=16)
Training/workshops for girls	29.4 (n=5)	70.6 (n=12)
Library resources on menstruation	29.4 (n=5)	70.6 (n=12)

According to Table 8, only 5.9% (n=1) display MH education materials, and 29.4% (n=5) offer training or library resources, highlighting a critical lack of educational support.

In this study, the majority of schools demonstrated strong support for menstrual hygiene (MH) infrastructure, with 88.2% (n=15) to 94.1% (n=16) of respondents affirming the availability of essential provisions, including access to facilities for female staff, regular maintenance, collaboration with local health authorities, availability during school events, accommodations for menstrual discomfort, and the promotion of a non-stigmatizing environment.

Furthermore, 76.5% (n=13) reported that school infrastructure was accessible to students with disabilities. However, notable gaps remain; only 41.2% (n=7) of schools had systems in place for student feedback on MH facilities, and 23.5% (n=4) lacked infrastructure that is fully accessible to students with disabilities. These findings highlight the need for targeted improvements to ensure inclusive and responsive MH support within school settings.

Discussion

This study investigated menstrual hygiene practices among 385 female students aged 16 years and evaluated the state of menstrual hygiene (MH) facilities in 17 schools across a district in the Northern Province of Sri Lanka. One of the most notable findings was the universal use of disposable sanitary pads (100%) during school hours, indicating widespread availability, accessibility, and cultural acceptance of these products among adolescent girls in this post-conflict region. This represents a marked improvement in MH product usage compared to previous reports and signals meaningful progress in ensuring menstrual health in school environments.

Importantly, while the data confirmed 100% pad use during school hours, this does not necessarily imply exclusive pad use in all settings. These aimed to provide a broader perspective on students' experiences and challenges beyond the school setting, particularly in home environments or during emergencies. This approach allowed for a more nuanced assessment of menstrual hygiene practices among adolescent girls in the region.

Despite this, challenges remain in actual hygiene practices and facility adequacy. For example, only 35.1% of participants changed pads every few hours, while a notable proportion changed pads less frequently or were unsure of their changing habits, suggesting barriers to optimal MH management.

Additionally, although 95.3% of students received menstrual hygiene education, the effectiveness of these programmes is likely compromised by deficiencies in school

sanitation infrastructure. Only 68.3% of schools provided clean water and sanitation, 52.0% had unclean toilets, and less than half (47.1%) had adequate disposal facilities, echoing infrastructure concerns noted by Chandra-Mouli *et al*.

The sample predominantly reflected regional socio-cultural characteristics, with 75.1% identifying as Hindu and 4.7% reporting discomfort discussing menstruation, underscoring the persistence of cultural stigma that may hinder open MH dialogue [32, 39]. Parental education, especially maternal, was positively associated with better MH practices, while lower paternal education correlated with limited resource access, consistent with findings by Sivakami *et al*. and Tamphasana *et al* [33, 39].

Economic constraints were evident, with 73.5% of families earning below LKR 25,000 monthly, significantly linked to the use of less hygienic menstrual products in other studies ($\chi^2 = 12.34$, df=1, $p = 0.006$) [35,36, 41], though this was not observed here due to the universal pad use.

Individual hygiene behaviours were strong; 100% reported daily bathing, and 99.5% practised handwashing after toilet use. However, gaps in home sanitation persist, as 7.8% lacked access to covered toilets, increasing infection risk, findings consistent with the report of UNICEF and WaterAid [42,43].

Finally, while disposable pad use is near universal, environmental concerns arise from improper disposal amid inadequate waste management systems. Overall, this study highlights substantial progress in menstrual product use but emphasizes the need to improve sanitation infrastructure and address socio-cultural barriers to optimize menstrual hygiene practices in schools.

Conclusion

To address existing gaps, schools must ensure the provision of separate, clean, and lockable toilets for girls, equipped with covered disposal bins, water, and soap. While the study examined changing frequency and disposal practices, it did not include specific questions on the degree of absorbent saturation (e.g., whether pads were soaked or leaking), which may be relevant to understanding hygiene behaviour more comprehensively.
Infrastructure should accommodate students with disabilities, incorporating ramps and adapted facilities. MH education should be integrated into the curriculum, covering product use, disposal, and stigma reduction, with inclusive workshops engaging both male and female students.

Public-private partnerships are needed to subsidize reusable menstrual products, such as menstrual cups, coupled with hygiene education and support programmes [18,35, 38]. The Zonal Education Directorate should institutionalize MH policies, allocate funding for facility upgrades, and implement regular monitoring and evaluation. Training for teachers and feedback mechanisms for students would further enhance MH support in schools.

This study focused exclusively on 16-year-old students, limiting generalizability to other age groups. The reliance on self-reported data introduces potential biases, particularly underreporting due to stigma. As a cross-sectional study, it captures data at a single point in time and cannot establish causality or track changes over time. Additionally, its school-centric design excludes home and community-level influences on MH practices [5,7,41,42,43].

Adolescent girls in a district of the Northern Province in Sri Lanka demonstrate commendable personal hygiene practices. However, inadequate school facilities and economic barriers remain significant impediments to optimal menstrual health.

Addressing these challenges requires coordinated efforts among educational authorities, public health stakeholders, NGOs, and communities. Sustainable infrastructure development, comprehensive MH education, and equitable access to menstrual products are essential to safeguarding the health, dignity, and educational attainment of schoolgirls in resource-limited settings.

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Conflicts of Interest

Authors declare that there are no conflicts of interest.

Data Availability Statement

Data is available on reasonable request. Raw data without personal identifiers is available from the corresponding author upon reasonable request.

Use of Artificial Intelligence Assisted Technologies

During the preparation of this work, the authors used generative AI in order to improve the language and readability. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

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The Impact of COVID-19 on the Dynamics of Sexual and Reproductive Health Education in Government Schools in Sri Lanka

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Original Article

Abstract

Introduction: Sexual and reproductive health (SRH) education is vital for youth well-being. The COVID-19 pandemic severely disrupted this crucial school-based service, creating unprecedented, lasting challenges for its delivery.

Objectives: The aim was to elucidate the specific challenges encountered in teaching SRH during the COVID-19 pandemic, and to assess its impact on the provision of SRH knowledge in schools.

Methods: An online survey was conducted from August 2021 to February 2022, as part of a broader study on the SRH of Sri Lankan youth across five selected districts. A cross-sectional study design was employed, involving 60 government school teachers who teach subjects that incorporate SRH components to students in Grades 6 to 11. Convenience sampling method was used, and the data were summarised using tables. Associations were explored using the Chi-Square and Fisher's exact test (significance level- $p<0.05$).

Results: Of the SRH teachers surveyed, 81.7% were female and 51.7% had over 11 years of teaching experience. In 2019, only 55% of teachers covered at least 75% of the SRH syllabus, which dropped substantially to 35% in 2020. Four in five teachers reported struggling with online delivery, and 45% expressed dissatisfaction.70% of teachers believed that students completing grade 11 in 2021 would face future challenges due to inadequate SRH education. In 2020, no rural or estate sector teachers, nor any outside the Western province, covered at least 75% of the syllabus, compared to 46.7% of urban teachers ($p=0.014$) and 35% of Western province teachers ($p=0.001$). Teachers aged 40 and above were significantly more likely to have covered the syllabus ($p=0.009$).

Discussion: The COVID-19 pandemic disproportionately affected SRH education in state schools, particularly in rural, estate, and non-Western province areas. Future strategies must prioritise strengthening teacher capacity and skills in these underserved regions. Planning for potential disruptions like COVID-19 is crucial to ensure the equitable and effective delivery of SRH education.

Key Words: Sexual and reproductive health, COVID-19, Schools, Education, Sri Lanka

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Introduction

The provision of sexual and reproductive health (SRH) education in schools represents a vital long-term investment in the health, well-being, and future development of young people globally [1-3]. As articulated by the Sustainable Development Goals (SDGs), universal equitable access to health, including for often marginalized youth, is paramount [4]. Comprehensive sexuality education (CSE), as defined by the World Health Organization (WHO), is a curriculum-based process that equips children and adolescents with the cognitive, emotional, physical, and social understanding of sexuality [3, 5, 6]. It aims to empower them to realize their health and dignity, develop respectful relationships, make informed choices, and understand their rights throughout their lives [5]. Schools, therefore, serve as a critical platform for delivering this essential education, playing a pivotal role in shaping young people's ability to navigate their sexual and reproductive lives responsibly and safely.

However, the unprecedented onset of the COVID-19 pandemic brought about significant disruptions to education systems worldwide, fundamentally altering traditional modes of learning and delivery [7]. This global upheaval posed substantial and unforeseen challenges to the continuous provision of essential services like SRH education [7, 8]. The rapid shift to remote learning modalities, school closures, and strained resources created a complex environment that threatened the effective dissemination of critical SRH knowledge, which inherently often benefits from face-to-face interaction and sensitive discussion facilitated by trained educators [9].

In Sri Lanka, the landscape of SRH education in schools faced considerable challenges even prior to the pandemic. Despite policy recognition of its importance, implementation gaps have historically hindered comprehensive delivery [10]. A 2019 survey conducted among never-married youth in Sri Lanka revealed that a significant proportion of males (10% in the 15-19 age group, 7% in 20-24 age group) reported that SRH was "not at all discussed" in their school environments [1]. Furthermore, the study highlighted that 40% of youth primarily sought SRH information from the internet via mobile phones, indicating a reliance on less regulated and potentially less accurate sources [1]. Concerningly, the same survey identified substantial rates of premarital sexual intercourse among unmarried youth, with more than one-third engaging in unprotected sex [11]. Earlier reviews had also pointed to discrepancies between adequate laws and policies and their inadequate implementation, along with insufficient legal protection for vulnerable youth and instances of discrimination [10]. These pre-existing deficiencies underscore a system already struggling to adequately provide SRH education to its youth.

Given these baseline challenges, the COVID-19 pandemic was poised to exacerbate existing fragilities within Sri Lanka's SRH education framework. The sudden shift to online learning and the prolonged periods of school closures inevitably created new barriers for both teachers and students [12]. Sensitive topics like SRH require a supportive and confidential environment, which can be difficult to replicate in remote settings, potentially leading to reduced engagement, technical difficulties, and discomfort in addressing personal queries [13]. The pandemic's impact on resource allocation and educational priorities may have further sidelined SRH education [14], despite its heightened importance during a period of widespread social disruption.

Understanding the specific consequences of this global health crisis on a fundamental aspect of youth development is therefore crucial. This study was initiated to provide

empirical insights into how the COVID-19 pandemic affected SRH education in Sri Lanka. Specifically, the primary aim of this survey was twofold: firstly, to elucidate the specific difficulties encountered by teachers in delivering SRH content during the COVID-19 pandemic, and secondly, to assess the overall impact of the pandemic on the provision of SRH knowledge to students in government schools across Sri Lanka

Methods

A descriptive cross-sectional study was conducted among teachers who are teaching sexual and reproductive health in public schools from Grades 6 to 11 in five selected districts of Sri Lanka. The sample was limited to 60 respondents. We conveniently selected all three districts of the Western province of Sri Lanka, where the bulk of the Sri Lankan population resides, namely the capital district-Colombo, Gampaha and Kalutara [15]. For comparison, we included two other districts: Anuradhapura from the North Central Province and Galle from the Southern Province. An online questionnaire developed in Google Forms was selected as the data collection method. Following the COVID-19 pandemic, teachers had become comfortable with online communication tools, as these were widely used for teaching during the extended period of movement restrictions [16]. Public school teachers who had taught SRH in at least one of the years in 2019 or 2020 were eligible for the study. Informed consent was obtained online maintaining anonymity of the respondents.

A convenience sampling method was used to select participants, specifically employing the snowball technique. This approach was chosen because most schools had only one or two teachers teaching SRH, and the logistical and financial costs of approaching each school individually were prohibitive. The link to the Google form was disseminated among groups of government teachers via WhatsApp, Viber, and email. No personally identifiable information was collected during the survey to ensure the privacy and confidentiality of the participants. Ethical approval was obtained from the Ethics Review Committee of ChildFund, Sri Lanka (2019/01).

The study tool consisted of a pretested and validated concise questionnaire. Judgmental validity was assessed [17]. The questionnaire, translated into Sinhala, included sections on sociodemographic characteristics, details of SRH teaching before and during the COVID-19 pandemic, and perceptions of issues and outcomes related to the disruption of SRH teaching during the COVID-19 pandemic.

Patient and Public Involvement

The development of the questionnaire was conducted through consultative meetings with all stakeholders, including teacher representatives.

Analysis

Data were initially transferred from Google Sheets to Microsoft Excel, then coded and analyzed using the Statistical Package for Social Sciences (SPSS), version 22. The collected data were summarised using graphical representations and tables. Rates are presented as proportions. Associations were explored using Chi-square and Fisher's exact test. Statistical significance was calculated based on a p-value of less than 0.05.

Results

This section presents the findings from the survey conducted among 60 government school teachers in Sri Lanka regarding the delivery of SRH education during the COVID-19 pandemic. The results are organized into four tables, each detailing different aspects of the respondents' characteristics, teaching coverage, perceptions, and associated factors.

The mean age of the teachers was 40 years (SD = 10), with a majority being female (81.7%) (Table 1). Most respondents were from the Colombo district (45%), followed by Gampaha (20%), Anuradhapura (15%), Galle (10%), and Kalutara (10%). Regarding the type of school, 65% taught in mixed-gender schools, 18.3% in girls-only schools, and 16.7% in boys-only schools. The majority of teachers (85%) were based in urban areas, with 10% in rural areas and 5% in estate sectors. 70% of the teachers worked in schools with 800 or more students. In terms of teaching experience, 51.7% had 11 or more years of general teaching experience, while 70% had 10 years or less experience specifically in teaching SRH (Table 1).

Table 1. Comparison of Basic Characteristics of Study Respondents in Selected Districts in Sri Lanka (N=60)

Basic Characteristics		Number	%
Age		40 years (mean)	10 years (SD)
Gender	Female	49	81.7
	Male	11	18.3
District	Colombo	27	45.0
	Gampaha	12	20.0
	Anuradhapura	9	15.0
	Galle	6	10.0
	Kalutara	6	10.0
Type of school*	Mixed	39	65.0
	Girls only	11	18.3
	Boys only	10	16.7
Geographical location/ sector of the school*	Urban	51	85.0
	Rural	6	10.0
	Estate	3	5.0
Number of students at school*	800 or more	42	70.0
	200-799	12	20.0
	Less than 200	6	10.0
Experience as a teacher	0 – 5 years	13	21.7
	6 – 10 years	16	26.7
	11 – 15 years	11	18.3
	16 – 20 years	5	8.3
	More than 20 years	15	25.0
Experience in teaching SRH**	0 – 5 years	27	45.0
	6 – 10 years	15	25.0
	11 – 15 years	0	0
	16 – 20 years	12	20.0
	More than 20 years	6	10.0

*Characteristics of the schools in which the study respondents are teaching
**Sexual and reproductive health

In 2019, 55% of teachers reported covering 75-100% of the SRH syllabus, while 30% covered 50-74% (Table 2). In contrast, in 2020, only 35% of teachers covered 75-100% of the syllabus, and 13.3% covered 50-74%. When disaggregated by mode of delivery in 2020, 15% of teachers covered 75-100% of the syllabus through physical classes, whereas only 5% achieved the same coverage through online teaching. Overall, 80% of teachers delivered SRH content online in 2020 (Table 2).

Table 2. Delivery of sexual and reproductive health education to students from Grades 6 to 11, in selected districts 2019 vs 2020 (N=60)

Coverage		2019		2020					
		Total		Physical in class		Online		Total	
		No	%	No	%	No	%	No	%
Percentage of SRH* syllabus covered	0 - 24%	**9**	**15.0**	33	55.0	48	80.0	**21**	**35.0**
	25 - 49%	**0**	**0**	3	5.0	0	0	**10**	**16.7**
	50 - 74%	**18**	**30.0**	15	25.0	9	15.0	**8**	**13.3**
	75 - 100%	**33**	**55.0**	9	15.0	3	5.0	**21**	**35.0**

*Sexual and reproductive health

Forty-eight teachers (80%) reported facing difficulties in teaching SRH online, while 12 (20%) did not (Table 3). Thirty-three teachers (55%) were satisfied with their online teaching, whereas 27 (45%) were not. All respondents (100%) indicated that there were no other avenues within schools for students to obtain SRH knowledge. Forty-two teachers (70%) believed that students would face issues due to poor SRH inputs, and 39 (65%) believed that Grade 11 students in 2021 would leave school with little or no SRH education. Additionally, 48 teachers (80%) anticipated that students would seek SRH knowledge from alternative sources due to disruptions in school-based teaching (Table 3).

Table 3. Perception of teachers on delivery of sexual and reproductive health education to students during COVID-19 pandemic (N=60)

Stem		Number	%
I am satisfied with my online teaching of SRH*	Satisfied	33	55.0
	Unsatisfied	27	45.0
There are other avenues to obtain SRH* knowledge in schools outside my teaching	Yes	0	0
	No	60	100.0
I faced difficulties teaching SRH* online	Yes	48	80.0
	No	12	20.0

(Continued)

Stem		Number	%
I believe that students will face issues due to poor SRH* input in schools	Yes	42	70.0
	No	18	30.0
I believe that the Grade 11 students will leave school in 2021 with no/ little SRH* inputs	Yes	39	65.0
	No	21	35.0
I think students will look for different avenues to gain SRH* knowledge due to interferences in SRH teaching during COVID-19 pandemic	Yes	48	80.0
	No	12	20.0

*Sexual and reproductive health

Statistically significant associations were observed for coverage of SRH syllabus by teachers in 2020 (Pandemic year) with teacher age, school location, and province (Table 4). Among teachers aged 40 and above, 51.7% covered 75% or more of the syllabus, compared to 19.4% of those below 40 years. Teachers aged 40 years and above were significantly more likely to have covered the SRH syllabus compared to their younger counterparts (p=0.009). Similarly, teachers based in the Western Province demonstrated significantly higher syllabus coverage (46.7%) compared to those in other provinces, where none achieved this threshold (p=0.001). Urban schools also fared better, with 41.2% of teachers covering at least 75% of the syllabus, whereas none in rural or estate sectors reached this benchmark (p=0.014). In contrast, no significant associations were found with gender, school type (mixed vs. single-gender), or total student population. While teaching experience showed a trend toward higher coverage among more experienced teachers, this was not statistically significant (Table 4).

