



Research Paper

Menstrual Education: Reviewing the knowledge–Attitude Nexus Among Adolescent Girls

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Abstract

Adolescent girls' experiences of menarche and menstruation are strongly shaped by what they know and how they feel about this natural process. This paper explores the relationship between menstrual knowledge and attitudes among adolescent girls through a comprehensive literature review. Relevant studies from diverse regions are synthesized to examine how levels of menstrual knowledge influence girls' attitudes toward menstruation. Findings indicate that many girls worldwide enter menarche poorly informed, leading to feelings of fear, shame, or embarrassment, whereas girls who are educated about menstruation tend to have more positive or accepting attitudes (Yogesh et al., 2023; Khatoon et al., 2023). Cultural beliefs and taboos also play a significant role: in communities where menstruation is viewed as dirty or shameful, girls often internalize negative attitudes despite biological maturity (Chandra Mouli & Patel, 2017). The literature suggests a clear link between knowledge and attitude—greater factual knowledge and preparation are associated with more positive perceptions and healthier practices (Nalugya et al., 2020). This review also discusses methodological considerations in studying this topic and presents synthesized insights, including a hypothetical data table illustrating how improved knowledge might correlate with improved attitudes. Overall, the evidence underscores the need for educational interventions and supportive societal norms to foster accurate menstrual knowledge and positive attitudes among adolescent girls. Ensuring girls are informed and empowered can improve their confidence, menstrual hygiene practices, and participation in school and community life. The paper concludes with recommendations for comprehensive, culture sensitive strategies to enhance menstrual knowledge and attitudes, highlighting the importance of involving families, schools, and health systems.

Keywords: Adolescent girls, Menstruation, Menstrual awareness, Menstrual Attitude, Menstrual Knowledge

I. Introduction

Menstruation is a universal physiological milestone of female adolescence, yet it is often shrouded in misinformation and cultural stigma. For many girls, the onset of menarche (the first menstrual period) is a time of confusion and anxiety, largely because they lack accurate prior knowledge about menstruation (Sapkota & Sharma, 2012). Numerous studies have documented that substantial numbers of adolescent girls are uninformed or underprepared for menstruation when it begins (Tiwari et al., 2006). In low and middle income countries in particular, girls frequently enter puberty with significant knowledge gaps and misconceptions regarding menstruation (Chandra Mouli & Patel, 2017). This lack of knowledge can leave them frightened by the sudden physical changes and unsure of how to manage their periods, thereby undermining their confidence and well being. Even in more developed contexts where some educational resources exist, misconceptions and partial understandings of menstrual biology are common, indicating a pervasive need for better menstrual education.

Attitudes toward menstruation—encompassing feelings, beliefs, and behavioral tendencies—are similarly critical in shaping girls' experiences. These attitudes range from seeing menstruation as a natural, positive sign of maturity to viewing it as shameful, dirty, or burdensome (Yogesh et al., 2023). Negative attitudes are often rooted in cultural taboos and societal messaging that portray menstruation as something secretive or contaminating. In many cultures, menstruating girls are subject to various restrictions (for example, being forbidden from cooking or attending religious activities) because of beliefs that they are “unclean” during their

period (Mohammed & Larsen Reindorf, 2020). Such stigma can cause girls to feel embarrassed or disgraced by a normal biological process. On the other hand, with proper education and supportive environments, girls may develop healthier attitudes—viewing menstruation as a normal, manageable aspect of life, and even as a symbol of womanhood.

Understanding the interplay between knowledge and attitudes is crucial because together they influence how an adolescent copes with menstruation, practices menstrual hygiene, and maintains self esteem during this period of growth. There is growing recognition that inadequate menstrual knowledge and negative attitudes have tangible consequences for girls' health, education, and empowerment. Lacking factual knowledge, girls may resort to unhygienic practices or fail to seek help for menstrual problems (Chandra Mouli & Patel, 2017). Likewise, girls who feel ashamed or disgusted by menstruation might withdraw from school or social activities while on their period, compounding gender disparities in education (Nalugya et al., 2020). Indeed, international development agendas such as the United Nations Sustainable Development Goals have highlighted menstrual health and hygiene as key to keeping girls in school and improving gender equity. Research suggests that improving girls' knowledge about menstruation and fostering more positive, informed attitudes can help mitigate these issues (Khatoon et al., 2023).

