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Review

Addressing Menstrual Stigma: A Scoping Review on Menstrual Health Interventions in India

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Abstract

(1) Background: Menstruation is subject to stigma worldwide, which has led to restrictive cultural norms and taboos rooted in religion, customs, and patriarchal systems. The resulting 'cultural stigma' associated with menstruation exacerbates health inequities, restricts access to sexual and reproductive health rights (SRHRs), and undermines girls' and women's participation in educational, economic, social, and spiritual activities. This scoping review examines interventions to address menstrual stigma experienced by girls and women in India (2) Methods: We used the Joanna Briggs Institute (JBI) methodology for scoping reviews. After systematic searches on 14 March 2024 across six databases (Academic Search complete, APA PsycInfo, Womens Studies International, Web of Science Core collection, MEDLINE, and Index Medicus-SEAR), we screened 1323 records. (3) Results: Findings from 13 unique study reports reveal diverse approaches to addressing menstrual stigma, including income generation initiatives, sexual education, peer training, technological tools, and arts-based approaches. While the interventions initiated dialogue among girls and women in India, they often lacked broader community engagement, leaving structurally embedded patriarchal norms unchallenged. Additionally, most programs targeted adolescent schoolgirls, with limited attention to waged girls and adult women. (4) Conclusions: Addressing menstrual stigma is critical to advancing gender equality and health equity in India. More research is needed to understand effective ways to galvanize community-wide support in dismantling the deeply rooted patriarchal structures that shape interconnected stigma processes leading to health inequities among girls and women in India.

Keywords: menstrual health management; health equity; sexual and reproductive health rights; periods; social development; majority world

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1. Introduction

Menstruation is a natural, physiological process experienced each month by 1.8 billion girls and women (World Economic Forum 2025)—nearly a quarter of the world's population (Rohatgi and Dash 2023). Yet, globally, menstruation is a topic that is surrounded by stigma, affecting girls' and women's[1] trajectory across the life course (Boruah et al. 2022; Crichton et al. 2013; Gaur 2023; WHO 2024; World Bank Group 2025a).

Menstrual health and hygiene management (MHM) encompasses both the individual needs of girls/women, such as access to absorbents, safe and private sanitation facilities, and

clean water, and the broader system-level supports that link menstruation with health, well-being, gender equality, education, and equity (UNICEF 2019). Although access to appropriate and dignified MHM is increasingly acknowledged as a human right (WHO 2024), many girls and women in the Majority World, a term for countries "which hold most of the world's population" (Khan et al. 2022, p. 2), continue to lack access to MHM information and resources (Chandra-Mouli and Patel 2017). To conceptualize this unmet MHM need, Crichton et al. (2013) coined the term 'menstrual poverty', the "multiple practical and psychosocial deprivations" (p. 891) girls and women face, including lack of access to menstrual hygiene management products (MHMPs) (such as reusable and disposable pads, tampons, menstrual cups, and menstrual disks to catch menstrual fluids (UNICEF 2025)), inadequate water, sanitation, and hygiene (WASH) facilities, and limited access to evidence-based, comprehensive information and emotional and practical support.

Due to the scholarly focus on menstrual poverty, most MHM interventions in the Majority World focus on private, women-friendly WASH facilities, education about the female reproductive system, and distribution of MHMPs (e.g., Hyttel et al. 2017; McAllister et al. 2025; Mucherah and Thomas 2017; Rastogi et al. 2021; Sommer 2010; Sommer et al. 2017; Ssewanyana and Bitanihirwe 2019), such as reusable and disposable pads, tampons, menstrual cups, and menstrual disks to catch menstrual fluids (UNICEF 2025). A lesser investigated dimension of MHM is the presence of menstrual stigma and its underlying contribution to menstrual poverty. In particular, few studies examine the social aspects of menstruation, and how best to address these issues by minimizing or eliminating menstrual stigma. This scoping review aims to help fill this research gap.

1.1. Enactment of (Menstrual) Stigma

According to Goffman ([1963] 1986), stigma is an "attribute that is deeply discrediting" that reduces "a whole and usual person to a tainted, discounted one" (p. 3). Link and Phelan (2001) expanded on the concept by describing the enactment of stigma, a process that includes the labeling of a person for a certain characteristic/trait/behavior, associating negative value to this label, separating the stigmatized person or population by creating categories of 'us' and 'them' that ultimately diminish their character and allow or enable discrimination.

Stigma is often operationalized through social norms, which are the expectations or customs within a specific cultural or social group that guide appropriate behavior and discourage individuals from violating these norms/customs through fear of social disapproval, punishment, guilt, and shame (WHO 2010). These norms/customs are often shaped by "powerful structural mechanisms of social control" (Benoit et al. 2018, p. 458) that reinforce existing control imbalances, sustain social inequalities, and contribute to the marginalization of individuals who deviate from prescribed cultural expectations (Sukumar 2020).

As a powerful determinant of health, which can impact individuals' well-being across the life course (Hatzenbuehler et al. 2013; Khanna et al. 2022; Link and Hatzenbuehler 2016; Patgiri 2022), stigma can affect a person's access to "resources, social relationships, and coping behaviors" (Hatzenbuehler et al. 2013). The sources or root causes of these limitations tend to be structurally embedded in social policy, laws, institutional practices, and norms (Link and Phelan 2014). These upstream structures then 'trickle down', influencing peoples' access to downstream social determinants such as housing, education, income, and employment, ultimately affecting health outcomes across the life course (Link and Hatzenbuehler 2016).

The undesirable perception of menstruation and those who menstruate, referred to as menstrual stigma (Johnston-Robledo and Chrisler 2020), is based upon "negative attitudes . . . and cultural beliefs about menstruating and pre-menstrual women" (Johnston-Robledo and Chrisler 2020, p. 11). With menstrual stigma, menstrual blood is considered dirty, and

the menstruating body is "socially constructed as abject and a site of social control" (Bobel 2019, p. 33). Menstrual stigma perpetuates and deepens menstrual poverty by silencing conversations and inquiry, limiting access to information/education, and impeding efforts to address inadequate WASH and MHMPs (Johnston-Robledo and Chrisler 2020; Robinson 2023). Menstrual stigma correlates with existing patriarchal power structures, as menstrual taboos "contribute to the belief system that women are inferior" (Sukumar 2020, p. 141). As Prasanna (2016, p. 92) puts it, "the inherent violence in the seemingly nonviolent traditions and customs is evident from the gender inequality [menstrual stigma] produces and perpetuates".

However, menstrual stigma is not experienced in the same way across time and space. For example, in the past, some communities marked menarche as a rite of passage, celebrating it through elaborate gatherings where girls were honored by family and friends (Gold-Watts et al. 2020; Perianes and Ndaferankhande 2020; Rakshit 2021). Today, such celebrations are increasingly rare, especially in urban settings and for families who migrate to cities, many of whom abandon traditional practices fearing their daughters' safety and broader social scrutiny (Muralidharan 2019). Today, in India, the country of focus for our review, traditional rites around menarche, such as multi-day celebrations, including family and friends (Gold-Watts et al. 2020) and giving the girl sweets and gifts (Rakshit 2021), are giving way to more hidden and isolating experiences of both menarche and subsequent menstruations.

1.2. Menstrual Stigma in India

India is the most populous country in the world (Statistica 2025) and home to roughly 702.6 million women and girls (World Bank Group 2025b). Millions of girls and women, especially those from disadvantaged populations such as Scheduled Tribe (ST) and Scheduled Caste (SC) groups, live in menstrual poverty (Sabna and Shalini 2025). This includes having unmet needs for MHMPs and WASH facilities (Chattopadhyay et al. 2019; Saroj et al. 2020; Sivakami et al. 2015; Yaliwal et al. 2020) and a lack of practical and social MHM support (Budimelli and Chebrolu 2019; Khanna et al. 2022; Thakur et al. 2014; Tuli et al. 2019).