Table 4. Relationship of teachers' characteristics with the percentage of sexual and reproductive health content coverage at schools by teachers in selected districts of Sri Lanka, 2020 (N=60)

	Coverage of SRH** content			
	75% or more (%)	Less than 75% (%)	Total (%)	χ^2 (P)
Gender				
Female	18 (36.7)	31 (63.3)	49 (100)	0.354 (0.552)
Male	3 (27.3)	8 (72.7)	11 (100)	
Age				
Below 40 years	6 (19.4)	25 (80.6)	31 (100)	6.901 (0.009)
40 & above years	15 (51.7)	14 (48.3)	29 (100)	
School location*				
Western province	21 (46.7)	24 (53.3)	45 (100)	10.77 (0.001)
Other provinces	0 (0.0)	15 (100.0)	15 (100)	

(Continued)

	Coverage of SRH** content			
	75% or more (%)	Less than 75% (%)	Total (%)	χ^2 (P)
Total number of students*				
800 or more	12 (28.6)	30 (71.4)	42 (100)	2.543 (0.111)
Less than 800	9 (50.0)	9 (50.0)	18 (100)	
Type of school*				
Either girls or boys only	7 (33.3)	14 (66.7)	21 (100)	0.039 (0.843)
Both boys and girls	14 (35.9)	25 (64.1)	39 (100)	
Geographical area of the school*				
Urban	21 (41.2)	30 (58.8)	51 (100)	(0.014) [a]
Rural or estate	0 (0.0)	9 (100.0)	9 (100)	
Experience as a teacher				
Less than 11 years	7 (24.1)	22 (75.9)	29 (100)	2.911 (0.088)
11 years or more	14 (45.2)	17 (54.8)	31 (100)	
Experience in teaching SRH**				
Less than 11 years	12 (28.6)	30 (71.4)	42 (100)	2.543 (0.111)
11 years or more	9 (50.0)	9 (50.0)	18 (100)	
Faced difficulties in teaching SRH online				
Yes	18 (37.5)	30 (62.5)	48 (100)	0.659 (0.417)
No	3 (25.0)	9 (75.0)	12 (100)	

*Characteristics of the schools in which the study respondents are teaching
**Sexual and reproductive health
[a]Fisher's Exact Test

Discussion

This study was conducted to assess the delivery of SRH education during the COVID-19 pandemic. While 55% of teachers covered 75-100% of the SRH syllabus in 2019, this dropped to just 35% in 2020. Notably, only 5% achieved this level through online teaching. A substantial majority (80%) reported difficulties with online SRH instruction, and 70% believed students would suffer due to inadequate SRH education, with 65% fearing that Grade 11 students would leave school with insufficient knowledge. All surveyed teachers reported a lack of alternative in-school sources for SRH knowledge, leading 80% to anticipate that students would seek information elsewhere. Furthermore, the survey found that older teachers (40+ years), those based in the Western Province, and those teaching in urban schools were significantly more likely to have covered a higher percentage of the SRH syllabus during the pandemic.

Older teachers often possess more years of general teaching experience and, crucially, specific experience in teaching SRH (Table 4). This prolonged exposure and practice lead to greater comfort, confidence, and a more developed teaching approach when handling sensitive topics like SRH [3, 18]. Furthermore,

older teachers have a more robust understanding of the curriculum and how to adapt it to various learning environments, including online platforms, even if the technology itself is new to them [19]. While younger teachers are more digitally native, older, and more experienced teachers often demonstrate greater professional adaptability and resilience, developed through years of navigating diverse educational challenges [18, 19]. They may be more adept at creatively leveraging existing knowledge and resources to overcome the limitations of online teaching, rather than being solely dependent on new digital tools. Further, experienced teachers might have stronger professional networks, allowing them to share best practices, resources, and problem-solving strategies related to online SRH delivery [20].

While specific studies directly linking teacher age to SRH syllabus coverage during COVID-19 in Sri Lanka are limited, general research on teacher perceptions of distance learning in Sri Lanka points to challenges such as inadequate technological infrastructure and the need for enhanced professional development in digital pedagogical skills [21].

While teacher experience plays a crucial role, the effectiveness of SRH education delivery is also heavily influenced by regional disparities in infrastructure and support. The Western Province, particularly Colombo, is the most urbanized and economically developed region in Sri Lanka. Urban areas generally have superior access to reliable internet connectivity, necessary digital devices (computers, smartphones), and consistent electricity [22, 23]. Rural and estate sectors often face significant infrastructural limitations, including poor internet penetration and device scarcity, making online learning and extensive syllabus coverage extremely challenging for both teachers and students [22,23]. This digital divide has been widely acknowledged as a major challenge for online education in rural Sri Lanka during COVID-19 [24]. In addition, schools in urban areas and the Western Province are more likely to have better access to institutional support, including IT infrastructure, technical assistance, and professional development programmes focused on online teaching methodologies [25]. They have better-resourced libraries or access to online educational platforms [25]. Further, teachers in more developed regions have had better opportunities for professional development and training on online teaching before or during the pandemic, enabling them to transition more effectively [25]. Students in urban areas are more likely to have the means and environment conducive to online learning, including quiet spaces at home and parental support, which indirectly facilitates teachers' ability to cover the curriculum effectively [26].

Studies within Sri Lanka consistently highlight the significant challenges faced by rural students and teachers in accessing quality online education during the pandemic. Issues such as a lack of internet connectivity, insufficient devices, and financial constraints for data packages are repeatedly cited as major barriers [27]. This aligns with our finding of lower coverage in rural and estate sectors, and outside the Western Province during the COVID-19 pandemic.

Global studies confirm that pandemics, including COVID-19, severely disrupted access to essential SRH services and education, particularly in developing countries. This is often due to service disruptions, resource diversion, movement restrictions, and fear of contagion [28]. The challenges faced by Sri Lankan teachers mirror these broader global trends of reduced SRH education during the pandemic. Across many developing countries, the pandemic exposed and exacerbated

existing educational inequalities [29]. Rural and marginalized populations often bear the brunt of limited access to technology, trained teachers, and appropriate learning materials, leading to significant disparities in learning outcomes, including for sensitive subjects like SRH [29]. This aligns with the observed disparities in this study across provinces and school locations in Sri Lanka.

The observed decline in SRH education during the pandemic in Sri Lanka, coupled with findings that younger teachers, those in rural areas, and outside the Western Province covered less of the syllabus, carries significant implications (Tables 2, 3 & 4). Inadequate SRH education can lead to a host of adverse outcomes for young people, as evidenced both in Sri Lanka and globally [30]. For instance, the 2012–2013 National Youth Health Survey in Sri Lanka found that 50% of post-secondary students lacked awareness of SRH issues, with only 1% of rural students having adequate knowledge, highlighting a pre-existing vulnerability that the pandemic likely exacerbated [31]. More specifically, a study by Kumarasinghe and De Silva (2022) on sexual behaviour and contraceptive use among unmarried youth in Sri Lanka revealed significant knowledge gaps and risky behaviours [11]. Their findings indicated a high occurrence of unprotected sexual intercourse among both boys (26%) and girls (35%) [11]. Among sexually active unmarried youth under 20 years old, 10% had sexual intercourse with an unknown person [11]. This lack of comprehensive SRH knowledge and safe practices contributes to higher rates of unintended pregnancies and sexually transmitted infections (STIs), including HIV, among adolescents [2]. Sri Lanka has already seen a worrying trend in sexual offences and teenage pregnancies, with a study noting 28 cases of teenage pregnancy in the first half of 2024 and 112 HIV cases among 15-24-year-olds in 2024 [32, 33]. Globally, comprehensive sexuality education is consistently linked to positive health outcomes, including delayed sexual debut and safer sexual practices [34]. Conversely, limited SRH education can result in misinformation, increased vulnerability to sexual abuse and exploitation, and long-term consequences for physical and mental well-being, as well as educational and economic opportunities, perpetuating cycles of poverty, particularly for young women [35].

In summary, there is an urgent need to reform SRH education delivery at schools in the wake of the COVID-19 pandemic, particularly in light of the growing vulnerabilities faced by young people, including rising rates of teenage pregnancies and STIs. To better prepare for future disruptions and ensure continuous SRH education, a multi-faceted approach is essential focusing on teacher-centric and system-wide preparedness for future crises. Firstly, investing in resilient digital infrastructure and addressing the digital divide, especially in rural and underserved areas, is paramount [36]. This includes providing access to reliable internet, affordable devices, and free data for educational purposes, drawing lessons from global efforts to bridge digital equity gaps [36]. Secondly, comprehensive and ongoing teacher training programmes are crucial, not only in digital pedagogy but also in developing confidence and skills to deliver sensitive SRH content in various formats, including online [37, 38]. Leveraging older, experienced teachers as mentors and providing tailored support for younger teachers can strengthen the overall teaching force [39]. Thirdly, exploring innovative and culturally sensitive delivery methods beyond traditional classroom settings, such as community-based initiatives, partnerships with NGOs, and the use of diverse media (radio,

television, mobile applications like UNFPA's TuneMe), can ensure broader reach [40, 41]. Finally, fostering a supportive environment through increased parental engagement and community dialogue around the importance of SRH education can help overcome socio-cultural barriers and stigma, ensuring that young people receive the knowledge and support they need to make informed decisions about their sexual and reproductive health, regardless of external circumstances [42].

Limitations

The small sample size and the use of convenience sampling limit the generalizability and representativeness of the findings. This sampling method likely introduced selection bias, excluding teachers with limited digital access or those not connected to specific online networks. Furthermore, the sole reliance on an online questionnaire may have further excluded teachers with poor internet access or digital literacy, further skewing the sample. These factors collectively limit the study's ability to extrapolate findings to the broader population of Sri Lankan SRH teachers.

Conclusion

The findings strongly corroborate that the COVID-19 pandemic indeed disproportionately impacted the delivery of SRH education in Sri Lankan state schools, with a marked disparity observed in areas outside the Western Province and within the estate and rural sectors. This is evident in the significant drop in syllabus coverage during 2020, the widespread difficulties teachers faced with online SRH instruction, and the subsequent concern among educators regarding students' inadequate knowledge. The greater resilience in SRH education delivery by older teachers, and those in urban and Western Province schools, underscores the critical role of teacher experience, robust digital infrastructure, and better institutional support in mitigating educational disruptions. Addressing these existing disparities through targeted interventions in infrastructure, teacher training, and community engagement will be crucial for ensuring equitable and continuous SRH education for all Sri Lankan youth, safeguarding their well-being against future crises.

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Conflict of Interest

Authors declare that there are no conflicts of interest.

Data Availability Statement

Data is available on reasonable request. Raw data without personal identifiers is available from the corresponding author upon reasonable request.

Use of AI

Use of Artificial Intelligence Assisted Technologies

During the preparation of this work, the authors used generative AI in order to improve the language and readability. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

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Author Contributions

MK, SG and IDS developed the study protocol and overall work plan. MK, SG, IDS and LG was responsible for data collection, extraction, cleaning, and analysis. MK led the writing with SG reviewing the final manuscript. IDS supervised the overall project.

Disclaimer

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Legal Framework and Sexual and Reproductive Health Challenges Faced by Female Sex Workers in Sri Lanka: A Narrative Literature Review

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Review Article

Abstract

Introduction: The term "sex work" refers to adults providing consensual sexual services for money or goods. This study aims to investigate the Sexual and Reproductive Health (SRH) challenges encountered by female sex workers (FSWs) in Sri Lanka, emphasising the interplay between legal frameworks, SRH issues, access to health services and violence.

Methods: A structured narrative review was conducted using academic databases and grey literature. An initial pool of 257 documents was identified, of which 52 were selected for in-depth analysis. Data from the selected documents were manually extracted, charted, and analysed using thematic analysis. Key themes were categorised under (i) theoretical perspectives, (ii) legal and policy frameworks (national and global), (iii) SRH challenges, (iv) access to SRH services, and (v) experiences of violence and stigma.

Results: The study illuminates the complex challenges faced by FSWs, highlighting the inherent vulnerability resulting from early initiation into sex work (6% before 18 years), a high number of sexual partners (25 per month), and limited access to contraception and SRH healthcare. FSWs are at increased risk of Sexually Transmitted Infections, with high risk for unintended pregnancies and unsafe abortions. They also endure violence across various life stages, perpetuated by social stigma and discrimination. The current legal framework, which doesn't explicitly criminalise sex work but penalises solicitation and brothel-keeping, remains inadequate to protect FSWs' safety. Debate continues regarding potential legal reforms, with some advocating for legalisation to safeguard FSWs' human rights.

Conclusion: Addressing SRH challenges faced by FSWs in Sri Lanka requires urgent, evidence-based legal reforms and integrated health and social support systems to uphold their overall well-being.

Key Words: Female Sex Workers, Sri Lanka, Legal Framework, Sexual Reproductive Health, Access to healthcare, Legal Reform

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Introduction

The terms "sex work" and "prostitution" are often used interchangeably to describe the exchange of sexual services for money, goods, or other resources. This practice has a long history in human society and involves individuals of diverse backgrounds, including genders, ages, races, abilities, and sexual orientations. It can be self-initiated, mediated by third parties, or influenced by industry stakeholders [1]. Sociological definition of "prostitution" identifies it as an occupation involving the promiscuous and emotionally indifferent sale of sex, typically divided into four components: occupation, act of selling, sexual exchange, and promiscuity. Legal interpretations of prostitution vary from one country to another, with some recognising it as a legal conduct [2]. The term "sex worker" acknowledges that sex work is legitimate employment. At the same time, in modern society, "prostitute" often carries negative connotations of criminality and immorality, contributing to the stigmatisation and exclusion of individuals from necessary services. The term "commercial sex worker" implies regulation and potential exploitation in the sex work industry [3].

In Sri Lanka, FSWs form a diverse community engaged in sex work, typically practised by both youth and adults – the population size estimation conducted in 2018 projected 30,000 FSWs in the country [4,5]. Street-based FSWs comprised 42% of the total FSW population, followed by homes/shanties (22%), nightclubs/massage parlours (6%), and hotels/brothels (2%) [6]. As the typology of FSWs is diverse, it is essential to understand that their experiences, violence exposure, sexual behaviours, client types, income, and various circumstances significantly differ based on their operating category. For example, studies suggest that street-based FSWs often face higher vulnerability to violence, mistreatment, and challenging working conditions due to their interactions with clients and potential arrests under vagrancy ordinances [7,8]. Hotel and brothel-based FSWs, on the other hand, encounter unique challenges influenced by the Brothels Ordinance, which aims to protect sex workers but can lead to victimisation [9]. While having some agency over their working conditions, home-based FSWs still grapple with the social stigma associated with their profession [7]. This example shows that the intersection between the legal status and the FSW typology significantly influences their working conditions, vulnerabilities, and behaviours, impacting their SRH.

In this context, the current study was structured around three research objectives. First, it aimed to examine the primary SRH challenges experienced by FSWs in Sri Lanka, with particular focus on their heightened risk of Sexually Transmitted Diseases (STDs), violence, unintended pregnancies, and unsafe abortions. Second, it sought to explore the theoretical and legal perspectives surrounding sex work within the broader global context, drawing on comparative frameworks that inform the debates on the regulation and operation of sex work. Third, the review investigated how the existing legal framework in Sri Lanka shapes the rights, safety, and health outcomes of FSWs, with special emphasis on legal provisions that either directly or indirectly criminalise aspects of sex work.

Methodology

A comprehensive narrative literature review explored the intersection between legal frameworks and SRH challenges faced by FSWs in Sri Lanka. Relevant literature was identified through electronic searches in recognised academic and grey literature databases, including PubMed, Google Scholar, LENS.org, and Dimensions. Additional sources included institutional websites such

as the National STD/AIDS Control Programme (NSACP), Family Health Bureau (FHB), UN agencies (e.g., UNAIDS, UNDP, UNFPA), and local NGOs working with key populations. Search terms included combinations of the following keywords: "female sex workers", "sex work", "Sri Lanka", "legal framework", "sexual and reproductive health", "HIV", "contraception", "abortion", and "violence". Boolean operators were used to refine and expand the search results. Searches were conducted for literature published between 2000 and 2024.

Documents on FSWs in Sri Lanka and Asia (if findings are contextually relevant) published in English were included. Additionally, the studies addressing legal, policy, SRH, or rights-based aspects of FSWs in the global context were identified for comparative purposes. All credible sources, such as peer-reviewed articles, government reports, technical briefs, United Nations / NGO publications, and policy documents, were included. Studies unrelated to sex work or SRH and articles which do not contain sufficient methodological detail or relevance to Sri Lanka's legal/SRH context were excluded. A total of 257 documents were initially identified. After applying inclusion and exclusion criteria, 121 papers were retained for full-text review. After the full text review, 52 documents were included for data charting. Given the narrative nature of this review, formal quality assessment tools were not applied. Instead, documents were selected based on relevance, credibility, and conceptual contribution to the topic.

Data from the selected literature were charted manually into a structured framework. Data charting was conducted focusing on five thematic subcategories: (i) theoretical perspectives, (ii) legal and policy frameworks (national and global), (iii) SRH issues including contraception, unintended pregnancy, abortion, and HIV, (iv) access to SRH services, and (v) experiences of violence and stigma. The extracted data were then subjected to manual thematic analysis. This involved identifying recurring patterns and concepts. This review utilised only publicly available secondary sources without the involvement of human subjects or personal data. Therefore, ethical approval was not required. Nonetheless, the study was conducted with attention to the dignity, rights, and confidentiality of FSWs as a marginalised population.

Limitations

This review has several limitations to be acknowledged when interpreting the findings and recommendations. As a narrative literature review, the study did not employ formal quality appraisal tools or standardised systematic review protocols, which may introduce a degree of selection bias. In the context of the limited research evidence, especially in Sri Lanka, this study calls for including diverse source types, ranging from peer-reviewed articles to grey literature and policy documents, to capture the multidimensional nature of sex work. However, this also meant that the quality and methodological rigour of included sources varied. Additionally, while thematic analysis enabled the identification of intersectional issues, the process relied on manual processes and interpretation, which may be subject to researcher bias despite efforts to ensure transparency and consistency. While international comparisons were included for conceptual grounding, legal and health systems are deeply embedded in local socio-political contexts, and generalisations should be cautiously made. Despite these limitations, the review provides a comprehensive synthesis of evidence to inform context-specific policy and legal reforms to improve the health and rights of FSWs in Sri Lanka.