This paper, therefore, aims to review the literature on menstrual knowledge and attitudes among adolescent girls, examining how these two facets relate to each other. By synthesizing evidence from various studies, we seek to provide a clearer understanding of how knowledge and attitudes co evolve and to identify strategies that can support adolescent girls in navigating menstruation with confidence and dignity.

II. Review of Literature

Menstrual Knowledge Among Adolescent Girls

Existing literature consistently shows that many adolescent girls possess limited knowledge about menstruation before and even after menarche. In many parts of the world, a large proportion of girls are caught by surprise when their first period occurs. For example, a study in India's Gujarat state found that 37.2% of schoolgirls had not been informed about menarche before its onset (Tiwari et al., 2006). Similarly, only about 40% of girls in another regional study were aware of menstruation prior to menarche, meaning the majority had no prior knowledge of what a period was (Chandra Mouli & Patel, 2017). In some especially underserved or traditional contexts, the figures can be even more stark; field observations by UNICEF have suggested that in certain communities as few as one in eight girls (~13%) know about menstruation before menarche (Chandra Mouli & Patel, 2017).

On the other end of the spectrum, studies in more urban or educated populations report higher levels of pre menarche awareness. For instance, in an urban study from India, up to 89% of adolescent girls had at least heard about menstruation beforehand (Yogesh et al., 2023). These contrasts highlight that menstrual knowledge levels vary widely across contexts, often depending on factors such as education, media exposure, and openness of family communication. Crucially, it is not just the timing of knowledge (pre menarche or after) that matters, but also the accuracy and depth of understanding.

Research indicates that many girls do not grasp the basic biological facts of menstruation. In multiple studies, a majority of adolescents could not correctly identify the source of menstrual blood or the physiological reason for bleeding (Khatoon et al., 2023). For example, when adolescent girls lack prior education on menstrual physiology, they often have no idea what is happening to their bodies when they get their first period. One review noted that girls with some prior knowledge of the menstrual process were significantly more likely to understand what was occurring in their body during menarche and how to manage it, compared to girls who had received no information (Sapkota & Sharma, 2012). By contrast, girls without that knowledge often interpret menstruation with confusion or supernatural explanations, or they may not link it to reproduction at all. Common misconceptions include beliefs that menstrual bleeding is an injury or disease, or not understanding that the blood comes from the uterus. Such knowledge gaps can persist well into adolescence if not corrected, underscoring the need for early, clear education on the topic.

The primary sources from which girls obtain menstrual information are typically family members. Mothers are overwhelmingly the most frequent informants about menarche and menstruation (Tiwari et al., 2006; Chandra Mouli & Patel, 2017). In the Gujarat study, about 60.7% of girls cited their mother as the source of information and another 15.8% learned from an older sister (Tiwari et al., 2006). Unfortunately, this familial transmission of knowledge can be a double edged sword. While a supportive mother who is well informed can prepare her daughter adequately, many mothers themselves harbor misconceptions or feel uncomfortable discussing menstruation (Yogesh et al., 2023).

The literature indicates that mothers often provide information that is “too little and too late,” sometimes only discussing menstruation after the girl has already started her period (Khatoon et al., 2023). In some cases, cultural taboos discourage mothers from speaking openly, resulting in vague or euphemistic explanations. Teachers, health workers, or school based programs are reported as information sources much less frequently than family, especially in rural areas (Tiwari et al., 2006). This suggests a missed opportunity for formal education systems to impart accurate menstrual knowledge. When schools do take an active role (for instance, through puberty education sessions), studies have shown marked improvements in girls’ knowledge and subsequent hygiene practices (Chandra Mouli & Patel, 2017).

A consistent finding across studies is that socioeconomic and demographic factors influence menstrual knowledge levels. Older adolescents tend to have better knowledge than younger ones, likely due to having already experienced menstruation and had time to learn by the later teen years (Mohammed & Larsen Reindorf, 2020). For example, a survey in Ghana found that girls aged 15–19 were significantly less likely to have poor menstrual knowledge compared to girls aged 10–14 (Mohammed & Larsen Reindorf, 2020). Parental education, particularly the mother’s education level, is another important predictor: girls whose mothers have some schooling are often more informed about menstruation than those whose mothers are illiterate (Mohammed & Larsen Reindorf, 2020). This reflects the mother’s ability to convey accurate information and perhaps a household environment that is more receptive to discussing reproductive health. Urban residency and higher family income, which are associated with better access to information and resources, also correlate with higher menstrual knowledge in many studies. These patterns suggest that while biology is universal, knowledge about it is mediated by social factors. Recognizing which groups of girls are most at risk of knowledge deficits (younger adolescents, those in rural or low literacy families) can help target educational interventions more effectively.