As shown in Figure 1, stigma associated with menstruation in India is multi-level and cyclic, negatively impacting girls and women's access to crucial resources. At the macro level, menstrual stigmais compounded by, and often confused with, cultural rules stemming from the Hindu religious text, the Rig Veda. These cultural rules, commonly described as 'restrictions' (Gold-Watts et al. 2020; Kaur and Byard 2021; Khanna et al. 2022; Ramaiya and Sood 2019; Singh 2006; Singh Malik et al. 2023; Vashisht et al. 2018), include various dietary practices (Dutta et al. 2024; Goel et al. 2023; Logeswari et al. 2021; Muralidharan 2019; Patgiri 2022) and behavioral expectations that are especially prevalent in the home and places of worship (Sukumar 2020). Despite many cultural rules being tied to Hinduism, these protocols are often observed nationwide by communities belonging to all religions, with little variation across geographic space and age groups (Arora 2017; Budimelli and Chebrolu 2019; Garg et al. 2020).

The restrictions stem from a belief that menstruation is "religiously impure and ceremonially unclean" (Selvi and Ramachandran 2012, p. 202), inferring that menstruating girls and women are unholy and untouchable during their periods (Arora 2017; Boruah et al. 2022; Prasanna 2016; Sukumar 2020). This 'menstrual untouchability' affects girls' and women's participation in everyday life. While menstruating, girls and women often sleep separately from other family members (Dutta et al. 2024; Logeswari et al. 2021; Singh Malik et al. 2023), avoid sexual activities (Khanna et al. 2022; Rani 2014), and, in some regions, refrain from touching other people (Boruah et al. 2022). While on their periods, girls and women are often barred from entering agricultural fields or touching plants, based on

beliefs that doing so may harm or kill crops (Gold-Watts et al. 2020; Ottsen 2020; Singh Malik et al. 2023; Sukumar 2020) ("menstruation is framed as impure and shameful", the second box of Figure 1). Many menstruating girls and women are banned from entering the kitchen, fetching water, and cooking food (Goel and Kundan 2011; Khanna et al. 2022; Logeswari et al. 2021). While the restrictions on food preparation tend to ease after marriage due to societal expectations that married women cook for their families, the experience of menstrual stigma often intensifies in other ways, intersecting with marital expectations of increased modesty and restricted mobility (Dutta et al. 2024). Overall, the cultural rules and restrictions related to menstruation and agriculture, sexual activity, and food preparation serve as reminders that menstrual stigma is a deeply gendered experience, shaped and reinforced by patriarchal norms (Patgiri 2022).

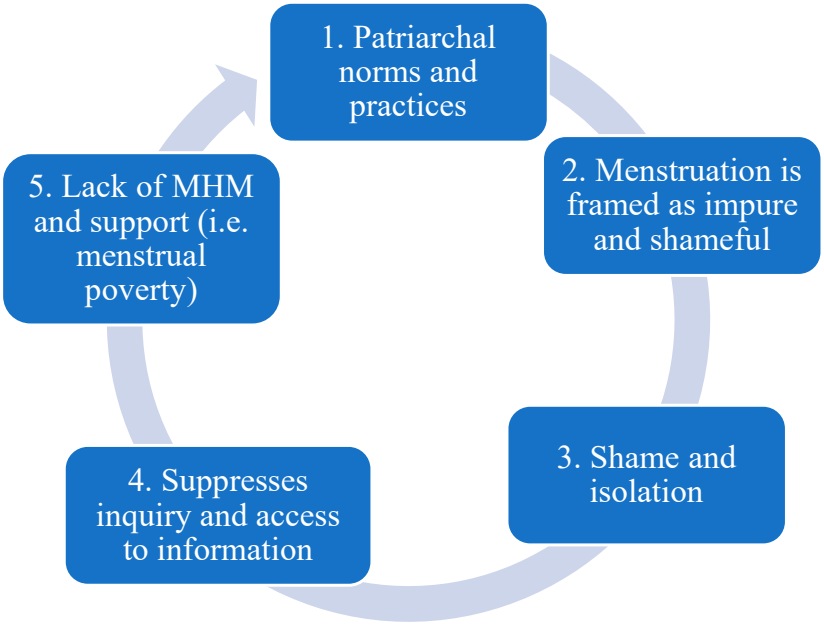


Figure 1. Cycle of stigma of menstruation in India.

The 'restrictions' and the 'untouchability' result in shame and isolation for individual girls and women (box 3 in Figure 1) (Arora 2017; Block et al. 2023; Garg and Anand 2015; Hennegan et al. 2019; Mason et al. 2017; Rajagopal and Mathur 2017). The literature consistently highlights the taboo surrounding menstruation, often referring to it being shrouded in a 'culture of silence' (Block et al. 2023; Garg et al. 2001; Ghosh and Jamir 2023; Khan et al. 2022; Singh 2006; Vashisht et al. 2018), reinforced through concealment, secrecy, and isolation (Gold-Watts et al. 2020). Only rarely do family members, peers, teachers, social workers, or health providers provide information to girls prior to menarche (Chandra-Mouli and Patel 2017; Gundi and Subramanyam 2019; Khanna et al. 2022; Singh 2006; Sivakami et al. 2015; Thakur et al. 2014). This is despite increased national campaigns encouraging education for them about puberty. This 'culture of silence' suppresses inquiry and access to information about menstruation (box 4 of Figure 1).

Overall, the systemic reinforcement of the "code of silence and secrecy" (Singh 2006, p. 13) leaves menstrual stigma embedded in a cultural ideology that frames menstruation as impure or shameful. Menstrual stigma is continually reinforced by suppressing conversations or inquiry about this natural, biological process, limiting access to accurate information, isolating menstruating girls and women, and ultimately perpetuating menstrual poverty, as depicted in box 5 in Figure 1.

1.3. Menstrual Stigma as a Social Determinant of Health

The pervasive silence and social pressure to hide one's menstruation significantly affects menstrual health as it undermines the uptake of and access to sexual and reproductive health services (Arora et al. 2013; Dharmalingam et al. 2022; McAllister et al. 2025). As menstruation is rarely discussed with family, peers, or community members, health services are often only accessed in the event of a health emergency (Ghosh and Jamir 2023), such as a uterine infection, severe bleeding, or extreme pain (Deligeoroglou and Creatsas 2012). This silence extends into healthcare settings, where both patients and providers reportedly find it difficult to discuss menstruation (Ghosh and Jamir 2023). As a result, girls and women may suffer in silence with menstrual pain, discomfort, and potential medical conditions related to menstruation, leading to long-term consequences for their health and well-being (Dongre et al. 2007; Parmar et al. 2008). This discomfort around discussing menstruation extends to broader aspects of sexual and reproductive health, as it contributes to the lack of knowledge, awareness, and personal autonomy/control in matters of "sexuality, contraception, pregnancy and safe abortion" (Khanna et al. 2022, p. 197).

Beyond its impact on physical health, menstrual stigma affects the mental health of girls and women worldwide (Hennegan et al. 2019, 2021). As described above, many Indian girls receive limited or no information about menstruation prior to menarche, often resulting in confusion, fear, and shame (Boruah et al. 2022; Goel and Kundan 2011; Khanna et al. 2022; Rani 2014). These emotions often persist beyond menarche. Goel and Kundan (2011) found that 53% of adolescent girls experienced emotional disturbance and 31% felt "depressed" (p. 50) at the onset of menstruation each month. Despite hormonal fluctuations being known to influence the mood of a menstruating person (Romans et al. 2012), the authors attribute much of these negative reactions to the fact that 78% believed menstruation to be a 'disease' and 7% of girls believed menstruation to be a 'curse'. Our review will focus on interventions that aim to address stigma at the societal and systems levels (e.g., educational) in order to shed light on how reducing stigma related to menstruation can influence individual experiences, including individual emotional and psychological outcomes.