Theoretical Perspectives of Sex Work

The discourse surrounding sex work encompasses various theoretical perspectives,

primarily sociological, that profoundly influence our understanding of this complex issue. Academic writings and theories predominantly delve into the structural causes of sex work. A fundamental debate exists between the neo-abolitionist perspective, which advocates for the complete eradication of all forms of prostitution due to its perceived oppression against women, and alternative perspectives [10,11].

The neo-abolitionist viewpoint, which underpins the radical feminist and Marxist feminist theories [12,13], condemns prostitution as a form of violence against women, asserting that it can never be entirely consensual. According to neo-abolitionists, prostitution perpetuates gender inequality, reinforcing male dominance and the objectification of women. This perspective calls for the protection of prostituted women as victims rather than their punishment [11]. Conversely, the pro-sex work perspective argues that women should have the autonomy to choose sex work as a form of employment and that consensual sexual commerce should not be considered violence against women. This perspective challenges the conventional feminist stance that all forms of prostitution are intrinsically oppressive, advocating for women's right to define what constitutes intimacy for themselves [10].

Furthermore, the human rights perspective recognises sex work as a legitimate occupation. It seeks to promote and protect the human rights of sex workers, advocating for the decriminalisation of sex work and access to healthcare and other services. It acknowledges the human rights violations sex workers often face and aims to combat discrimination and stigma against them [14,15]. Emerging after the human rights perspective, the empowerment perspective sees sex work as a choice and a means for women to gain control and agency over their lives. This perspective emphasises safe working conditions, the autonomy for sex workers to negotiate their terms, and the diversity within the sex work industry, challenging the representation of sex workers as passive victims and highlighting their potential to be active agents in their lives [15].

Legal Perspectives of Sex Work

Sex work laws encompass a broad spectrum of legal regulations, policies, and statutes that define the status of prostitution and establish the rights and protections afforded to sex workers. These laws also determine whether sex work is criminalised, decriminalised or legalised within a specific jurisdiction [16]. Importantly, these legal frameworks vary significantly between countries and even within different regions of the same nation. They govern diverse aspects of sex work, such as the buying and selling of sexual services, solicitation, and the operation of venues like brothels that facilitate sex work. Additionally, these regulations often extend to matters including the age of consent for engaging in sex work, health and safety standards for sex workers, and the provision of social services and support for those involved in sex work [10].

On a global scale, two predominant perspectives shape discussions on sex work laws, namely the Prohibitionist Perspective and the Decriminalisation/ Legalisation Perspective. The Prohibitionist Perspective represents an approach that advocates for the comprehensive criminalisation of all aspects of sex work. This includes making the buying and selling of sexual services, pimping, and ownership of brothels illegal [16]. They assert that criminalising sex work is an effective way to reduce the demand for sexual services, emphasising the need to send a strong message that engaging in sex work

is unacceptable [10-17]. According to this perspective, the primary focus should be on eliminating the demand for sex work rather than providing support and services to those who engage in it [17].

The Decriminalisation and Legalisation Perspective introduces two contrasting approaches to the legal status of sex work [16]. Decriminalisation entails the removal of criminal penalties associated with sex work, allowing sex workers to operate without the fear of prosecution. This approach aims to reduce the stigma attached to sex work and improve the safety and well-being of sex workers, emphasising human rights and the equal legal protection of sex workers [10,15]. In contrast, the legalisation perspective recognises sex work as a legitimate occupation and subjects it to regulation and taxation. Legalisation involves the creation of laws and regulations governing sex work, including health and safety standards, zoning laws, and licensing requirements. Advocates of legalisation argue that it can mitigate the harm associated with sex work, including violence and exploitation, while also providing governments with tax revenue [10,15]. In contrast, supporters of decriminalization caution that legalisation often results in a two-tiered system, where only those who comply with regulatory requirements are protected, while others, particularly marginalised or street-based sex workers, remain criminalised. This, they argue, perpetuates stigma, discrimination, and exclusion from legal protections, thus failing to fully safeguard the rights and well-being of all sex workers [16].

Laws governing sex work: Global and Asian context

Sex work regulations vary significantly worldwide, leading to a spectrum of legal approaches. While some nations fully endorse and regulate sex work, others partially tolerate it under specific conditions, and many outright criminalise it. As of now, only 21 countries fully legalise prostitution, with notable examples including Australia, Germany, the Netherlands, New Zealand, and Switzerland. In these jurisdictions, sex work is officially recognised, subject to government oversight, and regarded as a legitimate profession. It's important to note that even in countries where it's entirely legal, social acceptance may still vary [18].

Furthermore, there are 63 countries where prostitution is partially legal, featuring diverse regulations that govern the sex industry. In these nations, sex workers can operate within designated areas, like brothels, under government registration. However, engaging in prostitution outside these designated zones is typically illegal and may lead to fines or imprisonment. Examples include Austria, Belgium, Brazil, Denmark, India, Italy, Japan, Thailand, the United Kingdom, and Zambia [18]. In India, for instance, prostitution is partially legal, but soliciting in public and operating brothels are strictly prohibited [19]. Similarly, in the United Kingdom, prostitution is partially legal, yet activities such as solicitation in public, brothel-keeping, and pimping remain illegal [20].

Conversely, there are countries where prostitution is entirely illegal, with strict prohibitions in place. This category includes Afghanistan, Bhutan, Iran, the Maldives, Myanmar, Pakistan and the United States of America [18]. In the United States, the legal status of prostitution varies by state, with most states considering it illegal and a criminal offence. While particular forms of prostitution are permitted in regulated brothels in Nevada, solicitation and related activities are generally prohibited in many states [21].

Laws Governing Sex Work in Sri Lanka

Laws about sex work in Sri Lanka contain some distinctive features. Consensual sex in private is explicitly legal and not considered a crime. Adultery is also not a criminal offence, but it is regarded as a violation of marriage laws. However, provisions exist within the law to address sex work involving the exchange of money or valuable goods. These legal provisions were revised in 1995, 1998, and 2006 through amendments to the Penal Code, previously governed by the Brothels Ordinance and the Vagrants Ordinance [8,9,22].

Selling sex in private is not illegal in Sri Lanka, but soliciting in public is prohibited under the Vagrants Ordinance [8]. Common prostitutes who publicly exhibit riotous or indecent behaviour are also targeted under this law. Importantly, buying sex itself is not criminalised in the country [22]. The Brothels Ordinance, in contrast, criminalises the management of brothels [9]. These laws are commonly employed to target and prosecute individuals involved in the organisation and management of sex work. Sex workers are also disproportionately affected by the Vagrants Ordinances [22]. It's essential to note that a recent court decision in February 2020 clarified that earning a livelihood through prostitution is not considered an offence in Sri Lanka, distinguishing between prostitution and the operation of brothels [23,24].

Law enforcement regarding sex work in Sri Lanka presents substantial challenges for sex workers. While the law is not explicit in criminalising prostitution itself, acts such as soliciting and brothel keeping are defined as offences [22,23]. Despite the law's ambiguity, sex workers face arrests and harassment. The Vagrancy Ordinance is frequently employed against them, and pressure to plead guilty to avoid proving solicitation charges is standard. As a result, many sex workers possess criminal records without having committed actual crimes [7].

Sexual Risk Behaviour and HIV Transmission

The sexual risk behaviours of FSWs in Sri Lanka pose significant challenges to their SRH [25]. A substantial portion of FSWs become sexually active at a young age, with more than a third (35%) engaging in vaginal sex before reaching 17 years old, and nearly 6% starting to exchange sex for money as early as 17 years of age. The median age for their first vaginal sex is 18 years, exposing them to a range of social and health risks during their teenage years [26,27]. Furthermore, the majority (73.6%) of FSWs in Colombo reported having 16 or more sexual partners, with a median rate of 25 sexual partners per month. A significant number (65.8%) also reported having non-paying sexual partners, with more than a third (38.6%) having three or more non-paying partners. On average, FSWs reported engaging in sex work for 4.8 days per week, and the median duration of their involvement in sex work was 20 years, putting them at risk for an extended period [26,28].

The vulnerability of FSWs to HIV and other sexually transmitted infections (STIs) in Sri Lanka is a well-documented concern [29]. According to the 2019 HIV estimation, FSWs and their clients collectively account for a significant portion of people living with HIV in the country, with FSWs making up 4% and their clients 14%. Furthermore, FSWs contribute to almost 25% of the annual HIV transmission in Sri Lanka, with several new cases reported among them and their clients in 2019 [30].

Although the number of reported HIV cases among adult females in Sri Lanka is low and has remained stable, FSWs continue to be at high risk for HIV infection. In the Colombo district, the prevalence of HIV and syphilis among FSWs was 0.4% and 8.4%, respectively. The legal status of sex work, coupled with pervasive social stigma and discrimination, the underground nature of sex work-related activities, and limited access to healthcare, has exacerbated the vulnerability of FSWs and their clients to HIV infections [26,28].

Contraceptive Practices

Among FSWs in the Colombo district, more than half (57.7%) have experienced at least one pregnancy [26]. While the use of condoms during the last sexual encounter with a client is relatively high, with around 90% reporting condom use in Colombo and Galle, consistent condom use is notably low. Only 22.9% of FSWs in Colombo, 26.6% in Kandy, and 68.4% in Galle reported using condoms with every client in the preceding month. Condom use with regular partners is also inconsistent, with around 80% of FSWs in Colombo, 36.5% in Galle, and 16.9% in Kandy reporting condom use during their last sexual encounter with a regular partner. Although the condom use in the previous sexual encounter is substantially high, consistent condom use is considerably low (22.3% in Colombo, 11.5% in Galle, and 4.4% in Kandy) [26,28].

Moreover, a situation assessment conducted in 2023 revealed that a significant proportion of sex workers (83%) have never received contraceptives from midwives, and 45% reported not using any contraception. This lack of access to contraception puts sex workers at risk, especially in situations where condom use is not possible. Many sex workers purchase contraceptives at their own expense, placing a financial burden on individuals already struggling to meet their basic needs, with some clients supporting the purchase of contraceptives in rare cases [7].

Unintended Pregnancies and Unsafe Abortions

Unintended pregnancies and unsafe abortion among FSWs in Sri Lanka are a topic of limited research, with only a few qualitative inquiries [25,31]. Still, data from other countries suggest a high prevalence of unintended pregnancies and unsafe abortions in this population. Studies from China [32], Ethiopia [33], and Benin [34] reveal that a substantial percentage of FSWs experience unintended pregnancies. These pregnancies are associated with factors such as having steady partners, drug use or addiction, long durations in sex work, and a history of abortion [33].

As described in Table 1, more than half of FSWs in some settings have experienced an induced abortion, and in certain regions, a quarter of FSWs report three or more abortions [35]. However, unsafe abortions among FSWs in Sri Lanka remain underexplored. A qualitative study in 2020 found that some former FSWs reported having undergone illegal abortions [25], which indicates that unsafe abortions are not uncommon among FSWs in the country.

Table 1. Lifetime Prevalence of Induced Abortion among FSWs in Selected Countries

	Country	Study	Sample Size (n)	Lifetime Prevalence (%)
01	India	Shahmanesh *et al*, 2009 [36]	325	28
02	India	Wayal, *et al*, 2011 [37]	326	26
03	Bangaladesh	Katz *et al*, 2015 [38]	354	39
04	Iran	Karamouzian, et al, 2016 [39]	872	35
05	Afghanistan	Todd *et al*, 2010 [40]	520	27
06	Colombiaw	Bautista, *et al*, 2008 [41]	514	53
07	Cambodia	Delvaux, *et al*, 2003 [42]	632	25
08	China	Lau, *et al*, 2007 [43]	195	55
09	China (Among adolescent FSWs)	Lim, *et al*, 2015 [32]	310	93
10	Benin	Sullivan, *et al*, 2020 [34]	450	67
11	England	Ward *et al*, 2000 [44]	143	26
12	Global Estimate	Mehrdad, K. *et al*, 2023 [35]		38
13	Countries where abortion is legal	Mehrdad, K. *et al*, 2023 [35]		45
14	Countries where abortion is illegal	Mehrdad, K. *et al*, 2023 [35]		35

Source: Knowledge and Practice of Emergency Contraception among Female Sex Workers: A Global Scoping Review [45]

Sexual and Gender Based Violence

FSWs in Sri Lanka endure various forms of violence throughout their lives. These acts of violence can be categorised across different life stages, from childhood to old age [7, 25, 26]. Many sex workers have experienced neglect, poverty, and violence during their childhood [7]. This often results in interrupted education and limited job opportunities, leading them towards sex work, which begins in their teenage years [7,26]. Early marriages driven by economic motives and abusive environments are common in this phase [7].

In their marital life, FSWs frequently face less-than-ideal situations, including domestic violence. Fear of exposure, societal stigma, and limited access to state and non-state support services contribute to their reluctance to seek help [7,25]. The children of sex workers also experience discrimination, bullying in school, and challenges in accessing education, further worsening the cycle of violence and vulnerability [7]. Even in their old age, sex workers face uncertainty and a lack of financial security, often needing to continue working due to the absence of familial support [7]. Workplace violence is a constant threat, encompassing issues such as non-consensual sexual acts, name-calling, refusal to use condoms, and fear of exposure [7,25,31]. Fear of law enforcement, concerns about exposure, loss of clients, and the burden of the complaint process lead to underreporting these incidents [7,25]. The prevailing violence and stigma create a harsh environment for FSWs in Sri Lanka, impacting their health, well-being, and safety.

Access to SRH Services

Access to healthcare services is a critical issue for FSWs in Sri Lanka. According to the 2018 Biological and Behavioural Surveillance Survey (IBBS), many FSWs faced difficulties

accessing medical care, with about one in four seeking care in the year before the survey. Almost a third of those who sought care encountered challenges [26]. Studies show that access to HIV testing services and the rate of follow-up visits to obtain test results remain significantly low among FSWs, due to a range of barriers including stigma, fear of discrimination, limited service availability, and lack of trust in healthcare providers [46-48]. IBBS further explained that approximately 58% of FSWs in Colombo had experienced pregnancy, and less than half had visited an antenatal clinic for prenatal care during their most recent pregnancy. Unfortunately, the survey did not investigate access to other essential healthcare services like well-woman services, family planning, and post-abortion care for FSWs [26].

Sri Lanka is known for its robust healthcare system, including contraceptive services provided by public health midwives [49]. However, a survey conducted among FSWs 2023 revealed significant gaps in accessing these services. A majority (83%) reported never receiving contraceptives from a midwife, and a high percentage were unaware of programmes like the 'Suwa Nari – Women's wellness clinic' in the government system. Notably, 45% mentioned not using any form of contraception (other than condoms). While some mentioned receiving support from clients for contraception, this was relatively rare and dependent on having trusted and regular clients [7]. These findings reveal the need to improve access to a wide range of healthcare services, including contraception and other SRH services, for FSWs in Sri Lanka.

Legal Reforms for Sex Work in Sri Lanka

The existing laws governing sex work in Sri Lanka have proven ineffective in safeguarding FSWs and addressing the challenges faced by sex workers. Consequently, various stakeholders are engaged in discussions regarding the necessity of legal reforms regarding sex work in Sri Lanka. Divergent viewpoints characterise the debate over legal reforms for sex work in Sri Lanka. Advocates contend that legalising sex work is essential to protect sex workers from violence and harassment, provide a recognised societal position for them, reduce social crimes, and create a safer environment. They argue that many women turn to sex work due to factors like poverty, coercion, desperation, and the need to support their families [50-52]. Legalisation, in their view, could ensure proper recognition, social respect, and the right for sex workers to conduct their work as they see fit, emphasising fundamental human rights for this marginalised group [53].

Critics, however, assert that legalising sex work would violate human rights, potentially leading to more harm than good for society [53]. They raise concerns about the spread of sexually transmitted diseases and the exploitation of vulnerable individuals. A formal discussion involving various stakeholders, including legal experts, Buddhist clergy, and socially responsible individuals, is suggested to determine the most appropriate course of action. Nevertheless, supporters argue that these reforms would bring justice to existing sex workers in Sri Lanka, potentially making it the first South Asian country to do so if the legal changes are enacted. Opponents of legalising sex work maintain several arguments against the proposed reforms. They contend that socio-economic and political factors, not personal choice, primarily drive prostitution, with many individuals entering the profession due to circumstances like poverty, war, social conflict, and predatory capitalism [54].

The Committee on the Elimination of Discrimination against Women (CEDAW) has brought to light a pressing issue concerning the misuse of the Vagrants Ordinance Act by

the police. This misuse has led to the arbitrary arrest of women engaged in prostitution. The Act is inappropriately applied by deeming possession of condoms as evidence of involvement in prostitution, resulting in the harassment, extortion, and even sexual bribery of these women. To address this serious problem, the committee has recommended the repeal of the Vagrants Ordinance Act. In the meantime, it suggests enforcing penalties on police officers who misuse the Act to target women in prostitution and sexual minority women. Furthermore, the committee emphasises the critical need for gender-sensitive protection and support for these victims, which includes the establishment of exit programmes for women who wish to leave prostitution [55]. This recommendation has been consistently reiterated in all subsequent reports, including the latest one on the issues and questions concerning Sri Lanka's ninth periodic report [56].

Conclusion

In conclusion, the situation of FSWs in Sri Lanka is marked by a complex web of challenges, including systemic violence, social stigma, and discrimination. These FSWs face multiple layers of vulnerability that hinder their access to healthcare, heighten the risk of unintended pregnancies and unsafe abortions, and perpetuate a cycle of marginalisation that spans across their life course.

This study has highlighted how the current legal system intersects with the complex challenges that FSWs face: violence, stigma, and limited healthcare access. The existing laws directly affect these sex workers, making their problems even more challenging. These laws contribute to these women's biases and difficulties from childhood through adulthood. Moreover, the existing legal framework has failed to address the core issues faced by FSWs, and there is a growing call for reform. International bodies like the Committee on the Elimination of Discrimination against Women (CEDAW) has recommended repealing laws that lead to the arbitrary arrest and abuse of these women. Such legal reform, coupled with targeted social support, exit programmes, and healthcare access, offers hope for a future for FSWs in Sri Lanka.

Use of Artificial Intelligence Assisted Technologies

While preparing this work, the authors used ChatGPT to improve the language and readability. The authors reviewed and edited the content as needed and take full responsibility for the final publication.

Data Availability Statement

As this study is based entirely on previously published literature, publicly available legal documents, and other secondary sources, no new datasets were generated or analysed. All sources referenced in this review are cited in the manuscript and can be accessed through the relevant publishers, repositories, or official websites.