Menstrual Attitudes Among Adolescent Girls

Adolescent girls’ attitudes toward menstruation encompass their feelings (e.g., fear, embarrassment, pride), beliefs (e.g., considering it natural vs. dirty), and predispositions to behavior (e.g., willingness to discuss it or confidence in managing it). The literature documents a broad spectrum of menstrual attitudes, often skewed toward the negative in many cultural contexts. A girl’s first period is commonly accompanied by emotional distress if she was unprepared. Feelings of shock, fear, or shame at menarche are frequently reported, especially among girls who had little prior knowledge (Sapkota & Sharma, 2012).

One multi country review noted that unprepared girls often experience menarche with fear and anxiety, in part because they do not understand what is happening to them (Chandra Mouli & Patel, 2017). This initial emotional imprint can influence longer term attitudes toward menstruation. If the experience is traumatic or shrouded in secrecy, girls may develop a lasting view of menstruation as something undesirable or stigmatized. Negative attitudes are indeed pervasive. In various studies around the world, a significant proportion of adolescent girls associate menstruation with disgust or view it as a bothersome ordeal. For instance, in a survey of schoolgirls, roughly 28% described menstruation as a “nuisance,” 27% found it “disgusting,” and 23% disliked that it cannot be controlled (Tiwari et al., 2006).

Such sentiments reflect frustration and aversion toward the physical and social inconveniences of periods. Qualitative accounts echo these statistics: girls often express that menstrual bleeding makes them feel “dirty” or unclean, and they dislike the odor or mess associated with it. In Lebanon, nearly one third of adolescent girls said they felt menstruation was dirty or were disgusted by their period, and similar or higher fractions were reported in studies of Malaysian schoolgirls (Chandra Mouli & Patel, 2017). These findings show that even in different cultural settings, the feeling of disgust or discomfort is common.

Additionally, embarrassment is a key component of menstrual attitude. Many girls worry about staining their clothes or others finding out they are menstruating; this fear of public “exposure” leads to anxiety and often to self imposed isolation (Mohammed & Larsen Reindorf, 2020). Beyond personal feelings, broader cultural and religious attitudes heavily influence how girls perceive menstruation. In communities where menstrual blood is viewed as polluting or sinful, girls internalize a sense of shame about their periods. They are frequently taught that menstruation is something to hide.

Ethnographic evidence from South Asia, the Middle East, and parts of Africa reveals numerous taboos and restrictions imposed on menstruating girls: they may be barred from entering temples or churches, from participating in fasting or prayer, from cooking food or touching certain foods, and even from sleeping in the same house as others in extreme cases (Mohammed & Larsen Reindorf, 2020). For example, in a rural district of Ghana, girls reported they were not allowed to prepare certain local dishes or to engage in religious activities such as reading the Quran or visiting the mosque while on their period (Mohammed & Larsen Reindorf, 2020).

Likewise, studies in India and Nepal document customs where girls cannot enter kitchens or must stay separate during menstruation to avoid “contaminating” others (Sapkota & Sharma, 2012). These practices send a strong message that menstruation is dirty or impure, thus negatively coloring girls’ attitudes. Being treated as if one is untouchable can cause feelings of humiliation and decrease a girl’s self worth.

Despite the prevalence of negative attitudes, research also highlights neutral or positive attitudes that many girls hold. Menstruation can be seen as a sign of growing up, and some girls take pride in this new status. In studies from countries as varied as China, India, and Malaysia, over half of schoolgirls stated they felt a sense of pride or maturity upon reaching menarche (Chandra Mouli & Patel, 2017). This pride often stems from cultural notions of transitioning into womanhood; for example, some families even celebrate a girl’s first period as a coming-of-age event (Tiwari et al., 2006).

Additionally, not all restrictions are viewed negatively by girls—some girls appreciate certain accommodations (like being excused from heavy chores) as a form of care during an uncomfortable time. There are also adolescents who have been educated to understand that menstruation is a normal physiological process and therefore feel more matter of fact or positive about it. In one survey in India, about 31% of girls explicitly recognized that menstruation is a normal biological function (Tiwari et al., 2006). While that number was low, it indicates a segment of girls who potentially face less internal stigma. Indeed, the same study found 38.5% of girls felt “comfortable” about menarche suggesting that with adequate preparation, a girl can take her period in stride rather than view it with dread.