Many scholars agree that the onset of menstruation can negatively affect Indian girls' school attendance (Budimelli and Chebrolu 2019; Goel and Kundan 2011; Rajagopal and Mathur 2017; Sharma et al. 2020; Vashisht et al. 2018)—a factor that can significantly influence health outcomes across the life course. While some studies document restrictive practices (i.e., norms and practices; box 1, Figure 1) as contributing to school absenteeism (e.g., Budimelli and Chebrolu 2019), other drivers of absenteeism relate to menstrual poverty, including barriers to adequate MHMPs and a lack of WASH facilities (Saroj et al. 2020; Vashisht et al. 2018). Regularly missing school limits girls' academic achievement, affecting their grades and jeopardizing future educational and economic opportunities (Tyler and Lofstrom 2009). This, coupled with the broader societal assumption that menstruating girls and women should isolate each month, has long-term implications, as it may lead employers to bypass women for job opportunities or promotions, having a profound impact on women's access to education, economic advancement, and full participation in society. Menstrual stigma is therefore an important, often hidden, dimension related to school absenteeism for adolescent girls, with potential to negatively influence life chances across the life course.

In summary, menstrual poverty and menstrual stigma are intertwined and affect girls' and women's experiences, opportunities, and health across their lives. In India specifically, menstrual stigma is closely linked to religiously imposed cultural rules and social practices that restrict women's participation in educational, social, political, and occupational spaces. These norms contribute to gendered exclusion and perpetuate cycles of inequality. Despite

this, research evaluating interventions aimed at reducing menstrual stigma is limited, leaving gaps in understanding and addressing this critical health issue.

In this paper, we shed light on this global issue, using India as a case example. The purpose of this scoping review is twofold: (1) to highlight interventions that address menstrual stigma in India by mapping out the participants, intervention designs, results, and the authors' recommendations, and (2) to identify gaps in the literature in order to recommend future research, policy, and programming directions that can address menstrual stigma using this country as an example.

2. Materials and Methods

2.1. Sources and Search Strategy

This scoping review was designed and conducted according to the JBI guidelines for scoping reviews (Peters et al. 2020). The review is being reported according to the Scoping review extension of the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA-ScR) (Tricco et al. 2018). An a priori protocol was developed and published on the Open Science Framework registries (https://osf.io/j4scn, accessed on 26 January 2026).

Six databases were selected based on their multidisciplinary coverage (Academic Search Complete, Web of Science Core Collection), health focus (MEDLINE All, APA PsycInfo, and IMSEAR), population focus, (Women's Studies International), and regional focus (IMSEAR) (Table 1). The databases were searched on 14 March 2024.

Table 1. Databases searched.

Database Name	Platform	Coverage Justification
Academic Search Complete	EBSCOhost	Multidisciplinary
APA PsycInfo	EBSCOhost	Health
Women's Studies International	EBSCOhost	Population (women)
Web of Science Core Collection [1]	Clarivate	Multidisciplinary
Index Medicus for South East Asia Region (IMSEAR)	World Health Organization	Health, Region (India)
Medline All	Ovid	Health

[1] Including ESCI, SCIE, SSCI, AHCI, and CPCI.

A three-stage search approach, as recommended by the JBI methodology (Peters et al. 2020), was carried out. In stage 1, exploratory searching was used to identify a set of seed articles, from which free-text terms and subject headings were harvested. The primary search strategy was then drafted for the Academic Search Complete database (on the EBSCOhost platform). The first author worked in close collaboration with a health librarian (fourth author) to gather terms and develop the primary search strategy. Four search concepts were developed: (1) India, (2) girls and women, (3) menstruation, and (4) stigma. Each concept consisted of free-text terms and controlled terms (subject headings), where available. The primary search strategy was tested against the seed papers and further optimized to improve sensitivity. The primary search strategy was then translated to the remaining five databases and the searches were conducted by the fourth author. No date limits were applied to the searches. The complete search strategies for all six databases are deposited in Borealis (https://doi.org/10.5683/SP3/FKNEMV (accessed on 26 January 2026). The results from the database searches were exported in RIS format and imported into Covidence Systematic Review Software Covidence (Veritas Health Innovation 2021)

for automated deduplication and screening. Reference checking (backward) of all included studies was conducted manually after screening was complete.

2.2. Inclusion and Exclusion Criteria

The studies were included or excluded according to the following criteria: To be included, the study must (i) be peer-reviewed, defined by the authors as any articles appearing in peer-reviewed journals or academic books/book chapters that have undergone editorial or peer review, and (ii) have analyzed primary data. The interventions had to be implemented in the Republic of India, including geographical areas under territory disputes with China, Pakistan, and Nepal. The participants had to be either girls or women who were Indian nationals, who were either pre-menarche or menstruating. Studies solely including women who have reached menopause were excluded. All social groups, economic classes, castes, and religious and political affiliations were included. The study had to contain at least one intervention that either directly or indirectly addressed menstrual stigma. In our scoping review, this was evident through social and cultural restrictions imposed on menstruating persons, such as self-imposed or external expectations of silence, topic avoidance, untouchability, barriers to physical locations and social spheres, and restrictions on mobility, activities, and diet. Finally, the studies had to be written in English.

2.3. Study Screening

A pilot screening exercise was undertaken to ensure that eligibility criteria were clear and also to establish initial inter-rater agreement levels that met the 80% threshold, which is above the 75% minimum threshold suggested (Peters et al. 2020). Pilot screening was conducted with a set of 50 randomly selected screening records, using Excel to record decisions and notes. The first three authors participated in the full pilot screening process. Title and abstract screening were conducted by the first two authors independently, using Covidence (Veritas Health Innovation 2021). Conflicts were resolved by the third author. Full texts were retrieved, and a hierarchy of exclusion reasons was created prior to beginning full-text screening, which was also performed in duplicate, independently by the first two authors and using Covidence software. Conflicts were resolved by the third author. The first author also conducted bibliography screening of the included studies

2.4. Methodological Limitations

Our search was limited to peer-reviewed research and did not include gray literature. Only studies written in English were included, which may have excluded other reports of evaluated and peer-reviewed interventions.

2.5. Data Extraction

Data (i.e., information from each study) were extracted using an Excel spreadsheet, organized into relevant headings and categories. The following data items were extracted: the participants' demographic information such as age group, civil status, social status (class and caste), and occupation; the location of the study; the intervention type, outcome, and evaluation criteria. The study authors' recommendations were also extracted and charted (see Appendix A). Consistency in interpretation and categorization was ensured by the first and second authors who worked in tandem to refine the study summaries in the spreadsheet. The Excel spreadsheet was then formatted into a summary table, and the four authors iteratively refined the headings and categories further and then stylized the table for presentation in the manuscript.

3. Results

3.1. Summary of Included Studies

The authors screened 1107 titles and abstracts, and 27 articles were chosen for a full-text review, resulting in 9 included reports. The first author conducted bibliography screening, identifying 216 citations. After assessing their abstracts, nine reports were selected for full-text screening. Of those reports, we were unable to locate the full text of one study, but the remaining four reports were added to the included study pool. The results of the screening process are presented in a PRISMA flow diagram (Figure 2) and a summary of the reports is presented in Appendix A.