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Conflicts of Interest

The authors declare that there are no conflicts of interest.

Ethical Approval

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

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Shattered Consent: A Comparative Study on Reproductive Autonomy for Rape Survivors in Sri Lanka

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Review Article

Abstract

Introduction: As recognized under Section 303 of the Penal Code of Sri Lanka, induced abortion is a criminal offence which results in imprisonment for a period of three years or a significant fine. Penal Code provides only one exception for abortion within Sri Lankan domestic legal framework , Particularly in circumstances where the mother's life is at risk. The present study attempts to examine the impact on right to reproductive choice from criminalizing abortion for rape victims under the Penal Code of Sri Lanka.

Objective: The objective of this research is to propose reform-based recommendations to ensure right to reproductive choice of the pregnant rape survivors in Sri Lanka through effective legal and procedural reforms.

Methodology: The qualitative research methodology through normative judicial research method and comparative research method was adopted in this research.

Results: Under section 303 of Penal code, induced abortion is considered as a criminal offence even for a rape victim. In 1995, amendment to decriminalize abortion in specific circumstances including rape, incest or fetal abnormalities was forwarded to the Parliament of Sri Lanka which was unsuccessful. In 2012 and 2022 respectively, there were attempts to reform existing legislative provisions on abortions which turned out to be a failure. Being a state party to CEDAW and other international human instruments, Sri Lanka is bound to remediate Reproductive Rights of women.

Conclusion: Forced pregnancy and motherhood of rape victims can be defined as a form of cruel and degrading treatment. After critical analysis of domestic law, it can be observed that despite of various attempts to reform the existing law, Law of abortion in Sri Lanka has remained as an untouched area. Therefore, it can be concluded that denial of abortion to rape survivors needs to be reformed to ensure right to reproductive choice of women in Sri Lanka.

Key Words: Abortion, International Obligations, Penal Law, Reproductive Autonomy, Victims of Rape

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Introduction

"At the heart of liberty is the right to define one's own concept of existence, of meaning, of the universe, and of the mystery of human life."

— *Supreme Court of United States, Majority Opinion* [1]

Within human rights law, abortion is considered a complex issue as it is much like two sides of the same coin-a crime and a right at the same time, which is clearly reflected in different legal frameworks. In the Sri Lankan context, section 303 of the Penal Code [2], adopted during the British colonial period in the year of 1883, employs a restrictive approach towards abortion.

In March 2025, the Government of Sri Lanka reaffirmed its commitment to amend the abortion law, section 303 of the Penal Code of Sri Lanka, to permit termination of pregnancies in cases of rape, incest and severe fetal deformities [3]. These failed efforts to amend the abortion law reflect the shortcomings of the legal system in enforcing human rights, particularly women's reproductive autonomy and related rights. This failure is not an isolated event, it highlights a broader pattern of the legislators' inability to recognize women's rights within criminal law, as evidenced by failed attempts to criminalize marital rape, redefine the scope of the legal definition of rape and reform abortion laws.

Considering the broader issue of gender discrimination within Sri Lanka's criminal law, this paper presents restricted access to abortion as an issue of reproductive autonomy. It examines the current legal framework on abortion and their impact on the reproductive autonomy and rights of rape survivors. Using radical feminist theory, this paper explores how continuous legislative failures impact women's reproductive autonomy and argues that legal reform is essential to strengthen women's rights. Through a comparative analysis of Sri Lanka and Nepal, this paper aims to demonstrate the urgency of addressing the lacunas in existing laws and advocate for reforms that uphold reproductive autonomy, equality and justice for rape survivors.

Part I of the paper presents an analysis raised by feminist scholars on reproductive autonomy, attempting to establish the failure of the government in securing the rights of rape survivors due to outdated abortion laws. This analysis lays the foundation for the next section, which provides a comparative examination of existing abortion laws in both Sri Lanka and Nepal. Finally, this paper offers recommendations framed for the Sri Lankan context, supported by Nepalese jurisdiction and the Convention on Elimination of All Forms of Discrimination Against Women (CEDAW) to support the protection of reproductive autonomy of women and promote gender sensitivity within the domestic criminal law framework.

Methods

This article employed a normative judicial approach and a comparative legal approach as the main methods of the study. Employment of these methods limited the scope of sources to existing primary and secondary sources, including legislative provisions, case law, international treaties and existing research contributions of scholars. The normative judicial approach involved a critical analysis of primary sources such as statutory provisions, constitutional guarantees and judicial decisions governing abortion in Sri Lanka supported by secondary sources including academic journals and policy reports. The comparative analysis was limited to jurisdiction of Nepal, where it was selected for its unique position from being a historically restrictive abortion regime to

liberal legal framework in South Asia with similar sociocultural context. This comparison was framed within international human rights standards, including Sri Lanka's obligations under CEDAW and other international human rights obligations. This study was limited to desk-based analysis and no empirical research was undertaken.

Discussion

Feminist Critique on Reproductive Autonomy and Abortion

Motherhood is a beautiful phase in a woman's life, which comes with the right to choose whether or not to reproduce, including the right to decide whether to carry or terminate an unwanted pregnancy. In this regard, the decision on having children is an expression of individual autonomy, which is recognized by human rights law with minimum state interference [4]. The ability of a women to control their reproductive destiny is a key measurement of substantive equality and freedom of women in a society. Reproductive rights throughout women's life cycle include: sex education and contraception, the ability to decide whether to have or not have children, antenatal care, the right to give birth safely and reproductive needs beyond pregnancy and childbirth [5]. Within reproductive autonomy, abortion remains a key struggle, where recognition of women's right to have abortion is unencumbered by legal conditions. Abortion rights are inherently connected with law, and their interpretation is based on different justifications; reproductive choice and reproductive justice [6]. While the former can extend legal protection to some women, the latter focuses on a more transformative approach of reproductive justice supported by substantive equality, autonomy and social rights, which hinders traditional patriarchal norms. Thus, this article builds its argument based on reproductive justice. As Loretta Ross argues, reproductive autonomy is not only about access to contraception and maternal care, but also understanding economic, social barriers in bearing and raising a child [7]. The reproductive justice approach is built on five principles: first, a substantive understanding of women's reproductive autonomy within their specific contexts, second, substantive equality on reproductive autonomy. Third, reproductive autonomy should be interpreted with connection to socio-economic rights. Fourth, a substantive and intersectional analysis of all these rights will protect disadvantaged women. Fifth, the legal and policy framework must recognize and facilitate abortion rights while considering social, economic and other conditions that enable reproductive justice [8]. Thus, the right to abortion, particularly in rape must be contextually understood, where the reproductive choice of rape victims should be located within broader interpretation of social, economic, cultural constraints on bearing a secondary victim of rape. As existing studies suggests, criminalizing abortion to rape victims result in victims experiencing double marginalization as they have go through illegal abortions that are not following the law. Folky Fuad commented as follows:

"The existence of a law that criminalizes all forms of abortion plus the fear of social sanctions if it is known to the public, makes women who experience unwanted pregnancies (for example, rape victims) perform abortions secretly to untrained people" [9].

Grounded on the theory of reproductive justice, this paper evaluates Sri Lanka's legal framework on abortion to assess its alignment with the principles of that theory.

Sri Lanka's Legal Framework on Abortion; A Critical Analysis

A unified and structured criminal law system was only introduced in Sri Lanka by the British, where British authorities drafted a Penal Code

for India, which was applied to Sri Lanka with some essential alterations [10], which still remains in operation even after 75 years of independence. The offence of Rape is defined under section 363 of the Penal Code as amended as follows;

> "Section 363: A man is said to commit " rape " who enactment has sexual intercourse with, a woman under circumstances falling under any of the following descriptions: (a) without her consent even where such woman is his wife and she is judicially separated from the man (b) with her consent when her consent has been obtained, by use of force or threats or while she was in unlawful detention. (c)with her consent when her consent at a time when she was of unsound mind or was in a state of intoxication (d) with her consent when the man knows that he is not her husband, and that her consent is given because the believes that he is another man to whom she is, or believed herself to be, lawfully married; (e) with or without her consent when she is under sixteen years of age [11]."

The criteria for defining the offence of rape are based on the requirement of 'consent', which is not clearly defined within the Penal Code. On the other hand, Section 303 of the Penal Code criminalizes abortion as follows;

> Section 303; however voluntarily causes a woman with child to miscarry shall, if such miscarriage be not caused in good faith for the purpose of saving the life of the woman, be punished with imprisonment of either description for a term which may extend to three years, or with a fine, or with both; and if the woman be quick with child, shall be punished with imprisonment of either description for a term which may extend to seven years, and shall also be liable to fine [12].

Examining sections 363 and 303 of the Penal Code together, under Sri Lankan criminal law, rape victims who terminate unwanted pregnancies are classified as perpetrators of illegal abortion. It can be argued that, when taken together, these sections are crafted in a manner that discriminates against the rights of rape victims, both women and adolescent girls. The provisions of section 363 and 303 raises two critical issues; 1 (It imposes the burden of unwanted motherhood on rape victims, including adolescent girls and 2) children born as a result of such circumstances are often burdened with social, economic, psychological challenges, which pose a serious threat to protecting their best interests, as mandated by Article 3 of the Convention on the Rights of the Child(CRC), to which Sri Lanka is a party.

Further, subsection 364 [3] addresses instances of rape involving a minor, where the victim is a child herself. However, when read in conjunction with Section 303, the provisions impose an undue burden on a child by compelling her to assume the role of a mother while still being a child.

This contemporary legal stance on abortion provision in Sri Lanka, particularly in rape cases, can be critically examined through the lens of feminist scholarship and historical perspectives on women's subordination. Different feminist scholars and anthropologists have examined the status of women during the Victorian era where their roles were shaped by their objectification. As these scholars emphasize, women were often restricted to their domestic, sexual and societal value reinforcing their subordinate position.

This Victorian ideology of women is visibly encapsulated in the English proverb of 'A spaniel, a woman, and a walnut tree, the more they're beaten, the better they be [13]". As explored by John Stuart Mill in his work

of "The subjection of Women, In Essays on Sex Equality", the position of married in the Victorian era was described as worse than that of slaves, as women were legally bound to their husbands, rendering them completely subordinate. [14]. As Daniel Siegel observes in 'Charity Through Dissociation: The Task of the Bible-Woman', there was a disparity between men and women in both public and private life in the Victorian era, where women were burdened with high moral expectations, particularly around ideals of moral purity, expectations and legal obligations within marriage. [15]. The colonial-imposed law, which reflects Victorian ideology, visibly remains instilled in Sri Lankan Law today, which is evident in the persistent failure to amend its restrictive abortion laws. This not limited to Sri Lanka, but also to many other colonized nations. As argued by Erdman [16].

> "The law labels the destruction of an embryo and/or fetus an ethically or morally significant act, which gives reason to regulate abortion as something more than a personal decision or a medical procedure, but as a social act"

Victorian ideology, coupled with social-cultural stigma, has resulted in failures of many attempts to amend the domestic abortion law. A recent initiative was attempted in 2013, where a special report was compiled with a proposal to the government to reform the existing abortion provisions by permitting a victim of rape to terminate the pregnancy. Despite the effort, the proposal was rejected. In 1995, the Ministry of Justice presented an (Amendment) Bill to the Penal Code in which section 03 sought to decriminalize abortions in cases of rape, incest and congenital abnormalities. Nevertheless, in presenting the bill, Section 03 was withdrawn and was not voted for [17]. Regrettably, however, the Sri Lankan parliament never succeeded in decriminalizing abortion for victims of rape. Being a state which recognize substantive equality under article 12[4] and a state party to different international human rights conventions, Sri Lanka is obliged to protect women against discrimination, which has been a failure thus far. The next part of the article will delve into Sri Lanka's international obligation towards protecting women against discrimination.

Sri Lanka's International Human Rights Obligations

The criminal law of a country is the core pillar of its sovereignty and is restricted from any interference; doing so is considered a substantial violation of the principle of 'non-intervention' as enshrined by United NationsCharter;

> "Nothing contained in the present Charter shall authorize the United Nations to intervene in matters which are essentially within the domestic jurisdiction of any state or shall require the Members to submit such matters to settlement under the present Charter; but this principle shall not prejudice the application of enforcement measures under Chapter Vll [18]".

Nevertheless, this does not authorize State parties to exclude their commitments under UN conventions. Reproductive rights have been recognized through the interpretation and enforcement of international human rights treaties, particularly under the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) and the International Covenant on Economic, Social and Cultural Rights (ICESCR). Sri Lanka being a state party to many international human rights conventions, CEDAW is the most relevant convention which particularly addresses the rights of women. With the obligation to domestically implement the rights of CEDAW, Sri Lanka has drafted a women's charter which is a non-binding soft law. Yet, Sri Lanka's obligation towards

upholding CEDAW has been acknowledged in the case of *Manohari Pelaketiya v Secretary of the Minister of Education* [19] which states as follows;

> "Sri Lanka boasts of both constitutional as well as international obligations to ensure equity and gender-neutral equality which this Court cannot simply ignore…Sri Lanka has undertaken international obligations to eliminate all forms of discrimination against women by acceding to CEDAW on 17.07.1998"

Article 12 of the Convention, complemented by article 16 [1] (e), guarantees women the right to health, including sexual and reproductive health. These articles read in conjunction stipulate the need to eliminate discrimination against women in reproductive rights. Article 2 (c), (d), (f) and (g) stipulate the obligation towards state parties to establish legal recognition of the rights of women and to restrict the activities or practices that are discriminatory to women, particularly to take appropriate measures. Article 2, further requires State parties to repeal national penal provisions which are discriminatory to women. Article 5, read in conjunction with Article 12,16, requires the elimination of gender stereotypes that impede equality in health and have a negative impact on women's capacity to make free choices about their sexuality and reproduction.

In 2014, the CEDAW Committee's Statement on sexual and reproductive health and rights recognized that women's right to autonomy is an integral part of sexual and reproductive rights. It suggests, with the harm associated with unsafe abortion, 'states should legalize abortion at least in cases of threat to life, health, rape or incest, or severe fetal impairment.'

The general recommendation No.24 of the CEDAW Committee outlines the State's responsibility to protect women's right to safe motherhood and relevant obstetric services (para 27) [20]. Moving further from right to health, the general recommendation No.35 is on gender-based violence against women. The Committee states that forced continuation of pregnancy, criminalization of abortion, denial of safe abortion or post-abortion care are forms of gender-based violence and depending on the circumstances can be interpreted as torture or cruel, inhuman or degrading treatment [21].

In respect of international obligations, ongoing criminalization of abortion continues to be a legal obstacle in realizing gender equality and empowering women in having full control over their lives in Sri Lanka. This can be interpreted as a state-induced torture or inhuman treatment against rape victims, thereby the State is violating Article 11 of the 1978 Constitution of Sri Lanka; 'No person shall be subjected to torture or cruel, inhuman or degrading treatment or punishment.'. Therefore, while the above discussed UN Conventions that are binding on Sri Lanka as a signatory, Nepalese laws may offer a persuasive approach to Sri Lanka's reformation of abortion laws. In the following section, this article will examine Nepal's legislative progress on decriminalizing abortion, thereby proposing amendments to Sri Lankan criminal law.

Comparative Insights: Nepal's Progressive Model

As a neighbouring country with a similar socio-economic context, legislative progress has been made in Nepal for abortion rights. Until 2002, Nepal was implementing a repressive legal regime where abortion was entirely criminalized without any exceptions [22]. As studies reveal, by 2000, an estimated 20% of Nepalese women were incarcerated due to abortion, with a 70% conviction rate (23). The 11th amendment to National Penal

Code (Muluki Ain) introduced section 28 (b) which provided for several exceptions to criminalization of abortion, including abortion within twelve weeks of gestation with consent of the mother and where life or physical or mental health of the mother is at risk [24].

In the year of 2006, with the adoption of the Gender Equality Act 2006, it was further amended to include the exception to criminalize abortion up to eighteen weeks in cases of rape and incest. Expanding its scope, the Interim Constitution in 2007 explicitly recognized women's right to reproductive health and reproduction-related rights under Article 20[2]. Similarly, the current constitution promulgated in 2015 enshrines the right to safe motherhood and reproductive health under Article 38[2]. This explicit entrenchment of women's reproductive rights is a significant development which provides an explicit mandate to enforce these rights and protect from executive and legislative interference.

In 2018, following the Supreme Court's recommendation in Lakshmi Dhikta v.Nepal (2009) the Safe Motherhood and Reproductive Health Rights Act 2018 was introduced with extensive obligations on the State to ensure reproductive health of every girl and woman under section 3[1]; thereby emphasizing the necessity to provide information, counselling, education and services related to sexual and reproductive health. Followed by the state being obliged to provide obstetric care, newborn care and safe abortion services under section 15 of the respective act. As section 15 (c) states ;

"Section 15(c); Seeking safe abortion: A pregnant woman shall have the right to seek safe abortion under the following conditions: Up to twenty-eight weeks of pregnancy with the consent of the pregnant woman in case the conception is a result of rape or incest."

A significant aspect of the Nepalese law is the incorporation of privacy and confidentiality. These services are centered around the principle of confidentiality, whereby details relating to reproductive health related services received by each individual are required to remain confidential in accordance with section 4 of the Act. Accordingly, it can be argued that despite being a South Asian country, influenced by religious, cultural and societal factors for a prolonged period, the Nepalese government has been successful in ensuring the welfare of rape victims, thereby contributing to the protection of women's rights in the broader context.

Conclusion and Proposals to Revise

Legislative choices are always shaped by context, and transformative outcomes are often hindered by surrounding socio-political factors. The idea of reproductive autonomy in Sri Lankan jurisprudence is narrowly interpreted as a negative right offering protection only when the mother's health is at risk, limiting individual choices and being under state incursion.

In addition, the failure to amend the law not only limits Article 12, the right to equality, but also undermines the protection of women against discrimination. Further, Article 12 right to equality would emphasize not only that a failure to decriminalize abortion in cases of rape is a form of discrimination against women in general, but also that it continues to stigmatize them for seeking abortions and disadvantages them in facing the social and economic consequences of unwanted pregnancies. The structural inequalities and intersectional barriers faced by women in Sri Lanka have imposed more stringent and positive obligations on the state to remove those barriers. As discussed, this marks a shift toward a more progressive judicial

approach to justice by the courts of Sri Lanka. This shift places an obligation on the judiciary to reconsider the interpretation of Section 303 in light of reproductive justice theory.