In summary, adolescent girls’ attitudes towards menstruation are mixed and shaped by a confluence of knowledge, cultural context, and personal experiences. Negative attitudes such as shame, disgust, and fear are common when knowledge is lacking and stigma is high, whereas positive attitudes of acceptance or pride emerge more readily when girls are well informed and supported to see menstruation as a normal, healthy part of life.

Relationship Between Menstrual Knowledge and Attitudes

A central question in this review is how menstrual knowledge and attitudes interact among adolescent girls. The evidence strongly suggests that knowledge and attitude are closely interlinked: generally, better informed girls tend to have more positive (or at least less negative) attitudes toward menstruation, whereas girls with poor knowledge often harbor negative attitudes. This relationship has been observed in both quantitative and qualitative studies across different settings. One reason for this linkage is intuitive—understanding that menstruation is a natural and common process can alleviate the fear or shame that comes from seeing it as mysterious or abnormal. Conversely, ignorance or misconceptions can breed unnecessary anxiety and disgust.

Several empirical studies support these patterns. For example, a cross sectional survey of schoolgirls in Mexico reported that the more the girls knew about menstruation, the less negative their attitudes were (Chandra Mouli & Patel, 2017). In this study, knowledge was measured in terms of understanding of menstrual physiology and management, and attitude was measured by the girls’ expressed feelings about menstruation. Those with higher knowledge scores were less likely to view menstruation as bothersome or dirty, indicating that factual understanding helped normalize the experience in their minds.

Similarly, the review of low and middle income countries by Chandra Mouli and Patel (2017) found a recurring theme that girls who felt prepared prior to menarche exhibited more positive attitudes toward menstruation. Preparedness often comes from having been educated about what to expect; thus, prior knowledge directly contributes to a better initial reaction and ongoing perception. In a study of Jordanian schoolgirls, being taught about menstruation beforehand was associated with significantly more positive attitudes during one’s period, and importantly, that study also noted that a girl’s attitude was positively correlated with her hygienic practices (Nalugya et al., 2020). This points to a cascading effect: knowledge influences attitude, which in turn can influence behavior (like proper menstrual hygiene management).

Another illustration of the knowledge–attitude relationship comes from interventions and educational programs. When girls receive menstrual education—whether through school programs, workshops, or community health initiatives—improvements are often noted not just in what they know but in how they feel about menstruation. For instance, one school based health education intervention in India led to a significant increase in the number of girls who understood the importance of using soap and proper hygiene during menstruation (Yogesh et al., 2023). While that result is about practice, qualitative feedback from such programs often indicates that girls feel more confident and less embarrassed about their periods after learning about the biological facts and dispelling myths. In essence, education can transform menstruation from a frightening or shameful ordeal to a manageable part of life.

A broad conclusion from the literature is that ignorance and secrecy contribute to menstrual related fear and shame, whereas knowledge and open communication foster acceptance and resilience (Sapkota & Sharma, 2012; Chandra Mouli & Patel, 2017). Girls themselves articulate this in studies: those who were told ahead of time by their mothers or teachers about menarche often describe the experience as less traumatic and view menstruation more positively, compared to peers who were uninformed and thought they were injured or dying when they first bled.

On the flip side, deeply entrenched negative attitudes can sometimes persist even when knowledge improves, especially if societal taboos remain strong. For example, even a well informed girl might feel embarrassed to buy pads or discuss her period if the culture around her labels menstruation as something that must be hidden. This suggests that while individual knowledge is a key factor, the broader environment and collective attitudes also play a role. Nonetheless, most research agrees that improving girls' knowledge is a necessary first step to shifting attitudes. As Nalugya et al. (2020) concluded, enduring sociocultural influences and taboos can undermine hygienic practices and attitudes, but these can be countered by education that improves awareness and directly addresses harmful myths.

In low knowledge settings, very few girls know about menstruation before it starts, and positive attitudes are also rare – many view it with fear or shame. In moderate contexts, knowledge and acceptance are somewhat higher. In high knowledge settings, most girls are informed ahead of menarche and a large majority recognize menstruation as a normal, healthy process. Actual data in specific studies vary, but typically higher prior awareness is associated with a greater fraction of girls holding neutral or positive attitudes about their periods (Chandra Mouli & Patel, 2017).