In total, this review includes 13 reports covering 11 interventions, implemented in the Indian states of Uttar Pradesh (1), Haryana (1), Rajasthan (2), Gujarat (1), Maharashtra (2), Karnataka (2), and Tamil Nadu (1). One study (Parmar et al. 2008) did not specify the state or union territory of their intervention, and rather indicated "western (sic.) India in two villages" (p. 112). Out of the 11 interventions, 9 were conducted in rural villages, and 2 were conducted in urban centers.

3.2. Populations

The study participants were girls and women, with one study (Bhagwat and Jijina 2020) also interviewing the male leader of an NGO, and another including fathers in the intervention but not the study (Block et al. 2023; Ramaiya et al. 2019; Sood et al. 2021). The majority of participants in the included reports identified as Hindu. All social classes are represented in the interventions. All but one intervention study (Reshmi et al. 2015) included adolescent girls as participants (10/11), and two of these interventions (2/10) included both girls and women together. Hence, only one study focused exclusively on adult women. Of the interventions targeting adolescent girls, six intervention studies (6/10) focused on girls attending school. Five interventions (5/10) were conducted in a school setting, of which three were conducted in cooperation with a primary or secondary school and two were conducted in a college. Three interventions targeting adolescent girls (3/10) did not require connection to a school for participation, instead using NGOs and health centers to recruit participants and carry out interventions. Two interventions targeting adolescent girls (Bhagwat and Jijina 2020; Surbhi and Anand 2019) did not provide clear information about the location of recruitment and/or the intervention.

3.3. Interventions

While all interventions incorporated some degree of sexual education, we divided the interventions into the following categories: (1) sexual education (interventions relying solely on information session(s) on MHM; $n = 6$), (2) income-generating activities (a central component was to create an income stream for the participants; $n = 1$), (3) peer-to-peer interventions or 'training of trainers' (a portion of the participants were trained in MHM and asked to share and discuss this information with their peers; $n = 2$), (4) technology (access to information on MHM through computers; $n = 1$), and (5) art-making (arts-based methods had a central role in the intervention; $n = 1$).

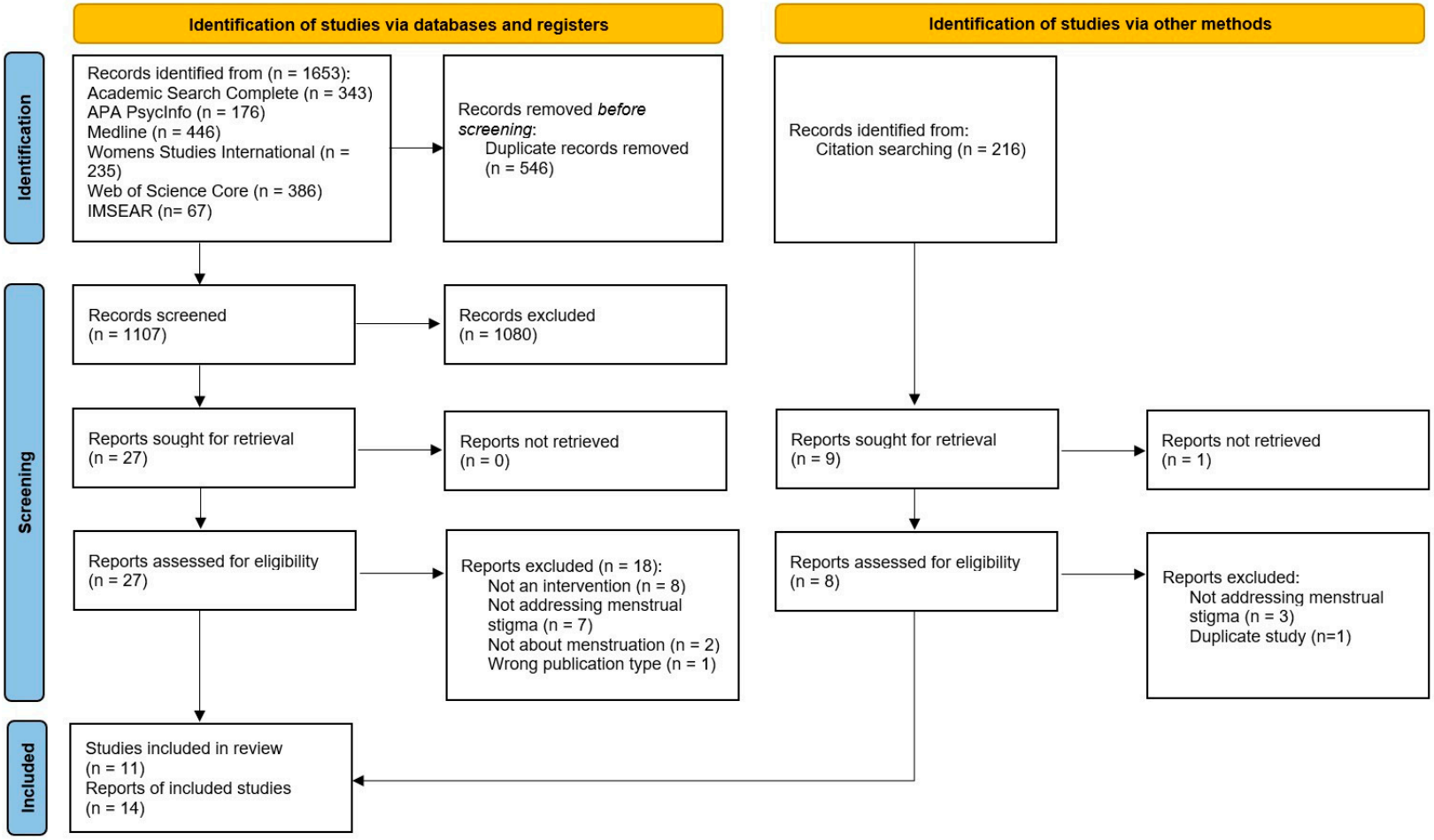


Figure 2. PRISMA Flow Diagram. From Page et al. 2021. For more information, visit http://www.prisma-statement.org/ (accessed on 26 January 2026).

The interventions included one-time events, such as educational sessions on MHM followed by a question and answer (Q&A) session (Arora et al. 2013; Dharmalingam et al., 2022), and one-hour lessons on menstrual health (Vagha et al. 2023). Other interventions were short-term, including a three-lesson series on MHM followed by a Q&A (Dorle et al. 2019), and three-day workshops on MHM using pre-established self-help groups (Reshmi et al. 2015). Interventions one month or longer included training of peer-educators to instruct other youth on MHM (Dwivedi et al. 2020) using different computer technologies to distribute information about MHM and maternal health (Parmar et al. 2008), and a multi-session intervention in which girls were invited to information sessions followed by comic-making activities used to share their experiences related to MHM (Surbhi and Anand 2019). There were also multi-year interventions, such as Dongre et al.'s (2007) three-year trial of monthly and quarterly peer-education meetings, a program established by a local NGO to teach women to produce menstrual pads to sell in their communities (Bhagwat and Jijina 2020), and the three-year, multi-pronged community-based program, 'GARIMA', that included peer-education girl groups, skills training, and meetings with the fathers and mothers of the participants to 'break the culture of silence' surrounding menstruation (Block et al. 2023; Ramaiya et al. 2019; Sood et al. 2021). All timeframes reported above and in Appendix A refer only to the duration of the interventions, and not to the full study period (i.e., intervention and data collection).