The fundamental issue of Section 303 lies in its restrictive approach, which decriminalizes abortion only when the mother's health is at risk. Although Sri Lanka is a state party to CEDAW, it has yet to fully adhere to Article 03, which requires state parties to take appropriate measures, including legislation, to guarantee the exercise and enjoyment of human rights by women. As emphasized earlier, forcing a woman to carry a pregnancy that is the source of serious psychological distress can be interpreted as a form of torture. This article acknowledges that full decriminalization of abortion may be perceived as opening the floodgates, potentially leading to negative social and cultural impacts. However, in cases of rape in Sri Lanka, abortion should be decriminalized to ensure both the welfare of the mother and the child. A significant change that can be employed is the adoption of a 'special and differentiated approach for women by the judiciary. In cases of sexual crimes against women, countries such as the United States adopt the practice of 'reasonable woman tests' which allows courts to understand the victim's position subjectively. Adopting this approach in abortion cases involving rape cases will help ensure a gender sensitive justice system.

While laws protecting women have often been enacted by a male-dominated legislature, this article explores how such laws have impacted the rights of rape victims. By comparing Nepalese abortion law with Sri Lanka's international obligations, the article highlights the need to adopt gender sensitive approaches within abortion legislation, It emphasizes how Sri Lanka's current legal framework failures have violated international obligations both under CEDAW and ICESCR. The article proposes targeted reforms to enhance the protection of rape victims within the domestic legal system.

Data Availability Statement

As this study is based entirely on previously published literature, publicly available legal documents, and other secondary sources, no new datasets were generated or analysed. All sources referenced in this review are cited in the manuscript and can be accessed through the relevant publishers, repositories, or official websites.

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Ethical Approval

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

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Contraception in Perimenopause: An Evidence-based Review

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Review Article

Abstract

Introduction: The perimenopause is a complicated stage in a woman's life with medical implications such as progressive hormonal changes, fluctuating ovarian activity, and the gradual cessation of menstruation. Although the fertility range declines significantly during the perimenopausal period, as a result of possible ovulation until the final menstrual period, women may lead to unintended pregnancies. Such pregnancies can be categorised as high risk, as they may be associated with hypertensive disorders, gestational diabetes, miscarriage, and chromosomal abnormalities such as Down syndrome.

Methods: This narrative review was conducted through a desk-based analysis of published and grey literature related to contraception in perimenopause. Sources included peer-reviewed journal articles, policy documents, reports, and relevant legal and institutional texts. The review synthesised evidence to identify key themes, gaps, and implications for sexual and reproductive health in the Sri Lankan and South Asian context.

Results: Perimenopausal women often experience a range of symptoms such as vasomotor disturbances, abnormal uterine bleeding, mood changes, sleep disruptions, and alterations in sexual function that may considerably affect their quality of life. Hormonal contraception during this period offers a unique dual benefit: effective pregnancy prevention and therapeutic management of many perimenopausal symptoms. This review provides a broad and complete discussion of the use of contraception during the perimenopausal period. It further examines the physiological background of perimenopause, the rationale for contraception, and the vast array of available methods. Each method used in this particular review is evaluated based on its effectiveness, safety, suitability for symptom relief, and potential non-contraceptive health benefits, such as cancer risk reduction and bone density preservation. Coexisting health conditions, transition to menopause hormone therapy, and the unique needs of women with premature ovarian insufficiency are addressed as special considerations.

Conclusion: Contraception in perimenopause is vital to prevent unintended pregnancies and offers added health benefits. Individualised method selection and effective counselling are key to ensuring safety, autonomy, and improved quality of life for women during this transition.

Key Words: Perimenopause, Contraception, Unintended Pregnancy, Hormonal Therapy, Sexual and Reproductive Health

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Introduction

Menopause is the permanent cessation of monthly menstrual cycles due to physiological insufficiency of ovarian follicles, and it represents a major milestone in the reproductive life of women. The diagnosis of the menopause is retrospective, after 12 months of amenorrhoea following the last menstrual period. According to currently available data, the mean age of menopause is considered to be 50.4 years [1]. The timing of menopause can vary significantly among different individuals. Early menopause that occurs during the age of 40 to 45 is considered as *Premature Menopause*, while if it occurs before 40 years is called *Premature Ovarian Insufficiency (POI)* [2].

Menopause is not an instantaneous event; rather, the physiological events occur over the years known as *perimenopause* or *menopausal transition*. This period is characterised by fluctuations of body hormone levels; estrogens and progestins; disrupting regular ovarian functions. These hormonal fluctuations affect menstrual patterns and contribute to a wide range of symptoms. Some of those symptoms can begin years before the final menstrual period. Many women experience vasomotor symptoms such as hot flashes and night sweats, psychological disturbances like mood swings and anxiety, sleep difficulties, and genitourinary changes including vaginal dryness and discomfort during intercourse [3]. The clinical management must be individualised according to the variability in symptom type and intensity. As ovulation can occur occasionally during this transition, unplanned pregnancies can still happen despite the reduction in fertility. This creates a dual challenge of preventing pregnancies that may carry significant risks due to maternal age and alleviating the distressing symptoms that can impair daily functioning.

Hormonal contraception offers a unique advantage in this period. It can regulate cycles, reduce heavy bleeding, control vasomotor symptoms, and provide long-term health benefits such as lowering the risk of ovarian and endometrial cancers beyond reproductive conception [4]. However, the decision of using contraception during perimenopause must balance these benefits against potential risks, including cardiovascular events and hormone-sensitive cancers.

This review explores these considerations in depth, offering a structured overview of the physiological changes of perimenopause, the rationale for contraceptive use, available options, and strategies for individualised care.

Methods

This review is based on current clinical evidence and expert consensus regarding contraceptive use in the menopausal transition. The analysis reflects an integration of high-quality data from reproductive endocrinology, gynaecology, and public health research.

The scope of this analysis includes:

1. **Physiological context** – understanding the hormonal and reproductive changes that occur in perimenopause.
2. **Clinical rationale** – identifying why contraception remains relevant and often necessary during this stage.
3. **Contraceptive methods** – detailing the full spectrum of hormonal and non-hormonal options, including their mechanisms, advantages, limitations, and potential risks.
4. **Special populations and considerations** – addressing scenarios such as comorbidities, high cardiovascular risk, migraine history, and premature ovarian insufficiency.

5. **Transition planning** – outlining strategies for safely discontinuing contraception and moving to menopause hormone therapy when appropriate.

The intention is to summarise available evidence and to present it in a way that supports individualised patient counselling, recognising that perimenopausal women present with diverse reproductive goals, symptom burdens, and health profiles.

Rationale for Perimenopausal Contraception

Fertility naturally diminishes with age, but it does not end abruptly at the onset of perimenopause. This stage requires examining the interplay between reproductive biology, maternal health risks, and social trends, while understanding why contraception is used.

Possible Ovulation during Perimenopause

From the mid-30s onwards, the number of ovarian follicles decreases sharply, and egg quality declines due to accumulated chromosomal changes [5]. Despite these changes, ovulatory cycles often persist, albeit irregularly, well into the 40s. In early perimenopause, ovulation may still occur in 60-80% of cycles; in late perimenopause, it may drop to around 20–40%, but it is not absent [6].

Unpredictability of ovulation is an inevitable challenge during this period. Even though women may go several months without menstruation, unexpected ovulation can occur. Fertility awareness-based methods, which rely on predicting the fertile window, become unreliable in the face of such irregularity. This unpredictability explains why unplanned pregnancies still occur in women in their mid-to-late 40s.

Maternal Risks Associated with Elderly Pregnancy

Pregnancy during perimenopause carries significant medical risks [7].

As maternal age increases:

- **Miscarriage rates** rise sharply, often due to chromosomal abnormalities in the oocytes [7].
- **Hypertensive disorders** such as preeclampsia and gestational hypertension become more common [7].
- **Gestational diabetes** risk increases due to age-related insulin resistance [7].
- **Thromboembolic events** are more likely, particularly postpartum [7].
- **Operative deliveries** such as caesarean sections are more frequent due to labour complications.

Advanced maternal age is associated with higher rates of growth restriction, preterm birth, and chromosomal disorders, including trisomy 21 for the fetus [8]. These risks contribute to higher perinatal morbidity and mortality compared with pregnancies in younger women. In addition, recovery from childbirth, especially after complicated deliveries, tends to be slower in older mothers, impacting both physical and emotional health [9].

Risk Reduction and Contraception

In this context, contraception is a preventive health measure. Preventing unintended pregnancies in perimenopausal women can reduce the incidence of high-risk obstetric outcomes and protect long-term health.

Certain contraceptives address perimenopausal symptoms directly. Combined hormonal contraceptives (CHCs) can smooth out the hormonal fluctuations that contribute to

vasomotor symptoms, menstrual migraines, and abnormal bleeding [10]. Meanwhile, progestin-only methods can help to manage heavy menstrual bleeding even in women who cannot use estrogen. As a result, midlife health management can combine pregnancy prevention with symptom control and contraception.

Perimenopausal Symptoms versus Quality of Life

The perimenopause represents a shift in reproductive capability and a time of considerable change in a woman's physical, emotional, and sexual health. The gradual decline in ovarian activity leads to fluctuating levels of estrogen and progesterone, which can affect multiple organ systems. While some women navigate this period with minimal discomfort, others experience symptoms that severely disrupt daily life. Recognising the full spectrum of these changes is essential in guiding contraceptive choice and overall management.

Perimenopausal Contraceptive Options

The choice of contraception is guided by more than pregnancy prevention for women in the menopausal transition. Many methods have the potential to relieve troublesome perimenopausal symptoms, reduce menstrual blood loss, and even offer long-term health benefits [11]. The ideal option must balance *effectiveness, safety, symptom management, and patient preference*, while considering any *comorbidities* or *contraindications.*

Combined Hormonal Contraceptives (CHCs)

CHCs are available in three main delivery forms, which are oral pills, transdermal patches, and vaginal rings that contain both an estrogen component and a progestin. Their contraceptive action relies on inhibition of ovulation, suppression of the mid-cycle luteinising hormone (LH) surge, and stabilisation of the endometrium to reduce breakthrough bleeding. They also increase the viscosity of cervical mucus, making it more difficult for sperm to penetrate.

Benefits of CHCs in Perimenopause

- **Cycle Regulation:** CHCs create predictable withdrawal bleeding, eliminating the uncertainty of irregular cycles [12].
- **Reduction of Bleeding:** Many CHC regimens reduce the volume and duration of menstrual bleeding, lowering the risk of anaemia [12].
- **Vasomotor Symptom Relief:** By stabilising estrogen levels, CHCs can lessen the frequency and intensity of hot flashes and night sweats [13].
- **Menstrual Migraine Control:** Continuous or extended-cycle CHC regimens may prevent the estrogen-withdrawal headaches that occur in some women [11].
- **Long-Term Cancer Protection:** CHCs reduce the lifetime risk of ovarian and endometrial cancer, with benefits that persist long after discontinuation. A comprehensive study involving over 250,000 women found that CHC use was associated with a 28% reduced risk of ovarian cancer, with this reduction remaining significant up to 35 years after discontinuation [14,15]. Similarly, a large cohort study reported that CHC use reduced the risk of endometrial cancer by 50%, with the protective effect lasting for at least 20 years after stopping use [14,15].

New CHC Preparations

Traditional CHCs use ethinylestradiol as the estrogen, but newer options replace it with natural estrogens such as *estradiol valerate, 17β-estradiol,* and *estetrol*. These are associated with less impact on liver protein synthesis and clotting factors, potentially reducing the risk of venous thromboembolism (VTE), a significant safety concern in older women [16]. Progestin selection also matters; levonorgestrel-containing CHCs are generally considered lower risk for VTE compared with some newer progestins.

Progestin-Only Contraceptives (POCs)

Progestin-only methods deliver hormones without estrogen, making them a safer alternative for women at higher risk of estrogen-related complications. Unlike combined hormonal contraceptives (CHCs), which contain estrogen and are associated with an increased risk of ischemic stroke in women with migraines with aura, POPs do not elevate this risk. They work primarily by thickening cervical mucus, altering the endometrial lining to inhibit implantation, and suppressing ovulation.

Oral Progestin-Only Pills (POPs)

POPs must be taken daily at the same time, without a hormone-free interval. They are well tolerated, suitable for smokers over 35, and can be started immediately postpartum. However, they may cause irregular spotting, which some women find bothersome. In perimenopause, POPs are a reasonable choice for those with cardiovascular risk factors or migraines with aura.

Injectable Progestins

Depot medroxyprogesterone acwetate (DMPA) provides protection for 12 weeks per injection. It is highly effective but can cause irregular bleeding in the first months and is linked to bone mineral density loss with long-term use. It is an important consideration for midlife women who are already at risk of osteoporosis. DMPA may also cause weight gain.

Subdermal Implants

Implants release low doses of progestin over 3-5 years, offering convenient, long-acting contraception. They are reversible and do not contain estrogen, making them suitable for women with cardiovascular concerns. However, irregular bleeding patterns are common and may persist throughout use.

Levonorgestrel-Releasing Intrauterine System (LNG-IUS)

The LNG-IUS is a particularly valuable option in perimenopause. It delivers progestin directly to the uterus, providing up to 5 years of contraception and a significant reduction in menstrual blood loss. Many women achieve amenorrhea, which can be especially welcome for those with heavy bleeding. Additionally, it can serve as the progestin component of menopause hormone therapy when systemic estrogen is prescribed.

Long-Acting Reversible Contraceptives (LARCs)

LARCs include the LNG-IUS, copper IUD, and subdermal implants. They require minimal maintenance after insertion, making them highly effective and cost-efficient over time.

Copper Intrauterine Device (Cu-IUD)

The Cu-IUD is hormone-free and effective for up to 10 years. It is a good option for women who cannot or prefer not to use hormonal methods. However, it may increase menstrual bleeding and cramping, making it less ideal for those already struggling with heavy periods in perimenopause.

Barrier Methods and Permanent Options

Barrier Methods

Male and female condoms, diaphragms, and cervical caps offer immediate, non-hormonal contraception but have lower efficacy than hormonal or LARC options. They are best suited for women with infrequent sexual activity or those avoiding hormones for medical or personal reasons. Condoms additionally provide protection against sexually transmitted infections (STIs), which is relevant as some women in midlife enter new sexual relationships.

Sterilisation

Tubal ligation offers permanent contraception, while vasectomy for the male partner is a simpler and safer alternative. Sterilisation may be appropriate for couples certain that they do not want future pregnancies. However, given the low fertility of late perimenopause, some clinicians encourage consideration of long-acting reversible methods instead of irreversible procedures.

Selection of a Method

Choosing a contraceptive method for a perimenopausal woman is a nuanced process. It is not simply about identifying the most effective method; it also requires aligning with the woman's medical profile, symptom burden, lifestyle, and long-term health goals.

Symptom Profile versus Contraception

A woman's dominant symptoms during perimenopause often influence her choice of contraception.

- **Heavy menstrual bleeding:** The LNG-IUS or combined hormonal contraceptives (CHCs) can markedly reduce menstrual blood loss and even induce amenorrhea [17].
- **Vasomotor symptoms:** CHCs may alleviate hot flashes and night sweats by stabilising estrogen levels, particularly in extended-cycle regimens [18].
- **Menstrual migraines:** Continuous CHC use can prevent estrogen-withdrawal headaches, though this is contraindicated in migraine with aura [19].

By targeting symptom relief alongside contraception, healthcare providers can deliver *dual-purpose treatment* that enhances adherence and satisfaction.

Non-Contraceptive Benefits

Midlife is a period of increasing risk for osteoporosis, cardiovascular disease, and certain cancers. Some contraceptives offer protective effects:

- **CHCs:** Long-term protection against endometrial and ovarian cancers, maintenance of bone mineral density, and improvement in acne and hirsutism [14,15,20].
- **LNG-IUS:** Endometrial protection and bleeding control, with potential use in menopause hormone therapy [17].

These additional benefits may tip the balance in favour of one method over another, particularly for women with a family history of certain conditions.

Comorbidities

Certain medical conditions dictate what methods are safe:

- **Cardiovascular risk factors** (hypertension, smoking, obesity, diabetes) may preclude estrogen-containing methods.
- **History of VTE or migraine with aura** rules out CHCs.
- **Unexplained abnormal bleeding** should be investigated before hormonal methods are initiated.

The World Health Organization (WHO) Medical Eligibility Criteria provides a valuable framework for determining safety in specific clinical scenarios.

Personal Factors

Personal factors often determine whether a method will be used consistently and correctly:

- **Daily adherence:** Some women prefer LARCs to avoid daily pill-taking.
- **Desire for predictable bleeding:** CHCs may be preferred by women who value menstrual regularity.
- **Infrequency of intercourse:** Barrier methods may suffice in some cases.

Counselling should weigh convenience and control against medical considerations to ensure the chosen method fits the woman's life.

Special Clinical Considerations

While general guidelines are helpful, certain clinical scenarios require a tailored approach to contraceptive selection during perimenopause.

Migraines

- **Migraine without aura:** CHCs may help by reducing estrogen fluctuations, especially in continuous dosing. An expert review from the Cleveland Clinic Journal of Medicine confirms that CHCs are not contraindicated in migraine without aura, and notes that continuous, ultra-low-dose formulations (≤20µg ethinyl estradiol) may help prevent menstrual migraine by avoiding the hormone-free interval that often triggers headaches [21].
- **Migraine with aura:** CHCs are contraindicated due to increased stroke risk; progestin-only methods are safer but do not treat estrogen-withdrawal headaches.

Abnormal Uterine Bleeding (AUB)

Hormonal methods, especially the LNG-IUS, can significantly reduce AUB and improve quality of life.

- CHCs also regulate cycles and reduce bleeding.
- Copper IUDs should be avoided in women with heavy bleeding as they may exacerbate symptoms.

Sexual Function

Contraceptives can affect sexual well-being in complex ways:

- Some CHCs may slightly reduce androgen levels, affecting libido, though this varies by formulation. A randomized trial comparing two different doses of the same CHC formulation (EE 30 µg/LNG 150 µg versus EE 20 µg/LNG 100 µg) found that the higher-dose group experienced significantly greater reductions in androgen measures (total testosterone down 54%, free androgen index down 67%), with sexual desire improved only in the lower-dose group [22].
- Methods that induce amenorrhea (e.g., LNG-IUS) can remove the anxiety of unexpected bleeding during intercourse.
- Adjunctive treatments such as vaginal estrogen can be used alongside contraception to address discomfort.