This aligns with the notion that education and open discussion can normalize menstruation and reduce negative perceptions. It is also worth noting that improved attitudes feed back into knowledge seeking behaviors. Girls who have a more positive and proactive mindset about menstruation may be more likely to ask questions, seek information, or talk to peers and mentors about menstrual issues, thereby increasing their knowledge further. Conversely, a girl who feels ashamed may avoid learning more or discussing the topic, perpetuating her ignorance.

This dynamic interplay means knowledge and attitudes can mutually reinforce each other over time. Effective menstrual health interventions, therefore, often aim to improve both aspects simultaneously—by providing factual information (to build knowledge) in a supportive, destigmatizing manner (to foster positive attitudes). In summary, the literature provides strong evidence that better menstrual knowledge is associated with more positive attitudes among adolescent girls, although changing attitudes may also require addressing the wider cultural context. Efforts to help girls navigate menstruation should treat knowledge and attitudes as interconnected targets for improvement.

III. Methodological Considerations

Research on menstrual knowledge and attitudes among adolescent girls spans a variety of disciplines – including public health, psychology, education, and anthropology – and employs diverse methodologies. The findings synthesized in this review come primarily from cross sectional survey studies, supplemented by some qualitative research and a few intervention evaluations. It is important to consider the methodological strengths and limitations of these studies when interpreting the results.

One key issue is the measurement of knowledge and attitudes, which is not uniform across studies. Different surveys have used different questionnaires and scoring systems to assess what girls know about menstruation (e.g., factual quizzes about the menstrual cycle or hygiene practices) and how they feel about it (e.g., Likert scale items on feelings of embarrassment or pride). Because of these inconsistencies, what one study labels “adequate knowledge” or a “positive attitude” might not be directly equivalent to another study’s definitions (Chandra Mouli & Patel, 2017). For example, some researchers consider a girl “knowledgeable” if she can identify the uterus as the source of menstrual blood, whereas others might require knowledge of menstrual cycle length and function of menstruation in reproduction. Attitudinal measures are likewise varied – some use standardized scales like the Menstrual Attitude Questionnaire, while others develop context specific questions (such as asking whether the girl views menstruation as a natural process or whether she feels comfortable discussing it). This lack of standardization makes it challenging to compare prevalence figures or effect sizes across studies (Chandra Mouli & Patel, 2017).

It also complicates the aggregation of data in systematic reviews or meta analyses, as noted by Chandra Mouli and colleagues, who highlighted that vague or differing measures impeded direct comparisons of outcomes across the 81 studies in their review (Chandra Mouli & Patel, 2017).

Another consideration is cultural and linguistic context. Terms and concepts around menstruation can carry different connotations in different cultures, which can affect how questions are understood by participants. For instance, asking girls if they think menstruation is “dirty” or “impure” might yield different responses depending on local taboo language and the stigma attached to those words. Qualitative research (e.g., focus group discussions) is valuable in this regard because it can uncover the nuanced beliefs and euphemisms that a straightforward survey might miss. In the Ghana multi method study, for example, qualitative interviews revealed colloquial terms like “red card” or “Vodafone” used by adolescents to refer to menstruation, indicating a playful yet indirect way of talking about it (Mohammed & Larsen Reindorf, 2020). Such insights help researchers design better survey instruments that resonate with participants’ understanding. They also expose the depth of stigma: if girls only speak of menstruation in code words, their comfort level with the topic is likely low. Researchers must ensure confidentiality and a non judgmental environment to get honest answers about attitudes, given the sensitivity of the subject. Indeed, some studies have reported lower response rates or girls skipping questions due to discomfort or fear of social repercussions (Chandra Mouli & Patel, 2017).

The study populations and sampling strategies also vary, which affects generalizability. Many published studies focus on school going adolescent girls, as they are easier to reach through schools. This means findings may not always represent out of school girls, who might have even less access to information. Moreover, most surveys are region specific (e.g., one district or a few schools) and sample sizes range from a few dozen in qualitative studies to a few hundred in quantitative ones. Caution is needed when extrapolating these results to an entire country or globally. As noted in one comprehensive review, the bulk of data on this topic comes from a limited number of countries, and even within countries the studies often cover specific sub populations (Chandra Mouli & Patel, 2017). There is great cultural variation in menstrual experiences, so what holds true in one setting (say, urban Kenya) may not hold in another (say, rural Afghanistan). Therefore, while this review draws broad patterns, contextual differences should be kept in mind.