3.4. Study Characteristics and Assessment

The 11 unique interventions were described in the 13 study reports. Ten reports used quantitative methods, one report used mixed methods, one report used qualitative methods, and one report used arts-based methods. All interventions aimed to improve knowledge, awareness, and practices (KAP) surrounding MHM to some degree; however, use of a specific KAP framework was not explicitly mentioned in all articles. Some articles additionally aimed to improve school attendance, employment opportunities, and access to menstrual supplies. Where evaluations were conducted, three (3/11) reports used control and test comparison groups, and eight (8/11) conducted pre- and post-testing to assess changes in KAP.

Knowledge around menstruation was generally tested through school-based curriculum tests, often through pre- and post-tests (see Arora et al. 2013; Dharmalingam et al. 2022; Parasuraman et al. 2022; Vagha et al. 2023). Attitudes around menstruation were measured based on participant comfort in discussing the topic. Some studies measured participants' attitudes towards menstruation based on their experiences of embarrassment (Bhagwat and Jijina 2020; Parmar et al. 2008). Other studies similarly reported a positive change in participant comfort when discussing menstruation with peers (Bhagwat and Jijina 2020; Block et al. 2023; Dwivedi et al. 2020; Ramaiya et al. 2019; Surbhi and Anand 2019) and/or health providers (Sood et al. 2021; Surbhi and Anand 2019). Behavioral changes (i.e., practices) were assessed through an examination of whether girls continued to follow menstrual 'restrictions', such as refraining from prayer or entering holy places (Arora et al. 2013; Parasuraman et al. 2022), dietary restrictions (Dongre et al. 2007), self-isolation (Arora et al. 2013; Parasuraman et al. 2022), and school absenteeism (Vagha et al. 2023), and whether reusable menstrual cloths were dried indoors or outdoors (Arora et al. 2013; Dongre et al. 2007).

Sood et al. (2021) introduced a system to measure girls' perceptions and understandings of menstrual stigma and the accompanying 'restrictions'. This was achieved by categorizing their responses into activities they 'cannot do' (structural barriers), 'will not do' (personally imposed restrictions), and 'should not do' (socially imposed restrictions). Sood et al.'s (2021) intervention was a three-year, community-based program involving

adolescent girls, their family members, and local health workers. The authors divided the community into two groups, one group which received the intervention (test group) and one which did not (control group). In the post-test, the authors found that participants in the test group challenged restrictions more frequently than the control group (e.g., wearing clothes they were told not to while menstruating (6% test vs. 3% control), eating foods they should not eat (37% test vs. 31% control), going to places they were told not to go (7% test vs. 5% control) and participating in forbidden social/religious activities (6% test vs. 3% control).

3.5. Study Findings

As described above, most studies in this review used the framework of KAP to assess the results of their interventions: Across the interventions identified by this scoping review, the authors of the included studies emphasize the central role that knowledge about menstruation plays in facilitating MHM. Dharmalingam et al. (2022) found that their intervention improved knowledge about menstruation from 57 to 90%, Dongre et al. (2007) observed a knowledge increase from 35 to 55%, and Dwivedi et al. (2020) found that 56% of girls gained adequate knowledge (an increase of approximately 36%). However, other interventions, such as Surbhi and Anand's (2019) comic-making intervention, did not focus on increasing participants' knowledge per se but rather highlighted how gains in knowledge can improve girls' critical thinking skills and their ability to differentiate between myths and facts. Similarly, the income-generating activities that Bhagwat and Jijina (2020) evaluated did not focus on distributing knowledge. Instead, they identified that a scientific understanding of female anatomy and menstruation was lacking among participants, underscoring the importance of including sexual health education within interventions to effectively challenge stigma.

Regarding beliefs (i.e., attitudes), Parasuraman et al.'s (2022) educational sessions resulted in a drop from 28% to 10% in the belief that menstruation is a 'curse from God'. They also witnessed an increase from 64% to 98% of participants believing that menstruation is a 'normal' phenomenon, and a decline in the belief that menstrual blood is impure, from 83% to 3%. Studies by Dharmalingam et al. (2022) and Reshmi et al. (2015) found a decrease in participants believing that menstrual blood is 'impure', from 64% to 24% and from 19% to 8%, respectively. Arora et al. (2013) found that prior to the intervention, 98% of those surveyed believed menstruation to be impure, with 91% retaining this belief after the intervention. Relatedly, some reports measured participants' attitudes towards practices and restrictions: Dwivedi et al. (2020) found that prior to their intervention, 40% believed that menstruating women can participate in worship, compared to 72% after the intervention. Similarly, Reshmi et al. (2015) found that the same belief increased from 36% to 90%.

Attitudes towards discussing menstruation also shifted: Bhagwat and Jijina (2020) found that, prior to their intervention, menstruation was associated with embarrassment and shame, and that the intervention normalized conversations around menstruation. Parmar et al. (2008) compared two different technological approaches to improve menstrual and maternal health knowledge. 'Village A' was given a 'basic' personal computer to disseminate information about these topics, and 'Village B' used a newly developed interactive technology that facilitated cooperation and conversation among users. As an indicator of success, the study used the number of visits made to each machine and the types of questions participants asked after information sessions. The authors found that participants from 'Village A' asked 23 questions compared to 58 questions asked by participants in 'Village B'. Issues which were considered more private, or were related to existing beliefs and practices, were also discussed more frequently/freely in Village B (Parmar et al. 2008).

In relation to practices, the included studies had mixed results: Parasuraman et al. (2022) found that their three lectures on sexual education lowered the practice of general self-isolation from 60% to 2%, and that visits to holy places while menstruating increased from 5% to 65%. Participants who reported working in the kitchen also increased from 57% to 85%. Dongre et al. (2007) found that after their peer-to-peer education scheme, participants following dietary restrictions decreased from 21% to 17%. However, Vagha et al. (2023) reported that their one-time lecture on MHM did not significantly change the social practices they measured (e.g., using separate bathrooms, going into the kitchen, entering places of workshop). Arora et al. (2013) also reported very little differences in practices two months after their lecture.

Overall, longer interventions that actively involved family and community members (i.e., Ramaiya et al. 2019; Sood et al. 2021; Block et al.'s 2023 three year-long educational intervention) were more effective in reducing adherence to restrictions compared to shorter, individualized interventions (e.g., one-time sessions by Arora et al. 2013; Dharmalingam et al. 2022; Vagha et al. 2023). Furthermore, programs that incorporated peer-training where selected participants were trained to lead teaching sessions (e.g., Dwivedi et al. 2020) and others that encouraged dialogue (e.g., Parmar et al.'s (2008) cooperative technology) were more successful in 'breaking the silence' around menstruation.

3.6. Recommendations from the Included Studies

The authors of the reviewed studies presented a range of recommendations for addressing menstrual stigma. Block et al. (2023), Ramaiya et al. (2019), Surbhi and Anand (2019), and Sood et al. (2021) emphasize that all MHM interventions must directly address the social norms and taboos associated with menstrual stigma, as it is at the heart of the menstrual poverty experienced widely by girls and women in the Indian context. Several studies recommended the need to include a wider range of stakeholders in MHM interventions, including family members, teachers, peers, health workers, and fathers (Arora et al. 2013; Block et al. 2023; Ramaiya et al. 2019; Surbhi and Anand 2019). To have long-lasting impacts, Surbhi and Anand (2019) also suggest that interventions must align with what is acceptable to parents and the broader community and be culturally appropriate.

Many authors also recommend integrating sexual education into school curricula, with teachers as the primary instructors, in order to limit misinformation and misconceptions around menstruation (Dharmalingam et al. 2022; Parasuraman et al. 2022; Vagha et al. 2023). Block et al. (2023) argue that programs for parents and teachers are needed to equip them with the knowledge and confidence to effectively support their daughters and female students in general. In the absence of adequate support from schools or families, NGOs and local peer groups can serve as alternative platforms for menstrual health education (Dongre et al. 2007; Dwivedi et al. 2020).