Bone Health

Bone loss accelerates in late perimenopause and early postmenopause.

- **CHCs:** May preserve bone mineral density by supplying estrogen [20].
- **DMPA:** Associated with bone loss and should be used with caution in women over 45 unless benefits outweigh risks. In its Committee Opinion (No. 602), the American College of Obstetricians

and Gynaecologists (ACOG) highlights that depot medroxyprogesterone acetate (DMPA) is linked to decreased bone mineral density (BMD) [23]. It emphasizes that the FDA's "black box" warning limits its use to 2 years, and that any continuation beyond this should be based on clinical judgment, balancing risks like bone loss against the consequences of unintended pregnancy [23].

Risk Assessment

Risk assessment is critical in perimenopausal contraceptive counselling. It must weigh the protective effects of contraception against potential harms, considering age-related changes in cardiovascular and cancer risk.

Cardiovascular Risk

Older age increases the baseline risk of myocardial infarction, stroke, and VTE.

- **CHCs** can increase these risks, especially in smokers, obese women, and those with hypertension.
- **Natural estrogen formulations** may pose lower VTE risk but still require careful patient selection [16].
- Women with high cardiovascular risk should be steered toward progestin-only or non-hormonal methods.

Thromboembolism

The risk of VTE rises with age and with estrogen-containing contraceptives. A Danish cohort study found that the incidence of VTE among women increases significantly with age, from 1.84 per 10,000 woman-years in those aged 15–19, up to 6.59 per 10,000 in women aged 45–49 [24]. A meta-analysis reported that oral contraceptive users face a more than threefold increased odds of VTE (OR = 3.13; 95% CI: 2.61–3.65), especially with third-generation formulations [25].

- Using the lowest effective estrogen dose, local application of estrogen, and safer progestins (e.g., levonorgestrel) can reduce risk.
- The LNG-IUS and copper IUD have no associated VTE risk [26].

Malignancies

- **Benefits:** CHCs reduce endometrial and ovarian cancer risk; LNG-IUS also offers endometrial protection.
- **Risks:** Slight increase in breast cancer risk during active CHC use, which diminishes after stopping. Current CHC users had a modestly increased relative risk of breast cancer (RR - 1.24) [27]. The risk gradually declined after stopping use: 1-4 years post-use RR - 1.16; 5-9 years post-use RR - 1.07; 10 or more years after discontinuation: Risk returned to baseline (RR - 1.0) [27].
- Hormonal contraception is contraindicated in women with a personal history of estrogen-sensitive cancers

Other Contraindications

Severe liver disease, unexplained vaginal bleeding, and uncontrolled hypertension are absolute contraindications for certain hormonal methods. A thorough history and physical examination are mandatory before prescribing.

Discontinuation of Contraception and Transition to Menopause Hormone Therapy (MHT)

Determining when to discontinue contraception during the perimenopause requires careful consideration, as ovulation may persist until menopause is reached. Stopping contraception too early exposes a woman to the risk of unintended pregnancy, while

continuing it unnecessarily can subject her to unneeded medication and its potential side effects.

Diagnosis of Menopause

In women who are not using hormonal contraception, menopause is diagnosed retrospectively after twelve consecutive months without menstruation. However, hormonal contraceptives, especially CHCs, suppress follicle-stimulating hormone (FSH) and luteinising hormone (LH), making laboratory confirmation unreliable while on treatment. In such cases, discontinuing CHCs for several weeks and observing for a return of menses, or switching temporarily to a non-hormonal method, may be necessary to confirm menopausal status.

For users of progestin-only methods, such as the LNG-IUS or progestin-only pills, it is possible to measure FSH levels to help determine menopause. If levels are consistently elevated and menstrual bleeding has ceased, contraception can usually be stopped.

Overlapping with Hormone Therapy

For women experiencing significant menopausal symptoms, healthcare providers may plan a seamless transition from contraception to MHT. This ensures continued symptom control while removing the need for pregnancy prevention once menopause is confirmed. The LNG-IUS can remain in place as part of an MHT regimen, providing endometrial protection while systemic estrogen is administered.

Age-Based Guidance

Some guidelines recommend discontinuing contraception around the average age of menopause (approximately 50–51 years) if menopause cannot be confirmed earlier. However, individual factors, such as symptom burden, cardiovascular risk, and the presence of other comorbidities, should guide decision-making.

Premature Ovarian Insufficiency (POI)

Overview and Health Risks

Premature ovarian insufficiency, defined as menopause before the age of 40, is a distinct clinical entity with significant long-term health consequences. Women with POI face an increased lifetime risk of osteoporosis, cardiovascular disease, and possibly cognitive decline, largely due to prolonged estrogen deficiency [28,29,30]. Psychosocial effects, including distress over infertility, are also common.

Hormone Therapy Requirements

For women with POI, hormone therapy is essential for symptom relief and for the prevention of long-term health complications. Estrogen replacement should continue at least until the average age of natural menopause. The dose used in younger women with POI is often higher than that required in older women undergoing the natural menopausal transition.

Contraceptive Needs in POI

Although spontaneous ovulation is rare in POI, it can still occur intermittently. Between 5% and 10% of women with POI may conceive naturally, often unexpectedly [31]. For those who do not desire pregnancy, contraception remains important. Combined hormonal contraceptives can be an effective option, offering both pregnancy prevention and symptom control. However, in very young women, CHCs alone may not provide the optimal hormonal environment for peak bone mass development; in such cases, tailored hormone replacement therapy may be preferable [32].

Individualised Decision-Making

The choice between CHCs and MHT for women with POI should be based on age, bone health needs, cardiovascular risk, and reproductive intentions. In all cases, patient education and shared decision-making are essential to ensure optimal health outcomes.

Conclusion

The perimenopause is a unique period in a woman's life, blending declining fertility with increasing symptom burden and rising health risks. Contraception during this phase is a strategic component of comprehensive midlife health care.

Combined hormonal contraceptives remain a versatile choice for many healthy women over 40, offering cycle regulation, relief from vasomotor symptoms, reduction of abnormal uterine bleeding, and long-term protection against certain cancers. Newer formulations containing natural estrogens may further improve the safety profile, particularly with respect to cardiovascular and thromboembolic risks. For women who cannot use estrogen, progestin-only methods, particularly the LNG-IUS, provide effective contraception and can also address heavy bleeding.

Selecting the right method requires careful assessment of symptoms, desired non-contraceptive benefits, medical comorbidities, and personal preferences. Risk factors such as cardiovascular disease, smoking, and a history of hormone-sensitive cancers must be weighed against potential benefits. Equally important is planning for the eventual discontinuation of contraception and, where appropriate, a smooth transition to menopause hormone therapy.

In the case of premature ovarian insufficiency, hormonal management is both a therapeutic necessity and a potential contraceptive measure, given the possibility of sporadic ovulation. Regardless of the context, an ongoing dialogue between patient and healthcare provider is vital. The aim should always be to provide individualised, evidence-based care that safeguards reproductive autonomy, minimises health risks, and enhances quality of life during this pivotal life stage.

Data Availability Statement

As this study is based entirely on previously published literature, publicly available legal documents, and other secondary sources, no new datasets were generated or analysed. All sources referenced in this review are cited in the manuscript and can be accessed through the relevant publishers, repositories, or official websites.

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The author declares that there are no conflicts of interest.

Ethical Approval

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

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An Increase in Conceptions Among Girls Under 18, After 14 Years of Substantial and Steady Decline in England and Wales, is a Wake-Up Call to the UK Government and a Warning to Governments in Low- and Middle-Income Countries

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Commentary

Abstract

England's Teenage Pregnancy Strategy was both a national and global success story. It contributed to a substantial reduction in conceptions among girls under 18 in England and Wales and reduced inequities in conception rates between richer and poorer areas. Thanks to the efforts of champions within and outside government, progress continued even after the Strategy ended in 2010. However, worryingly, this decline appears to have stalled. This is due to a combination of factors, including governmental complacency and sharp reductions in social spending over a number of years. This should serve as a wake-up call to the United Kingdom (UK) government.

Over the last 30 years, adolescent pregnancy rates have declined sharply in low- and middle-income countries (LMICs), where the majority of these pregnancies occur, though the progress has been uneven. This decline is the result of concerted efforts at all levels, from global to local, which occurred in the context of the International Conference on Population and Development's Plan of Action (1994), the Millennium Development Goals (2000-2014) and the Sustainable Development Goals (2015-2030). However, LMICs are now facing unprecedented cuts in overseas development assistance from a number of governments, including the UK. In this context, there is a risk of the hard-earned progress unravelling. This should serve as a warning to LMIC governments.

Key Words: Teenage Pregnancy, England, LMIC

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Introduction

This paper begins by describing levels and trends in adolescent pregnancies and childbirths in England and Wales and low- and-middle-income countries (LMICs) over the last 25-30 years. It then examines the factors contributing to the declining trends in these two countries and globally. Next, it considers the factors that may have contributed to the stagnation of progress in England and Wales and the risk of this occurring in LMICs. Finally, it discusses the implications of these trends and the contributing factors for England and Wales, LMICs and the organisations that advise and support them.

In 2007, there were around 44,800 conceptions among girls under 18 in England and Wales. By 2020, this figure had fallen to 12,576. This represents a substantial and uninterrupted decline over 14 years. There was a slight rebound in 2021, which continued into 2022; however, the figures remain below those of 2019. The numbers rose from 12,576 in 2020 to 13,131 in 2021, reaching 13,300 in 2022. Conception rates rose from 12.6 per 1,000 girls under 18 in 2020, to 13.2 in 2021 and 13.4 in 2022 [1,2]. What is even more important is the seven-fold differences in rates between well-off and destitute areas. Inroads that were being made in reducing these inequities, with sharper declines in areas with higher levels of deprivation, appear to be reversing [1,2].

Globally, the vast majority of adolescent pregnancies and childbirths occur in LMICs [3-5]. The adolescent birth rate globally (i.e. births per 1,000 girls aged 10-19) has almost halved over the past 30 years, falling from 73 to 38 per 1,000 girls aged 15-19. Further, over the past 25 years, the prevalence of child marriage has fallen from almost one in four girls to one in five girls marrying before the age of 18 [3].

These trends should serve as a wake-up call to the UK government, indicating that the progress made could be beginning to unravel. They also serve as a warning to governments in LMICs that the painstaking progress their countries have made could unravel if they lose focus and commitment, just as happened under successive UK governments between 2010 and 2025.

What Contributed to the Decline in Adolescent Pregnancies and Births in England and Wales (Before the Recent Increase), and in Low- and Middle-Income Countries (LMICs)?

Reducing adolescent pregnancy in England and Wales:

England's Teenage Pregnancy Strategy was launched in 1999. This evidence-based, well-resourced strategy was supported at the highest level of the UK government. Designed to be multi-sectoral, multi-agency and multi-level, the ten-year strategy involved different branches of government, charitable agencies and academic institutions at national, provincial and local levels, and was executed with a strong emphasis on joined-up action. The strategy aimed to prepare and support young people to make well-informed choices about pregnancy and parenthood, and to act on them [4].

Furthermore, it positioned teenage pregnancy as a cause and consequence of inequality and social exclusion. The public health approach described above was grounded in concerted efforts to address school absenteeism and expulsions, youth unemployment, poor housing, and homelessness in families and communities with the greatest needs [4].

Reducing Adolescent Pregnancy in LMICs:

Awareness of the need to address adolescent pregnancy and childbearing has existed for

over 50 years. However, the issue did not receive the attention it deserved until it was placed on the global agenda at the 1994 International Conference on Population and Development.

In 2000, the prevention of adolescent pregnancy was included in the Millennium Development Goals (MDGs). However, little progress was made in the first decade of the MDGs because adolescent health was not considered a priority. However, in the final five years of the MDG era, this began to change. There was a growing realisation that adolescents were being neglected. Efforts were stepped up to end child marriage, improve access to contraception for adolescents and prevent HIV infection and related deaths. The Sustainable Development Goals placed adolescent health at the centre of the global agenda. Adolescent pregnancy is very much part of that agenda. It is also a key issue for regional bodies such as the African Union and the South Asian Association for Regional Cooperation. Over the last five years of the MDG era and the first ten years of the SDG era, tangible progress has been made, but much more needs to be done [5,6].

- Research evidence and programme experience have been developed.
- Policy and programme support tools have been developed.
- Global partnerships such as Girls Not Brides and Family Planning 2020/2030 have encouraged and supported countries in developing commitments, policies and strategies.
- Global financing mechanisms, such as the Global Financing Facility and the Global Fund for AIDS, Tuberculosis and Malaria., have provided countries with funds to implement their plans.
- International organisations and initiatives, such as the Global Programme on Child Marriage and the Challenge Initiative, have supported countries in implementing and monitoring context-specific activities.

What Contributed to the Stalling of Progress in England and Wales, and What are the Risks of This Happening in LMICs?

A Web of Factors Contributed to the Stalled Progress in England and Wales:

England's Teenage Pregnancy Strategy ended in 2010. The government that was in power in 2010 did not extend or renew the Strategy. Valiant efforts were made to sustain the progress despite the lack of visible leadership and dedicated funding, and progress continued for several years after the end of the Strategy. But it slowed as a result of a growing sense of complacency that the 'rates are down, so the job is done', and now appears to have stalled as a result of the disruption resulting from the COVID-19 pandemic and the government's strong austerity programme [4,7].

Based on a review of the policy and strategy context in England and Wales, which included consultations with key stakeholders, including staff from 16 local authorities, Hadley identified three broad sets of factors that could be contributing to the stalled progress. Firstly, cuts in government spending have meant that community-based young services, special sexual health clinics, and extracurricular activities in schools, as well as partnerships between agencies providing these services, have been reduced or cut altogether. While the compensatory increase in online services benefits some groups, it jeopardises access to other groups, especially the most marginalized ones. Secondly, the cost-of-living crisis has increased levels of family poverty and school absenteeism, a key risk factor for early pregnancy. Thirdly, the powerful influence of misinformation about the negative effects of hormonal contraception by social media influencers [4,7].

Risks of rollback of progress in LMICs:

As discussed above, over the last 30 years, a number of LMICs have made impressive

progress in reducing adolescent fertility and in other areas of adolescent sexual and reproductive health [8]. The progress that these countries have made over the past 30 years has not been achieved in a vacuum. The advocacy, technical support and financial support of a range of external agencies -working with their partners in LMIC, including governments, local nongovernment organizations and other civil society organizations, and young people themselves have contributed to it [3,8].

Over recent months, the USA Government has upended international order with potentially devastating consequences for adolescents, as well as for other segments of the population. With the sharp cuts in development assistance from the USA and a number of other countries, and the increasingly blatant attacks on sexual and reproductive health and rights from both state and nonstate players, there is a real risk of this hard-earned progress unraveling [9].

What are the Implications of This for England and Wales, LMICs and International Technical Assistance Agencies?

England and Wales:

The implications for England and Wales are clear. Firstly, the current UK government must recognise that teenage pregnancy is a national priority and provide the kind of leadership that the Blair government, and to a lesser extent the Gordon government, demonstrated in the 2000s. Hadley calls for national leadership and a revived, refocused national effort to address teenage pregnancy, set within a broader approach to addressing the other pressing problems and needs of young people [4,7]. Secondly, to prevent governmental neglect in the future, Poly Toynbee calls, in an article in the Guardian, for nailing down the value of efforts to address issues such as teenage pregnancy "...in the public mind, so no future government dares commit such social sabotage again.": https://www.theguardian.com/commentisfree/2025/jul/16/britain-legacy-austerity-teenage-pregnancy

LMICs:

Firstly, a number of LMICs have reduced rates of adolescent fertility over the last 30 years. However, in all these countries, there is unfinished business, with rates declining faster and more substantially among more privileged sections of the population. If LMIC governments lose focus, as successive British governments did between 2010 and 2025, the progress made could unravel, and rates are likely to rise more quickly and dramatically among the most marginalised girls (and boys) in remote rural areas and deprived peri-urban and urban slums, resulting in significant costs at all levels, from individual to societal.

Secondly, LMIC governments should accept the new reality that overseas development assistance has shrunk and will continue to do so. Funding for health, education and social welfare will primarily need to come from domestic sources [10].

International Technical Agencies

Firstly, the United Kingdom is part of the select club of the most advanced economies, the G7 group. England and Wales account for around 90% of the UK's population. In these countries, functional health, education, and social welfare systems helped to sustain progress that began in the 2000s, through the years after the National Teenage Pregnancy Strategy came to an end. However, faced with the social and economic pressures described above, these systems and structures began to unravel in the early 2020s and were unable to maintain this progress. The situation in England and Wales clearly emphasises the challenges involved in sustaining programmes without dedicated financial support, even in one of the world's strongest economies [11].

Secondly, the recently published Lancet Commission Report on Adolescent Health and Wellbeing [12] celebrates the success of England's Teenage Pregnancy Strategy (on page 52). However, it makes no mention of the stalled progress over the last two years. The Lancet Commission's country classifications places the UK in a category titled: *Non-Communicable Disease Predominant*', giving the misleading impression that sexual and reproductive health problems (SRH) are of little significance in the country. Also, the regional offices of WHO and UNICEF have recently published a European regional child and adolescent health strategy that makes no explicit reference to sexual and reproductive health [13]. Given the reports of a number of European agencies and governments on pressing SRH issues that need to be addressed in Europe [Box 1], such framing is flawed and has potentially negative consequences. While there are a number of other issues to be addressed, SRH and adolescent pregnancy must be at the heart of any strategy.

Box 1

Why sexual and reproductive health needs to be an integral part of every European country's adolescent health strategy

In August 2024, WHO's Regional Office for Europe published a report-based on a study of 242 000 15-year-olds across 42 countries and regions in 2014-2022-that showed that condom use among sexually active adolescents had declined significantly since 2014, with rates of unprotected sex worryingly high, which put young people at significant risk of sexually transmitted infections (STIs) and unplanned pregnancies:

Alarming decline in adolescent condom use, increased risk of sexually transmitted infections and unintended pregnancies, reveals new WHO report. The WHO report stressed that the "findings underscore the importance of providing comprehensive sexual health education and resources for young people"

Secondly, the European Centre for Disease Prevention and Control (ECDC) notes in its annual epidemiologic report for 2023 (published this year) that: STI cases continue to rise across Europe One data point from the report to note is: Chlamydia remains the most frequently reported bacterial sexually transmitted infection (STI) in Europe, with over 230,000 cases documented in 2023, marking a 13% surge since 2014. Particularly noteworthy is the prevalence among women aged 20 to 24." The ECDC emphasizes the importance of proactive measures to address the rising STI rates. It calls for: "Using condoms consistently for vaginal, anal and oral sex is crucial for prevention. Open and honest communication about sexual health with partners can also help reduce the risk of STI transmission.