It is also important to consider potential biases in the literature. Self reporting bias is a concern: girls might give answers they think are “correct” or socially acceptable, rather than reflecting their true knowledge or feelings. For example, after an educational session, a girl might parrot information about menstruation being normal, yet emotionally she might still feel ashamed. Longitudinal data are relatively scarce; most studies capture a snapshot in time. Thus, we know less about how knowledge and attitudes change as a cohort of girls grows older or receives interventions.

In addition, the majority of research to date has been problem focused (identifying deficits in knowledge and prevalence of negative attitudes) rather than evaluative. There have been few rigorous trials examining how specific interventions (like a new puberty curriculum or community dialogue program) quantitatively improve both knowledge and attitudes over time. Lastly, publication bias may be present – studies with dramatic findings (e.g., extremely low knowledge or very strong correlations) might be more likely to be published, whereas communities where girls have generally adequate knowledge and neutral attitudes might be under reported.

Despite these considerations, the consistency of certain findings across many independent studies lends credence to the conclusions drawn. Specifically, the recurrent observation that large numbers of girls are uninformed and that negative attitudes are widespread suggests these are real and pressing issues, not artifacts of measurement. Recognizing the methodological caveats, this review has synthesized findings carefully, emphasizing robust, commonly reported trends. Future research could benefit from more standardized measures (perhaps developing a validated global index for menstrual knowledge and a culturally adaptable attitude scale) and from more intervention based studies to establish causality in the knowledge–attitude relationship.

IV. Synthesis of Findings

Bringing together the strands of evidence from the literature, a clear narrative emerges: menstrual knowledge and attitudes among adolescent girls are deeply intertwined, and both are in need of improvement in many contexts. The synthesis of findings can be summarized in a few key points.

First, knowledge deficits are widespread. A significant proportion of adolescent girls worldwide do not know essential facts about menstruation before they experience it. Many are unaware of the source of menstrual blood, the reason why menstruation happens (shedding of the uterine lining), or how to manage periods

hygienically (Chandra Mouli & Patel, 2017; Sapkota & Sharma, 2012). This lack of knowledge is most acute in younger adolescent girls, those from rural or low literacy backgrounds, and those whose families adhere to strict taboos around discussing reproductive health. Even after menarche, gaps in understanding persist if not actively addressed – for example, myths that doing certain activities (like washing hair or eating particular foods) will harm them during menstruation are common in some areas due to traditional beliefs. The consequence of these knowledge gaps is that girls often feel unprepared and may develop misunderstandings (for instance, thinking menstruation signifies illness or that it makes them physically weak and incapable each month).

Second, attitudes toward menstruation among adolescents skew toward the negative in high stigma environments. Feelings of shame, embarrassment, and fear are reported time and again, especially around the menarche experience and in communities with strong menstrual taboos (Yogesh et al., 2023; Mohammed & Larsen Reindorf, 2020). Many girls internalize the idea that they themselves are impure or dirty during menstruation, leading to low self esteem. This is compounded by external reinforcement such as being isolated or restricted by family during periods. Notably, girls' emotional responses are a direct barometer of how menstruation is framed for them: if it is presented as a secret, embarrassing thing, they react with embarrassment; if it is presented as a natural milestone, they are more likely to accept it calmly.

Third, and most central to this paper's thesis, there is a positive correlation between menstrual knowledge and healthy attitudes. Virtually all studies that examined both aspects found that girls with higher knowledge levels exhibited either less negative or more positive attitudes (Chandra Mouli & Patel, 2017; Nalugya et al., 2020). The relationship is not always perfectly linear, but the trend is evident. For example, consider two hypothetical groups of girls: Group A has been educated about menstruation (knows what it is, why it happens, how to manage it), while Group B has received little to no information. Group A is far more likely to view menstruation as normal and not be frightened or disgusted by it, whereas Group B is more prone to view it with trepidation or aversion. This pattern has been observed empirically in settings as different as Mexico, Jordan, and India, lending it credence as a generalized phenomenon (Chandra Mouli & Patel, 2017; Yogesh et al., 2023).

Preparedness and knowledge instill a sense of control and understanding, which mitigates the negative emotional reactions. Furthermore, knowledge can challenge and change specific negative beliefs – for instance, if a girl believes “menstrual blood is dirty,” a biology lesson explaining that it is the same blood that nourished a potential pregnancy (and not an excrement) can transform that belief, potentially reducing feelings of disgust.