Additionally, the studies by Arora et al. (2013) and Reshmi et al. (2015) highlight that shorter interventions, such as their single lecture and three-day workshop, are insufficient, as this timeframe does not provide sufficient space to address the complexity and deeply rooted nature of menstrual stigma. Based on their findings, these authors recommend longer, more comprehensive, and multifaceted programs to ensure meaningful change.

4. Discussion

This scoping review revealed that interventions aimed at addressing menstrual stigma among girls and women in India are largely centered around increasing knowledge, improving access to resources, and adopting practices to reduce isolation and shame, ultimately lowering the risk of adverse health outcomes, including those associated with menstrual hygiene. The interventions' use of knowledge, attitudes, and practices (KAP) surrounding menstruation as

the primary framework to conceptualize and assess MHM is consistent with other studies in India (Deshmukh et al. 2019; Goel et al. 2018; Katiyar et al. 2013; Mohammadi 2022) and abroad (Ene et al. 2024; Patrick et al. 2025; Siabani et al. 2018; Tshomo et al. 2021), providing both a structured way to capture thought processes and behaviors related to menstrual health and allowing for comparison across contexts and populations.

In addition to centering KAP as the main strategy to assess stigma, 10 of the 11 interventions included in this review did so with an adolescent population. This focus is also consistent with global research trends focusing on MHM and menstrual poverty across the adolescent life stage (e.g., Anu et al. 2014; Boruah et al. 2022; Chandra-Mouli and Patel 2017; Choudhary and Gupta 2019; Crichton et al. 2013; Goel and Kundan 2011; McAllister et al. 2025; Rani 2014; Sommer 2010; Sommer et al. 2017). Among this population in India and other Majority World countries, strategies and interventions to promote MHM tend to occur within or adjacent to primary/secondary school systems (i.e., within the classroom vs. teacher training). For instance, Alekhya et al.'s (2023) intervention educated adolescent girls in Odisha, India, on puberty, MHM, birth control, and sexually transmitted infections (STIs), using a classroom setup. Similarly, Krishnamurthy et al. (2021) compared two school-based models of sexual health education, direct education (i.e., classroom-based sexual health education), and peer-led education (training participants to train others). Their findings suggested that direct teaching had higher knowledge gains than peer-to-peer education. Internationally, similar strategies are observed: Haque et al. (2014) delivered a six-month program in Bangladeshi high schools, while Kansiime et al. (2020) trained teachers in Uganda to provide MHM education to adolescent girls. In addition to school and community-based delivery, digital platforms have been tested as entry points for sensitive conversations. Tuli et al. (2018) studied 'Menstrupedia', a free online resource targeting young women in India. Although the online resources and forum did not seem to challenge stigma, the authors found that it was a great way to circumvent stigma, as the forum allowed for anonymity, and women and men (15%) asked questions related to menstruation, contraceptives, and STIs, thereby creating an entry point to discussions on sexual health in general. Overall, these studies show how different delivery models, from classroom teaching to peer-to-peer training and digital platforms, can be adapted to the needs, age, and social context of participants to foster both engagement and acceptability, though most still target young women in early adolescence.

The positive health and social outcomes outlined in this scoping review demonstrate the immense impact that culturally appropriate, evidence-informed MHM interventions can have on addressing stigma and improving the health and welfare of minority populations. This remains critical at a time when equitable access to sexual and reproductive health knowledge and resources is being challenged on the global stage, with populations including women and girls in historically marginalized and impoverished populations faring the worst (Sibert 2025; Venegas 2022, 2025). As highlighted in our review, mobilizing a variety of community stakeholders has the potential to enhance MHM intervention outcomes, particularly as greater awareness of impacts related to menstrual stigma can raise a critical consciousness capable of addressing asymmetrical power dynamics that have long upheld menstrual stigma in society (Benoit et al. 2018; Link and Phelan 2001; Sukumar 2020; Van Lonkhuijzen et al. 2023).

Methodological Limitations

This study has several methodological strengths as well as some limitations. We employed a deliberately broad database selection, including regionally focused sources (e.g., IMSEAR), population-focused databases (e.g., Women's Studies International), and both multidisciplinary and health-specific databases. The search strategy was systemati-

cally developed through testing against a set of known studies and in close collaboration with an experienced health sciences librarian. However, our search was limited to peer-reviewed studies in English and did not include gray literature, which may have excluded other reports of evaluated and peer-reviewed interventions. Future research will benefit from investigating gray literature and studies in other languages, particularly official Indian languages.

5. Conclusions

Addressing menstrual stigma is critical to advancing gender equality and health equity in India, as such stigma not only restricts girls' and women's social mobility, access to education, and economic participation but also perpetuates intergenerational silence, misinformation, and multi-level discriminatory practices. This scoping review has highlighted both the promise and limitations of current structural interventions aimed at reducing menstrual stigma in this particular national context. The studies cover a range of age groups, geographical areas, and income levels and demonstrate the potential to reduce menstrual stigma and improve menstrual health outcomes.

Based on our scoping review, future research on the Indian sub-continent should prioritize the lived experience of harder-to-reach populations, including tribal, low-caste, rural, and out-of-school girls and women. Particular attention should also be given to pre-menarche girls, as early, age-appropriate education can reduce fear, shame, and misinformation before stigma becomes entrenched. Additionally, it is important to increase and diversify stakeholder engagement and examine stigma as a structural phenomenon that is deeply rooted in society and operates at multiple societal levels. Longitudinal and participatory studies could help us understand (i) how menstrual stigma is produced and sustained across the life course of women positioned at a variety of social locations and (ii) identify effective, culturally relevant interventions that can respond to the diversity of women across India. Future research should account for contextual factors, including age, geography, caste, and tribal status, and consider how to integrate equity-centered interventions within existing community structures to promote their relevance and acceptability. Future studies will additionally benefit from examining how girls and women respond to structural interventions using evaluated measures of felt stigma.

Indian policy approaches on menstrual health need to move beyond product distribution and hygiene-focused frameworks and adopt holistic, stigma-informed menstrual health education that includes diverse stakeholders. Existing community-based platforms, such as Anganwadi centers, schools, and primary health services, offer critical opportunities to deliver culturally relevant menstrual health education. Ultimately, efforts to address menstrual stigma must be embedded within broader commitments to addressing intersecting social inequities related to gender, caste, and class that shape whose bodies, knowledge, experiences, and health are valued and supported.

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Abbreviations

The following abbreviations are used in this manuscript:

MHM	Menstrual health management
MHMP	Menstrual health management product
STI	Sexually transmitted infection
WASH	Water, sanitation, and hygiene