Thirdly, USA-sponsored resistance and home-grown resistance to CSE is growing stronger in Western Europe as this paper from the Netherlands underlines: Spring Fever in The Netherlands: Framing Child Sexuality in Sex Education and Its Controversies. As the author of the paper, who is from Anthropology Department in the University of Amsterdam, notes in his paper: "…due to global anti-gender movements and local right-wing politics, the Dutch model of sex education — pragmatic, comprehensive, and evidence-based, as seen in Spring Fever – no longer maintains its depoliticizing effect. Additionally, the Spring Fever controversy signals a shift in the politics of sexual nationalism in The Netherlands." A just-published report from the European Parliamentary Forum stresses that this is above and beyond sexuality education: "As the Trump Administration embarks on its second term, its rapid and sweeping policy shifts, both anticipated and unforeseen, are redefining the global landscape of gender equality, human rights, and democracy. The scale and speed of these transformations demand urgent attention and a strategic response. From the reinstatement of the *Global Gag Rule* to the dismantling of USAID, the changes we are witnessing are not just reshaping policies but constructing a new global order. However, to build this new reality, the previous order must first be dismantled: Beyond the Chaos, a New World is Emerging: Making Sense of the Trump Administration's Impact on Reproductive Rights and Gender Equality | EPF

Conclusion

Over the last three decades, adolescent pregnancy and childbearing rates have been reduced in countries in different social, cultural, and economic contexts through the application of good science combined with bold leadership and strong management. Despite the progress, there is still unfinished business in each of these countries. In all these countries, there is much work to be done to safeguard the progress made and to extend the benefits to marginalized groups that have been left behind.

Data Availability Statement

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

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Conflicts of Interest

The author declares that there are no conflicts of interest.

Ethical Approval

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

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Medicine, Patriarchy and the Ongoing Impact on Sexual and Reproductive Health and Rights

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Commentary

Abstract

Modern medicine is considered to be scientific and evidence based. However, it was born within deeply patriarchal, colonial, and exclusionary systems and founded on the violent suppression of women healers during the European witch hunts. This origin laid the groundwork for a male-dominated medical establishment that deliberately erased generations of feminine knowledge and healing traditions. Women were ousted from caregiving roles through a calculated mix of violence, professionalization, and ridicule. Institutions like Harvard medical school refused entry to women up until 1945 citing laughable reasons– from fears of distraction to the supposed drying of ovaries from too much thinking.

With colonization, these ideologies and systems were imposed on the countries in Asia, Africa and Latin America, suppressing and dismissing centuries of indigenous medical knowledge and also criminalizing sexual and reproductive norms. Homosexuality, gender fluidity, sexual expressions and abortion were all systematically pathologized, policed, and punished through newly imposed medical and legal systems. The repercussions of this are still being felt today through the Penal Codes set up in the 1800s.

Women's pain is disbelieved, their sexual health curated for ensuring male pleasure and their reproductive choices controlled. While women patients face medical gaslighting, women doctors themselves face gender bias and systemic barriers to leadership.

Key Words: Sexual and Reproductive Health and Rights, Sexual and Reproductive Health, Patriarchy, Misogyny, Autonomy, Human Rights

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Where it all began

'Modern' medicine, as we know it today, began its formal ascent in Europe during an era when the social and political landscape was shifting. The rise of formal medical institutions was forced with a violent conquest unlike anything the world had seen till then.

In the wake of the brutal witch hunts of the 15th to 18th centuries, countless women who were healers, midwives, herbalists, seers were either burned at the stake or drowned in rivers. In parts of Germany, some villages were left with no surviving women of any age [1].

The legacy of this gruesome destruction still haunts the very foundation of the modern medical systems and education.

Barbara Ehrenreich and Deirdre English's groundbreaking book *Witches, Midwives, and Nurses* (1973) [2] traces how these so-called witches were often the only accessible caregivers for women and the poor, with their knowledge rooted in experience and generational wisdom. But as male-dominated 'modern' medicine began to rise, these women were branded as dangerous, irrational, and untrustworthy and effectively pushed out of health care under the guise of professionalization.

Women were not only erased from the healing spaces but also villainized, not just in courts with the *Malleus Maleficarum* [3] on the tables in courtrooms but also through tales of witches in folklore and fairy tales.

Women were then also denied admission into the newly created medical colleges by offering absurd justifications [4].

Among the reasons given were:

1. Women lacked the physical and emotional stamina for the rigors of medical training.
2. Their presence would 'distract' male students.
3. Investing in women's education was wasteful since they would eventually marry and leave the profession.
4. Using their brains for academia would make their ovaries dry up and they would not be able to have babies.

For these various reasons Harvard Medical School did not admit women until 1945, over 300 years after the university was founded.

This bizarre gatekeeping of medical knowledge (through decidedly un-scientific explanations!) not only deprived generations of talented women from becoming doctors but also shaped the culture of medicine into a male-dominated, hierarchical field that continues to struggle with gender bias to this day. Despite women medical students now outnumbering male students in almost every country, men still make up the top 90% of the high ranks due to the marriage and motherhood penalty faced by women doctors [5].

Why does it matter to us?

Unfortunately, these ruptures in the social structure were not confined to Europe alone.

With colonization these ideologies also reached the shores of countries in Asia, Africa and Latin America where they led to the widespread erasure of indigenous medical knowledge and practices or had them dismissed as ignorant, backward, or dangerous. Colonizers then criminalized many local cultures practices including sexual and reproductive norms such as pre-marital sex, homosexuality, gender fluidity and abortions [6].

The colonized nations and peoples were punished if they did not reject their own ancestral ways of living and healing and adopt the colonizers cultural norms.

The long-term impact of this is still felt today, where most of the colonized countries are still burdened by criminal and penal codes from the 1800s which are completely out of sync with the existing social and cultural lived realities, while the colonizing nations have amended their own penal codes many decades ago.

What it has led to

Throughout all our indigenous cultures, for thousands of years, it was most often the women who were the 'doctors' with deep knowledge of herbal medicine and holistic healing, using extracts which are now a regular part of modern medicine (such as aspirin, quinine, digitalis and ergotamine to name just a few) [7].

The dismissal of menstruation, menopause, and childbirth as either 'natural' or then 'cursed' and thus undeserving of care and then adding on control of women's reproductive autonomy through laws, criminalization and stigma all stem from these deep historical roots of the witch hunts and the embedded misogyny.

The clitoris, which is the only human organ solely designed for pleasure, never found a place in the anatomical drawings in medical textbooks for hundreds of years, until very recently, effectively erasing female sexual agency from medical discourse [8]. In India, the FMT (Forensic Medicine and Toxicology) textbook still mentions "virginity" as a medical condition which is again un-scientific and absurd since it is simply a social construct used to control women's sexuality [9].

These erasures and inclusions are not accidental.

Misogyny in the classroom

I entered medical college at 18, one of the many young people who had survived two years of gruelling competitive studies to secure a seat. What followed was five and a half years of training in a deeply hierarchical and bio-medically reductionist fixed field of knowledge. Our textbooks were filled with facts and pathologies. Patients were seen as collections of complaints, signs and symptoms. Their stories, struggles, identities, lived realities, especially as women, were not part of what we needed to understand, study or address. Caring, community, and social determinants of health were not a part of the curriculum.

The 'Father of Gynaecology', J. Marion Sims had statues erected in his honour until it became obvious a few decades ago that the Sims Speculum invented by him had been developed through experiments on enslaved Black women without anaesthesia because of the racist belief that they could endure more pain [10].

There were countless such 'fathers' in our textbooks, but no 'mothers' since they had been barred from medicine and allowed back in only strictly as nurses and midwives in 'caring' roles where they were underpaid and overworked.

Textbooks claimed that lesbians could be identified by a 'wild labia.' Homosexuality was in the chapter on 'deviant sex' alongside bestiality and necrophilia.

We learned sexist mnemonics to remember clinical facts, with phrases like "She Looks Too Pretty Try to Catch Her" for the carpal bones, pretended not to hear the 'dirty jokes' about naked women on the operation table, watched in silent complicit horror as professors shamed unmarried girls seeking abortions and denied them pain relief to 'teach them a lesson'.

None of us were taught how to speak of rape, consent, or the trauma of unwanted pregnancies. We weren't expected to care or comfort. There was never any conversation on why no mention was ever made of the man or boy responsible for the pregnancy. Obviously, the unwanted pregnancy was only the woman's fault and only her singular burden.

Even if she was only 12.

Punished by medicine for being women

Medical narratives have continued to shape and reshape women's bodies to serve the interests of the patriarchy and the State: from contraceptives being predominantly for women's bodies [11] to needless cosmetic surgeries from artificially created insecurities.

Modern medicine has not really been scientific in the sense of being objective or neutral. It has always mirrored and enforced patriarchal values, often controlling women more than caring for them.

One of the most enduring and destructive myths in the history of medicine is the invention of 'hysteria.' This was historically used to pathologize women who dared to be emotional, outspoken, sexually autonomous, or simply difficult to control. Derived from the Greek word hysteros, meaning uterus, the diagnosis of hysteria was based on the bizarre and baseless belief that a woman's uterus could literally wander around her body, causing madness, irrational behaviour, and emotional disturbances. This absurd and completely un-scientific idea persisted for centuries and provided a convenient medical excuse for silencing, invalidating, and institutionalizing women whose behaviour disrupted patriarchal norms.

Any woman who showed anger, grief, sexual desire, or resistance to authority could be labelled hysterical and subjected to humiliating and cruel "treatments". These ranged from ice cold baths, forced institutionalization, compulsory hysterectomy and even the dangerous and terrible practice of lobotomies [12].

These brutal interventions were framed as therapeutic but were, in reality, tools of control and suppression.

Medical gaslighting (the dismissal or minimization of patients' concerns) is experienced far more often by women and queer persons, particularly in the realm of sexual and reproductive health. Take the case of endometriosis, a condition that affects one in ten women globally, yet takes an average of 7 to 10 years to be diagnosed. Women reporting debilitating menstrual pain are routinely told they're exaggerating or that it's all in their heads. Similarly, premenstrual syndrome (PMS) is frequently mocked or trivialized, with physical and psychological symptoms dismissed as moodiness or irrationality rather than valid health concerns, with jokes about 'that time of the month'.

Even world-class athletes like Venus Williams have not been immune to the consequences of being disbelieved when she nearly died from a pulmonary embolism post-delivery because her pain and symptoms were initially not taken seriously [13].

Access to abortion also remains deeply politicized, medicalized, and restricted, none of which has to do with medical safety or abilities. From mandatory waiting periods and unnecessary ultrasounds to outright bans and criminalization, the message is clear that women cannot be trusted to make decisions about their own bodies.

Even when abortion is legal, women face stigma and judgment in clinical settings, with

providers sometimes refusing care or shaming them in the process. Women are then forced to seek abortions in the informal sector, risking their lives to do so [14].

From puberty to menopause, the healthcare system routinely neglects or sidelines issues that aren't directly tied to motherhood. Chronic conditions like autoimmune diseases, chronic fatigue syndrome, and fibromyalgia, which disproportionately affect women, are frequently misdiagnosed, under-researched, or dismissed entirely. Mental health concerns, sexual wellness, and pain management for non-reproductive issues rarely receive the same attention or urgency. Paradoxically, the moment a woman becomes pregnant, the full machinery of the medical system activates almost to the level of creating pathology out of a normal pregnancy, and the moment she is no longer pregnant, that attention vanishes.

Highly invasive and potentially dangerous procedures like ovarian stimulation, surrogacy, fetal reduction are normalized in the desperate quest for motherhood since society judges those women who 'fail' at this essential role.

Meanwhile in conditions like polycystic ovarian syndrome (PCOS), premature menopause or sexual dysfunction, women are often told to just keep calm and carry on, unless of course they want to get pregnant in which case they will be taken care of.

This ongoing regulation of women's reproduction is not about health.

It has always been about power.

Being gay is not ok

For much of modern medical history being gay, lesbian, or trans was not just misunderstood but it was actively pathologized. In the textbooks we studied, homosexuality was listed under 'deviant sex' alongside bestiality and necrophilia.

Psychiatry classified homosexuality as a mental disorder well into the late 20th century, giving rise to cruel and coercive interventions such as electroconvulsive therapy, chemical castration and so-called 'conversion therapies' aimed at forcibly changing a person's sexual orientation or gender identity.

Even today medical education and systems often remain hostile, uninformed, or dismissive. The legacy of pathologization lingers not only in policy and practice but also in the lingering shame, stigma, and barriers to care that many LGBTQIA+ individuals still experience when sitting across the table from a doctor [15].

As within so without

Even within the field of medicine women doctors, nurses and healthcare workers are far from immune to gender-based discrimination. Women in medicine face persistent wage gaps, are underrepresented in leadership and research positions, and regularly experience workplace harassment and bullying.

Female surgeons have widely reported being mistaken for nurses or interns, their decisions second-guessed, and their achievements overlooked in favour of male colleagues.

What lies ahead on this journey

To bend the arc of justice in favour of equitable sexual and reproductive health and rights for all, the medical profession must commit to deep, structural change.

Medical education must integrate gender, sexuality, consent, and social justice as foundational pillars [16].

Health workers must be trained to see their patients not as clinical puzzles, but as whole

human beings with histories, identities, and rights.

Healing and caring needs to be at the core of the practise, not just curing.

Equally crucial is building accountability systems within hospitals, academic institutions, and health ministries, ensuring that disrespect, abuse, and negligence are no longer normalized or ignored.

Civil society must also play a transformative role by pushing for progressive laws, demanding inclusive health policies, creating awareness, and standing alongside those most impacted.

This is how we create a new world where young women and humans of all gender identities and sexual orientation could grow up in a world where their pain is believed, their choices respected, and their bodies no longer politicized. A world where sexual and reproductive health is not a site of shame or struggle, but one of power, pleasure, and agency.

The Personal is Political. So is Medicine

As Rudolf Virchow, the founder of public health said: "*Medicine is a social science, and politics is nothing more than medicine on a large scale.*"

Indeed, it is true since medicine has, for centuries, reflected the values of a society that was patriarchal, colonial, racist, and capitalist.

It is time to reframe, realign and recreate medicine into a healing and caring profession that it is meant to be. We must center gender justice, sexual rights, and lived realities in medical education, practice, and policy.

Sexual and reproductive health must become a space of dignity, autonomy, and empowerment — not control. Let us not just challenge the system — let us rebuild it.

Let us begin, again.

Data Availability Statement

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

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ReproSex: International Journal on Sexual and Reproductive Health

The Single Rod Subdermal Contraceptive Implant –A New Contraceptive Choice for Indian Women

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Brief Report

Abstract

Subdermal Contraceptive Implants have been available globally for the past three decades. In India, the Single Rod Subdermal Contraceptive Implant was introduced in the private sector in 2018. In March 2023, as part of its FP2030 commitment, the Government of India introduced Single Rod Subdermal Contraceptive Implants and Depot Medroxy Progesterone Acetate subcutaneous injections into the basket of choices of contraceptives.

The addition of contraceptive implants has widened the choices for women to suit their contraceptive needs. The Single Rod Subdermal Contraceptive is a safe and effective option.

Key Words: Contraceptive Implants, Single Rod, Subdermal implants

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Introduction

India, one of the most populous countries in the world, was also among the first countries in the world to launch a National Family Planning Programme in 1952 [1]. Over the decades, the programme has transformed from a focus on population stabilization to a broader aim of improving reproductive health.

The current population of India is 1.46 billion. The total fertility rate in India has declined to 1.9, below the replacement level of 2.1 [2].

The National Family Planning Programme now focuses on the healthy timing and spacing of pregnancies to improve the reproductive health of women and to reduce maternal, infant and child mortality and morbidity.

As a commitment toward FP2030, the government of India introduced two new Long-Acting Reversible Contraceptives (LARCs) namely the Single Rod Subdermal Contraceptive Implant and the Depot Medroxy Progesterone Acetate (DMPA) subcutaneous injection in March 2023 [3].

Contraceptive Implants have been available globally for the past three decades. The Government of India has introduced contraceptive implants after long-term studies conducted by the Indian Council of Medical Research.

The Single Rod Subdermal Contraceptive Implant

The Single Rod Subdermal Contraceptive Implant available in India is called Implanon NXT [4]. It is one of the most advanced applicators, which is a preloaded, disposable applicator with a needle for single use, with a single rod for subdermal insertion. The Implant is 4 centimetres in length and 2 millimetres in diameter,and contains 68 milligrams of the Progesterone hormone called Etonogestrel along with Barium sulphate. The Single Rod Subdermal Contraceptive Implant is safe and is 99.95% effective. The contraceptive effect lasts for three years.

Figure1. Implanon NXT.

Mechanism of Action: The Single Rod Subdermal Contraceptive Implant contains 68 mg of Etonogestrel, which is a biologically active metabolite of Desogestrel and structurally derived from 19-Nortestosterone. Like all progesterone-only contraceptives, there are three ways in which it brings about the contraceptive effect. Firstly, etonogestrel inhibits ovulation, secondly, it makes the cervical mucus thick and impermeable to sperm, and, thirdly, it makes the endometrium thin and unfavourable for implantation. The contraceptive effect starts within 24 hours of insertion, and there is early return of fertility upon removal [5].

Selection of Clients: Contraceptive Implants are suitable for most women who desire a LARC. They can be used by women aged 18 to 45 years, whether nulliparous or multiparous. Implants can be used post-menstrually, postpartum or in the post-abortal period, including by breastfeeding women.

Pre-insertion Counselling: The pre-insertion counselling is important to appraise the client regarding procedure of insertion and the advantages and disadvantages of the contraceptive implant. Explanation regarding the menstrual changes which may occur will help in continuation of the method.

Timing: The Single Rod Subdermal Contraceptive Implant can be inserted post-menstrually, postpartum, or in the post-abortal period. It can be inserted at any time, provided it is reasonably certain that the client is not pregnant. However, in such cases, the client needs to use a backup method for seven days.