Appendix A. Scoping Table

No.	Source Article	Study Location	Participants	Type of Intervention	Intervention Objective	Study Design	Intervention Indicator(s)	Intervention Outcomes/Study Findings	Study Recommendations
1	(Arora et al. 2013)	Haryana State, Ambala District Rural villages	School girls (grade 9–10) 50% middle class, 32% lower class N = 200	**Sexual Education:** One educational lecture using audio-visual aids about the science of menstruation, hygiene practices, and menstruation 'myths', followed by a discussion and Q&A session.	Assessing status of hygiene, knowledge and practices pre- and post- intervention.	**Quantitative.** (1) Pre-test questionnaire (2) Lecture (3) Post-test questionnaire (2 months)	Changes in behaviors (e.g., hygiene practices, isolation) and knowledge (e.g., physiology, health outcomes)	No significant difference in 'restrictions'. Significant improvements in knowledge and practices of the science of the menstrual cycle and menstrual hygiene management (MHM).	Form peer groups so girls can discuss issues of menstruation openly. Include this type of health education in school curriculums
2	(Bhagwat and Jijina 2020)	Gujarat State, Vardodara District Rural villages	Women, Schoolgirls (age 14–17) Lower-middle class N = undisclosed	**Income generating activity:** Using a social enterprise model, a local NGO encourages women to buy a machine to produce menstrual pads. The NGO trains the women in hygiene practices, pad production, and selling techniques, including Indigenous social marketing (e.g., use of folk songs). The women produce and sell pads to the women in their community and provide education on menstrual hygiene. NGO hosts educational sessions with schoolgirls about MHM.	Project *Sakhi* (1) Provide low-cost sanitary pads for the community, (2) Provide employment and financial independence, (3) Teach girls and women about MHM.	**Qualitative.** Observations and semi-structured interviews with project founders, village women working for the project and adolescent girls, NGO worker. Data analysis via thematic network analysis.	(1) Access to and affordability of menstrual hygiene products, (2) generation of revenue, (3) providing employment and livelihood, (4) environmental considerations. Evaluation of the model in the Indian context (i.e., sustainability, material supply chain).	The initiative normalized conversations about menstruation and participants reported feeling more comfortable discussing menstruation after being enrolled in the program. Participants remain unclear about the science of the menstrual cycle.	Interventions must include lessons on female anatomy and the menstrual cycle to educate girls and women to address myths associated with the 'cultural rules'. Mothers need more education to help teach their daughters about menstruation.
3	(Dharmalingam et al. 2022)	Tamil Nadu State, Thoothukudi District	Rural, adolescent Unmarried, female college students (age 17–20) Mixed socio-economic status 97.6% first generation students N = 80	**Sexual education.** (1) animated video on menstrual hygiene, (2) 30-min lesson on female physiology and hygienic practices using visual aids, (3) Q&A session.	Improve participants' menstrual hygiene practices; improve attendance.	**Quantitative.** Pre and post-intervention self-administered, semi-structured questionnaire. assessing (1) socio-demographics, (2) knowledge on menstruation, and (3) menstrual hygiene practices	Knowledge and beliefs about menstruation	Physiological knowledge and practices regarding MHM improved. The intervention managed to address incorrect beliefs about menstruation, which may help break misconceptions and myths.	Age-appropriate lectures on menstrual health and hygiene should be included in the school curriculum. Include appropriate waste management strategies related to menstrual products.

No.	Source Article	Study Location	Participants	Type of Intervention	Intervention Objective	Study Design	Intervention Indicator(s)	Intervention Outcomes/Study Findings	Study Recommendations
4	(Dongre et al. 2007)	Maharashtra State, Wadha District 23 villages	Girls (age 12–19). 75% attended school Phase 1: 71.1% reached menarche (2003) Phase 2: 75.5% reached menarche (2007) N = 420	**Peer to Peer education.** (1) The authors and local health professionals developed education materials (i.e., flip books), (2) train adolescent girls to become peer educators and (3) peer educators trained other girls in the community through quarterly sessions	Health worker supported training of adolescent girls in the local *Kishori Panchayat* (girl groups) to train other girls; understand impacts to awareness and behavior	**Mixed methods.** (1) Needs assessment: structured survey, three focus groups (2) Development of the flip book (3) Disseminating messages and training youth educators, and (4) Impact evaluation three years later (survey, qualitative trend analysis, arts-based methods).	Improvement in MHM. Awareness of menstruation before menarche, ability to visit doctors with menstrual complaints. Changes in MHM behaviors (i.e., drying clothes in a dry area).	Knowledge about MHM significantly increased, and taboos and embarrassment surrounding menstruation decreased.	Use NGOs and local girls' groups as an educational resource in the absence of parents or teachers.
5	(Dorle et al. 2019)	Karnataka State, City of Bagalkot	College students (age 17–19) Mixed socio-economic status (42.7% middle class) N = 115	**Sexual education.** Education on the causes of menstruation and healthy menstrual practices: three lectures with audio-visual aids (flipbook from local NGO), followed by a Q&A discussion.	(1) Assess baseline knowledge, (2) inform students about MHM, and debunk myths related to social restrictions (e.g., access to kitchens and places of worship) and isolation practices, (3) assess the impact of health education as an intervention.	**Quantitative.** (1) Pre-test, structured questionnaire (2) Receive training in MHM and the science of the menstrual cycle via a lecture format (3) Re-administer the questionnaire after three months. No control group.	(1) Change in beliefs/knowledge about menstruation (e.g., it is a normal phenomenon, menstruation, it is not a literal curse from God, menstrual blood is not impure, etc.), (2) Change in practices (e.g., hygiene practices, self-isolation, access/avoid kitchen space, visit/avoid holy places).	Highly significant post-intervention change in MHM knowledge and practices. Positive changes in potentially harmful beliefs. Fewer participants followed the 'restrictions' post-intervention, which indicated an increased level of informed choice on the matter.	Learning about menstruation should be part of the middle school curriculum. Boys should have correct knowledge to help guide their female family members. Younger girls need the intervention. Need community public health awareness for menstruation among mensurating girls and women.
6	(Dwivedi et al. 2020)	Rajasthan State, Keru village, Jodhpur (rural)	Schoolgirls (age 11–19). Mixed social classes. N = 100	**Peer to Peer.** Education program using the comic book "Menstrupedia". 10 peer educators were trained. Each peer educator was assigned a group of 8 participants to teach.	Improve menstrual hygiene awareness (PRAGATI [PeeR Action for Group Awareness through Intervention])	**Quantitative.** (1) Pre-test survey including demographics, multiple choice questions related to behavior, knowledge (e.g., anatomy physiology, nutrition) and practices (e.g., hygiene). (2) Post-test one month after the training using the same survey. The post-test was administered to participants only (i.e., not peer trainers).	Change in knowledge, attitude, and practices related to menstrual hygiene.	Knowledge—science of the menstrual cycle and MHM—increased post-intervention. Perceptions of 'cultural rules' changed, and fewer followed the 'restrictions'. Participants experienced a heightened comfort in talking openly about menstruation with their peers.	Use peer-group education as an intervention to improve the level of knowledge on less-talked about and sensitive issues (i.e., menstrual stigma).