Procedure of Insertion: The Single Rod Subdermal Contraceptive Implant must be inserted by a trained provider. It can be inserted in a clean room and does not require an operating theatre or any sophisticated equipment. It is inserted with all aseptic precautions under local anaesthesia. The implant is inserted in the medial aspect of the non-dominant upper arm. The location of the insertion of the implant is initially marked with a marker pen. The implant is inserted 8-10 centimetres proximal to the medial epicondyle, and 3-5 centimetres posterior to the sulcus between the biceps and the triceps muscle in the subdermal region. This new location is safe as it is away from the sulcus, which lodges the neurovascular bundle.

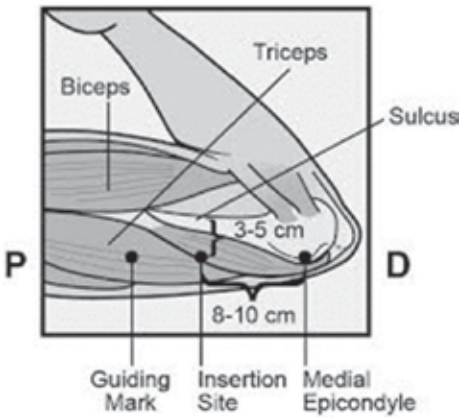

Figure 2: Site of insertion of Implant.

Post-Insertion Care and Counselling: Counselling regarding post-insertion care is important. The client is advised to keep the dressing dry for 5 days and is advised to visit the facility if she experiences any acute symptoms. Follow-up visits are recommended at six and 12 weeks to address any concerns, allay fears, clarify doubts and manage any medical issues.

Removal of Implant: The Single Rod Subdermal Contraceptive Implant is removed after three years, or whenever the client wishes removal. Removal of the implant is a simple outpatient procedure done under local anaesthesia.

Side Effects: The side effects of the Single Rod Subdermal Contraceptive Implant are similar to all progesterone-only contraceptives. The main side effects are menstrual disturbances like amenorrhoea, infrequent menstruation, irregular bleeding, spotting, prolonged bleeding and heavy bleeding. Other side effects include headache, acne, mood changes, mastalgia and weight gain.

Advantages: The Single Rod Subdermal Contraceptive Implant is safe, effective and easy to use. It is an outpatient procedure. It can be used in women of any age and parity. It can be used in breastfeeding women and those with chronic medical conditions like diabetes and hypertension. It is also suitable for women in whom oestrogen containing contraceptives are contraindicated.

Disadvantages: The Single Rod Subdermal Contraceptive Implant has very few disadvantages. The client needs to come to the facility for insertion and removal. The provider should be trained to insert and remove the implant.

Contraindications: The Single Rod Subdermal Contraceptive Implant has very few contraindications. Current breast cancer is an absolute contraindication for insertion of the implant. Other contraindications include a history of breast cancer and severe liver disease.

Conclusion

The Single Rod Subdermal Contraceptive Implant is a new contraceptive choice for Indian women. The indications for Contraceptive Implants are broader, the contraindications are limited, and the side effects are few. It is easy to use, safe and highly effective. It supports healthy timing and spacing of pregnancy and addresses the unmet need for contraception.

Use of Artificial Intelligence Assisted Technologies

During the preparation of this work, the authors used generative AI in order to improve the language and readability. After using this tool/ service, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

Data Availability Statement

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

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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.

3. **Review Articles:** *ReproSex: International Journal on Sexual and Reproductive Health* accepts narrative, systematic, and scoping review articles that offer critical, evidence-based syntheses on topics relevant to sexual and reproductive health and rights (SRHR). Manuscripts should be between 3,500 and 4,500 words in length, excluding the abstract, tables, and references, and may include up to six (6) tables and/or figures. Narrative reviews should clearly describe the purpose of the review, the approach to the literature search, and provide a critical discussion of themes and findings. These reviews should reflect a balanced perspective, drawing on a wide range of credible sources. Systematic and scoping reviews should follow PRISMA or PRISMA-ScR guidelines. Ethical approval is not required for literature-based reviews. For guidance on reporting, authors are encouraged to consult the EQUATOR Network, including the PRISMA checklist (www.prisma-statement.org). All review articles will undergo double-blind peer review prior to publication.

4. **Commentary:** A commentary is a short, focused article that provides a critical or reflective discussion on a specific issue, recent development, published research, or policy relevant to sexual and reproductive health. Commentaries should offer fresh perspectives, highlight implications for practice or research, or stimulate scholarly debate. The text should be clear, well-argued, and supported by appropriate references where necessary. An unstructured abstract of no more than 250 words, including 5 key words, is required, summarising the purpose, key points, and conclusions.

The total manuscript length shall be 1500 to 2,500 words, excluding references, tables, and figures. Authors may cite up to 10 references to support their discussion. Commentaries undergo peer review and should follow the general formatting and referencing style of the journal.

5. **Brief Reports:** Brief Reports include concise communications such as preliminary research findings, reports on novel techniques, innovations in programmes or interventions, and the development or application of new tools or devices relevant to sexual and reproductive health. Manuscripts in this category should not exceed 1,000 words, and may include up to three (3) tables or figures and a maximum of 10 references. An unstructured abstract of no more than 100 words must be provided. This format is ideal for timely findings or innovations that warrant rapid dissemination but may not require the depth of a full original article.

6. **Case Reports:** Case Reports provide detailed descriptions of unique or instructive cases that offer important insights or highlight new messages relevant to sexual and reproductive health. Submissions may describe clinical cases, as well as significant cases from the fields of public health, psychology, counselling, social work, or other behavioural and social sciences. Acceptance is based on originality, relevance, and the potential to contribute to learning, raise awareness, or challenge conventional understanding. Manuscripts should be no more than 750 words, with a maximum of one (1) table or figure, and up to five (5) references. Authorship should be limited to five contributors. *ReproSex: International Journal on Sexual and Reproductive Health* also considers picture-story contributions for publication. These should consist of a brief narrative (no more than 300 words), 2–3 high-quality images (in black and white or colour), and up to three references. All case reports involving individuals must include appropriate informed consent for publication, particularly when identifiable information or images are used.

7. **Letters:** *ReproSex: International Journal on Sexual and Reproductive Health* welcomes the submission of Letters that offer thoughtful commentary, critique, or additional insights related to articles recently published in the journal. Letters may also present concise, freestanding opinions or reflections on current issues relevant to sexual and reproductive health and rights. Letters should not exceed 400 words, may list up to three (3) authors, and include a maximum of five (5) references. Submissions are subject to editorial review and may be edited for clarity and length.

Criteria for Authorship

Only individuals who have made a substantial intellectual contribution to the work should be listed as authors. Authorship should be based on all four of the following criteria:

1. Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND

2. Drafting the manuscript or critically revising it for important intellectual content; AND

3. Final approval of the version to be published; AND

4. Accountability for all aspects of the work, ensuring that any questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

In addition to being accountable for their own contributions, each author should be able to identify which co-author is responsible for specific parts of the work and have confidence in the integrity of the contributions made by their co-authors. All individuals designated as authors must meet all four criteria. Those who have contributed to the work but do not meet all four criteria should not be listed as authors, but their contributions should be acknowledged appropriately in the Acknowledgements section.

Ethical Approval

Authors must ensure that all research is conducted in accordance with applicable national and international laws, ethical standards, and best practice guidelines. Studies involving human participants must adhere to the principles outlined in the Declaration of Helsinki. *ReproSex: International Journal on Sexual and Reproductive Health* requires that all research involving human participants, human tissue, or human data receive prior approval from a recognized ethics review committee or institutional review board. The name of the approving body and the approval reference number must be clearly stated in the manuscript. If a study has been granted an exemption from requiring ethical approval, this must be explicitly stated, along with the name of the committee that granted the exemption and the rationale.

For studies involving human participants, authors must include a clear description of the informed consent process. For clinical trials, registration in a publicly accessible trial registry (e.g., ClinicalTrials.gov or other WHO-approved registries) is mandatory, and the registration number must be provided. For case reports, case series, or any publications that include identifiable images or information about individuals, *ReproSex: International Journal on Sexual and Reproductive Health* requires written, signed consent for publication from the individual(s) concerned or their legal guardian(s), and this must be indicated in the manuscript.

Bibliometric analyses and review articles, including systematic literature reviews, scoping reviews, and other forms of evidence synthesis that exclusively use publicly available data, do not require ethical approval or exemption statements. However, authors must ensure proper citation and responsible use of all secondary sources.

Conflict of Interest

ReproSex: International Journal on Sexual and Reproductive Health requires all authors to disclose any potential conflicts of interest, both financial and non-financial, that could influence or be perceived to influence the content, interpretation, or conclusions of their manuscript. Any declared conflicts will be published alongside the article to ensure transparency for readers. Authors must also clearly state all sources of funding that supported the research. Additionally, the specific role of the funding organization(s), if any, in the design, conduct, data collection, analysis, interpretation, and reporting of the study must be fully disclosed and published. If there is no external funding to declare, authors should include the following statement:

"The authors declare no external funding for the work."

Funding Disclosure

All sources of funding must be clearly disclosed in the covering letter under the heading "Funding." Authors are required to describe the role of the funding organization(s), if any, in the design of the study, the collection, analysis, and interpretation of data, the writing of the manuscript, and the decision to submit the paper for publication. If the funder had no involvement in any of these aspects, this should be explicitly stated. Transparent disclosure of funding sources and the extent of sponsor involvement is essential to uphold the integrity and credibility of the published work. If there is no external funding to declare, authors should include the following statement: No external funding was received for the conduct or publication of this study.

Data Availability Statement

ReproSex: International Journal on Sexual and Reproductive Health is committed to promoting transparency, reproducibility, and open access to research data. All authors of original research articles must include a Data Availability Statement at the end of their manuscript, clearly describing the availability of the data supporting the findings of the study. Where possible, datasets should be deposited in a publicly accessible

repository that provides a persistent identifier (such as a DOI or accession number), with the repository name and link provided. If data cannot be shared openly due to ethical, legal, or privacy considerations, authors should explain these restrictions and indicate how qualified researchers may request access. The statement should accurately reflect the status of the data at the time of publication and may take forms such as: "The datasets generated during and/or analysed during the current study are available in the [NAME] repository, [DOI/link]," "The datasets generated during and/or analysed during the current study are available from the corresponding author upon reasonable request," or "The data that support the findings of this study are not publicly available due to [REASON], but are available from the corresponding author upon reasonable request." Authors are encouraged to follow FAIR data principles (Findable, Accessible, Interoperable, and Reusable) wherever possible.

Previous Publications

Authors must disclose in the cover letter any prior publication or dissemination of content included in the submitted manuscript. This includes, but is not limited to, reworked data that has already been reported elsewhere, studies involving participants previously described in published work, or content that has been published or is under consideration for publication in another format or medium. While previous publication of some content does not automatically disqualify a submission from being considered by *ReproSex: International Journal on Sexual and Reproductive Health*, full transparency is essential. Editors require this information to make informed decisions about the manuscript's suitability and to ensure responsible and efficient use of journal space.

Failure to fully disclose prior or overlapping publications will be considered a breach of scientific ethics.

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ReproSex: International Journal on Sexual and Reproductive Health acknowledges the evolving role of artificial intelligence (AI) and AI-assisted technologies in the research and publication process. To uphold the integrity, transparency, and accountability of scholarly work, authors are required to adhere to the following guidelines regarding the use of AI tools:

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ReproSex: International Journal on Sexual and Reproductive Health strongly encourages authors to follow relevant reporting guidelines from the EQUATOR (Enhancing the Quality and Transparency of Health Research) Network to ensure clarity, completeness, and transparency in research reporting. Authors should identify and use the guidelines most appropriate for their study design, such as CONSORT for randomised controlled trials, STROBE for observational studies, PRISMA for systematic reviews, PRISMA-ScR for scoping reviews, or COREQ for qualitative research, among others. The full range of guidelines can be accessed through the EQUATOR Network website (www.equator-network.org). Authors are encouraged to complete the corresponding checklist for the selected guideline and upload it as a supplementary file during manuscript submission. This checklist should indicate page numbers or sections in the manuscript where each item is addressed.

Annex 4

Preparation of Manuscripts

Cover letter

All manuscript submissions must be accompanied by a cover letter addressed to the Editors-in-Chief. The letter should clearly state that the content of the manuscript has not been previously published and is not under consideration for publication elsewhere. If any part of the manuscript has been previously published or presented in another form, full details must be disclosed. The cover letter should also include statements on authorship contributions, any competing interests, ethical approval (where applicable), and the authors' data sharing intentions. Authors are encouraged to highlight any additional information they believe the editors should consider when assessing the manuscript for peer review, including potential sensitivities, novel aspects, or contextual relevance.

Any potential conflicts of interest, financial or non-financial, must be disclosed, and attention should be drawn to any possible overlap with prior publications. The cover letter must include the full name, institutional affiliation, mailing address, telephone number, and email address of the corresponding author, who will serve as the primary contact throughout the editorial process.

Manuscript Formatting

Manuscripts must be typed using double spacing throughout the main text. However, tables, figure legends, and references may be presented in single spacing for clarity. The document should be formatted using English (UK) language settings. Use A4-sized paper (210 x 297 mm) with Times New Roman font, size 12, typed in both upper and lower case letters as appropriate. The manuscript should be structured in the following order: Title page, Abstract, Main Text, and References. Tables and figures must be numbered sequentially and inserted in the main body of the text immediately after the first reference to them appears. Each major section (e.g., abstract, main text, references) must begin on a separate page.

Pages should be numbered consecutively, starting from the title page. Please include continuous line numbers throughout the manuscript. Do not restart line numbering on each page; instead, continue from the previous page to aid the peer review process.

Name of drugs and instruments

All drugs should be referred to by their generic (nonproprietary) names throughout the manuscript. If a proprietary (brand or trade) name is used in the research, it should be mentioned only once in the Methods section, immediately following the first use of the generic name. This should be accompanied by the brand name, the manufacturer's name, and location in parentheses. After this initial mention, only the generic name should be used. Instruments and equipment may be referred to by their proprietary names, but the manufacturer's name and location must be provided in parentheses at the point of first mention in the text.

Abbreviations and Symbols

Only standard and widely accepted abbreviations should be used, as nonstandard abbreviations may confuse readers and hinder clarity. Abbreviations should be avoided in the title of the manuscript. On first mention in the text, spell out the full term followed by the abbreviation in parentheses, for example, *Sexually Transmitted Infections (STIs)*, unless the abbreviation represents a standard unit of measurement, in which case the abbreviation may be used without definition. Thereafter, the abbreviation alone may be used consistently throughout the manuscript.

Units of Measurement

All measurements of length, height, weight, and volume should be reported in metric units (e.g., metres, kilograms, litres) or their appropriate decimal multiples, in accordance with the International System of Units (SI). Temperature should be reported in degrees Celsius (°C), and blood pressure should be expressed in millimetres of mercury (mmHg). Consistency in unit usage throughout the manuscript is essential to ensure clarity and scientific accuracy.

Headings in the Main Text

Manuscripts should use a maximum of two levels of headings to organise the text clearly and consistently. Each level should be clearly distinguished using consistent typographic formatting (e.g., bold for primary headings, bold & italics for secondary headings). Headings should be concise and descriptive, guiding the reader without disrupting the flow of the text.

Title Page

The title page should contain the following:

1) Main title, running title (less than 50 characters) and a maximum of 5 index words / key words (or phrases).

2) Authors are listed in the order in which they are to appear in the published article. List authors' names as surname and a maximum of 2 initials.

3) Institutional affiliation for each author and e-mail address. The institutions listed should reflect the affiliations of the authors at the time of the study, not their present affiliations, if they differ.

4) Name, address, e-mail and telephone number of the author responsible for correspondence.

5) Source(s) of support. These include grants, equipment, drugs, and/or other support that facilitated the conduct of the work described in the article or the writing of the article itself.

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

ReproSex: International Journal on Sexual and Reproductive Health follows the Vancouver referencing style. References should be numbered consecutively in the order they are first cited in the text, using Arabic numerals in square brackets. Do not superscript. If citing multiple references at once, use a comma to separate non-consecutive references, and a hyphen to indicate a range of consecutive references.

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.

I. Journal articles

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.

Examples:

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

II. MSc/MPhil/MD/PhD Dissertation or Thesis

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.

III. Report

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

Examples:

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

IV. Book or Book Chapter

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

Examples:

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

V. Conference Proceedings

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

Example:

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

VI. Referring to a website

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

Example:

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

VII. Unpublished article

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

Example:

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

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

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

Tables

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

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

Figures

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

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

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Agenda of the Launching Ceremony

September 04, 2025

At Grand Sapphire Hall (9th floor), Courtyard by Marriott, Colombo

Refreshment & Registration	**08:30 - 09:30 AM**
Arrival of Guests	**09:30 - 09:45 AM**
National Anthem	**09:45 - 09:50 AM**
Lighting the oil lamp	**09:50 - 10:00 AM**
Welcome address *Ms. Aruni Marcelline – President, Board of Directors, FPA Sri Lanka*	**10:00 - 10:10 AM**
ReproSex Conference Video	**10:10 - 10:15 AM**
Address by the Co-Chair *Prof. Indralal De Silva – Emeritus Professor of Demography, University of Colombo*	**10:15 - 10:30 AM**
Cultural Item I	**10:30 - 10:35 AM**
Address by the guest of honour *Dr. Asela Gunawardena - Director General of Health Services*	**10:35 - 10:45 AM**
Token of Appreciation	**10:45 - 11.00 AM**
Address by the chief guest *Dr. Anil Jasinghe – Secretary, Ministry of Health and Mass Media*	**11:00 - 11:10 AM**
Review of ReproSex International Journal *Prof. Kalinga Tudor Silva - Emeritus Professor in Sociology, University of Peradeniya.*	**11:10 - 11:25 AM**
Cultural Item II	**11:25 - 11:30 AM**
Official launching of the Journal	**11:30 - 11:40 AM**
Address by the Co-Chair *Prof. Sanath Lanerolle - Obstetrician & Gynaecologist*	**11:40 - 11:50 AM**
Keynote address *Prof. Sabaratnam Arulkumaran – Former President, International Federation of Gynaecology and Obstetrics*	**11:50 - 12.20 PM**
Closing remarks *Dr. Ruchitha Perera – Executive Director, FPA Sri Lanka*	**12:20 - 12:30 PM**

Launching Ceremony

Organizing Committee

Dr. Ruchitha Perera, Executive Director, FPA Sri Lanka

Mr. M. Suchira Suranga, Director – Organizational Learning and Evaluation, FPA Sri Lanka

Ms. Zaroosha Farook, Head of Finance, FPA Sri Lanka

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