No.	Source Article	Study Location	Participants	Type of Intervention	Intervention Objective	Study Design	Intervention Indicator(s)	Intervention Outcomes/Study Findings	Study Recommendations
7	(Reshmi et al. 2015)	Karnataka, Kolar District. Two *taluks* (administrative areas); Bangarpet Taluk (intervention site; T1), Malur Taluk (control site; T2)	Adult women (mean age 31.4) 95% married 35% low-caste 90% had ration cards 87–97% below poverty line N = 400	**Sexual education.** Three-day workshop. Increase awareness of menstrual health and hygiene of women in pre-established 'Self-Help Groups' (SGH) using Information Education Communication (IEC).	Improved knowledge, attitudes, and practices (KAP) of menstrual hygiene among SHGs; goal to 'educate and empower'	**Quantitative.** Household surveys and focus groups. 15 workshops across three days with 75 SGHs. (1) Pre-test in T1 and T2 via household surveys and focus groups, (2) 15 three-day workshops in T1; T2 was a control group (no workshops were held here) (3) Post-test, same methods as the pre-test. *Note:* this source reported on household survey results only.	Change in KAP (e.g., social restrictions, menstrual blood (im)purity) in the test group (T1) compared to the control group (T2).	Significant improvement in knowledge about and management of menstruation in T1. The intervention proved insignificant in changing behavior and attitude towards 'cultural rules'. T2 (control group) showed similar trends as T1. Efficacy of the intervention was unclear; maybe T2 women have been influenced by T1 women.	Need appropriate cost-effective strategies to address issues through information, education, and behavior change. Longer and more comprehensive interventions are needed to break misconceptions and malpractices related to social taboos.
8	(Parmar et al. 2008)	Western India, two rural villages	(1) Girls and women (ages 12–60), varying levels of literacy Low-income households N = 100	**Technology.** Comparative study of (a) information sessions using a personal computer (PC) with a conventional health information system, to the (b) "Personal Health Information" (PHI) System–an interactive, non-text-based technology, based on context-specific issues that allow participants to review and discuss the information in groups.	Compare the outcome of PHI vs. PC influence on behavior change, including participants' raised awareness and change of individual and social beliefs and practices regarding (a) menstruation and maternal health, (b) following correct health practices, and (c) improving personal health information dissemination.	**Quantitative.** (1) Assess local beliefs and practices (2) Divide participants into two groups. Village A = PCs; Village B = PHI. Each village had access for two months, with health providers available during set hours	Measure engagement through 1. The number and nature of questions asked related to 'social issues', practices, challenging existing beliefs, and personal experiences. 2. Number of times participants return to PC/PHI for more information.	Prior to the study, participants did not discuss menstruation and maternal health amongst themselves or with health professionals. Compared to Village A, more Village B (PHI) participants re-visited the intervention to learn more, were more willing to discuss private and/or taboo topics, and were more willing to confront social issues related to maternal health and MHM. The PHI was the more effective intervention to address taboos associated with menstruation and maternal health.	A combination of planned behavior theory and persuasive technology can play a positive role in design and development of health information systems for rural users.

No.	Source Article	Study Location	Participants	Type of Intervention	Intervention Objective	Study Design	Intervention Indicator(s)	Intervention Outcomes/Study Findings	Study Recommendations
9	(Ramaiya et al. 2019)	Uttar Pradesh State, three districts (Mirzapur, Jaunpur, Sonebhadra)	Unmarried girls (age 12–19) 90% in Scheduled Caste, Scheduled Tribe and Other Backward Caste. <50% temporarily housed. N = 188 (pre-menarche) N = 2212 (post-menarche) [parents and community health workers were part of the intervention, but were not participants in the study]	**Sexual education.** Life skills training. 3-year implementation of the holistic 'Community Package' program, GARIMA. Intervention design: (1) participants received a poster, personal diary, read storybooks, and watched films about menstruation, (2) local health workers and 'peer educators' received training about menstruation, (3) peer educators led monthly, participatory group meetings with girls where they determined the topics of discussion, (4) one-on-one discussions with peer trainers and health workers, (5) monthly meetings with study-participants' mothers (6) group meetings with study-participants' fathers.	GARIMA (implemented by UNICEF and local NGOs): Break the culture of silence around menstruation by addressing harmful social norms; normalize menstruation; reduce restrictions on menstruating persons; improve health and hygiene, especially among adolescent girls.	**Quantitative.** Post-test only, case comparison design with test and control groups. The post-test used a structured questionnaire related to knowledge, attitudes and practices (KAP) of participants in relation to menstruation. Compared responses between test and control groups. Bivariate and multivariate analysis used to correlate behaviors with attitudes on cultural rules (e.g., self-isolation, restrictions).	Knowledge, attitudes, interpersonal communication and restrictions related to menstruation and hygiene practices (e.g., change and disposal of sanitary products, bathing)	The test group showed positive results in relation to MHM and attitudes towards menstruation. They had a higher chance of having open communication with family and friends. Intervention unsuccessful in changing attitudes related to socio-religious or personal restrictions.	Interventions must involve families, peers and community members, and address restrictions directly, in order to improve attitudes towards menstruation.
10	(Sood et al. 2021)						1. Personal beliefs and perceptions of practice of MHM behaviors (e.g., use of materials, disposal, school attendance, food demands, privacy, interaction with boys) 2. Social restrictions: what participants "cannot do" (structural barriers), what participants "will not do" (personally imposed barriers), what participants "should not do" (socially imposed barriers)	GARIMA participants challenged restrictions to a higher degree than the control group. Participants adopted practices related to good MHM.	More studies need to focus on changing social norms. Must assess social norms as a multi-dimensional (i.e., personal beliefs, perception of others' beliefs, uptake of desired behaviors). Evaluations need indicators of change that can be applied in multiple contexts.
11	(Block et al. 2023)					Quantitative. Case-comparison evaluation; questionnaire administered to 4 groups: (a) no intervention (control), (b) mediated practical guidance (MPG) intervention (i.e., film, storybooks, posters), (c) inter-personal practical guidance (IPG) (i.e., girl meetings, mothers' and fathers' groups) (d) MPG and IPG together.	KAP: Level of comfort in accessing menstrual hygiene supplies; ability to converse with other participants about menstrual supplies; knowledge of use and disposal of menstrual products.	IPG + MPG intervention (d) demonstrated the greatest odds of predicting correct MHM. Participants in the GARIMA intervention were more likely to discuss MHM (i.e., addressing the "culture of silence") and were more comfortable in accessing supplies.	Practical interventions need to address the "culture of silence". Family members and teachers need programming in order to support their daughters and students.

No.	Source Article	Study Location	Participants	Type of Intervention	Intervention Objective	Study Design	Intervention Indicator(s)	Intervention Outcomes/Study Findings	Study Recommendations
12	(Surbhi and Anand 2019)	Rajasthan State, Kadampur Village (rural), Tilonia District	Girls (age 10–19) N = 23	**Sexual education.** Arts-based workshop. Participants watch videos about menstrual health, then share their experiences using 'grassroots comics' (i.e., a four-paneled comic drawn by the participant, depicting a story relating to menstruation)	"Break the Silence" on menstruation; promote the adoption of eco-friendly, low-cost, sanitary napkins.	**Arts-based.** (1) 'Ice breaker' exercises (2) Assess current practice and knowledge of participants (3) Discuss menstrual health using videos as a teaching aid and conduct Q&A, sharing of experiences (foundation for comic content) (4) Choose comics to create a book to use as reference material for discussion.	Differentiate between science and 'myths'; willingness to discuss menstruation.	Prior to workshop, participants were aware of 'cultural rules' and 'restrictions', had limited knowledge on MHM, and were suspicious of health education programmes. After the workshop, participants could differentiate between myths and evidence. Participant knowledge regarding MHM increased, and comfort with health workers improved.	Information must be shared with girls in ways that are also acceptable to parents and community members. Interventions must include mothers, grandmothers, and teachers to 'break the silence', and share information menstrual health.
13	(Vagha et al. 2023)	Maharashtra State, rural villages	School girls (age 13–16). N = 250	**Sexual education.** A one-hour lecture on menstrual hygiene.	Assess knowledge, attitudes, practices; improve menstrual hygiene practices; measure the effect on adhering to cultural rules and isolating practices.	**Quantitative.** (1) Pre-test structured questionnaire (2) One-hour lecture (3) Post-test administer the same questionnaire two months later.	Behavior change (i.e., hygiene practices); knowledge about menstruation and hygiene practices.	Most participants had no knowledge about menstruation before menarche. The intervention facilitated MHM and changed potentially harmful beliefs around menstruation. Decrease in school absenteeism. However, little impact on practices around 'cultural rules' was witnessed.	Include menstrual hygiene education and counselling in school curriculums

Note

[1] The authors recognize the theoretical distinction between gender and sex and acknowledge the importance of using precise terminology. However, for clarity and consistency, and to reflect the language used in the reviewed articles, the terms "girls and women" will be used throughout this article to refer to individuals who were assigned female at birth and who identify as girls or women.

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