In synthesizing findings, it also becomes apparent that improving one without the other may yield limited benefits. Simply increasing knowledge (through a pamphlet or lecture) might not fully translate into positive attitude change if deeply rooted taboos aren't addressed; the information could “go in one ear and out the other” if a girl is too embarrassed or if it contradicts everything she's heard at home. Conversely, attempting to cheerlead girls into having a “better attitude” about their period without giving them solid factual grounding can fall flat; platitudes like “your period is a gift” might ring hollow if girls are still confused about what's happening biologically or struggling with logistical challenges like lack of pads. Therefore, the synthesis suggests that a holistic approach is needed: one that increases factual knowledge, addresses misconceptions, and simultaneously works to shift cultural attitudes and norms toward openness and acceptance (Sapkota & Sharma, 2012).

Another insight from combining the evidence is recognizing the role of external influencers – mothers, peers, teachers, and even boys – in shaping girls' knowledge and attitudes. Mothers, as noted, are primary informants but also sometimes vectors of taboo (they might pass on their own shame or inaccurate beliefs) (Yogesh et al., 2023). Peers can either reinforce secrecy or help break it by sharing experiences. In some communities, adolescent girls have formed clubs or groups where they candidly discuss menstruation, which has been shown to improve collective attitudes by normalizing the conversation. Teachers and health educators, when properly trained, can provide authoritative information and a safe space for questions, directly boosting knowledge and indirectly signalling that menstruation is not something to be ashamed of.

There is also increasing discussion around involving boys and men in menstrual education, which, while beyond this paper's direct scope, is relevant because girls' attitudes are influenced by how they perceive others (especially boys) will judge them. In Ghana, for instance, a study including schoolboys found that boys often held misinformed views, but some were sympathetic; incorporating boys in education could reduce teasing and create a more supportive environment, thereby improving girls' comfort levels (Mohammed & Larsen Reindorf, 2020).

Finally, synthesizing the research highlights some positive trends. Over time and with interventions, both knowledge and attitudes are improving in many places. For example, comparing older studies to more recent ones in certain countries suggests that today's adolescents are slightly more informed and less stigmatizing in their views than those a generation ago, likely due to better outreach and the global menstrual hygiene movement. In the 2006 Gujarat study only 31% believed menstruation is normal (Sapkota & Sharma, 2012), whereas a more recent 2023 study in India noted that most girls considered menstruation a normal phenomenon, even though gaps

remained in other areas (Yogesh et al., 2023). This hints that educational messages are filtering through. Still, progress is uneven, and the synthesis underscores that the fundamental solution advocated across the literature is education coupled with cultural change (Chandra Mouli & Patel, 2017; Nalugya et al., 2020). Equipped with knowledge, girls are empowered to handle menstruation better and view it more positively; and if society validates that with supportive attitudes (from family, schools, and media), it creates a virtuous cycle leading to better outcomes for adolescent girls.

V. Discussion

The relationship between menstrual knowledge and attitudes among adolescent girls carries significant implications for public health, education, and social policy. The evidence synthesized in this review suggests that both knowledge and attitudes must be addressed together to effect meaningful and sustainable improvements in menstrual health management. Improving girls' understanding of menstruation has tangible benefits—girls are less likely to feel anxious, ashamed, or unprepared, and more likely to engage in hygienic practices and maintain school attendance (Chandra Mouli & Patel, 2017; Nalugya et al., 2020).

Moreover, the emotional and psychological benefits of fostering positive attitudes toward menstruation cannot be overstated. Girls with healthier attitudes demonstrate improved self esteem, stronger body image, and a greater sense of empowerment. Conversely, the persistence of menstrual stigma contributes to a culture of silence, misinformation, and internalized shame that affects girls' mental health and restricts their social participation (Mohammed & Larsen Reindorf, 2020; Yogesh et al., 2023).

The findings also underscore the critical role of socio cultural context. Taboos and restrictive practices, passed down by caregivers or reinforced by peers, can undermine formal education efforts. This highlights the need for community level engagement that includes parents, teachers, and boys, as well as religious and community leaders who influence norms. Interventions that combine accurate, age appropriate education with community outreach are more likely to create an enabling environment for change (Sapkota & Sharma, 2012).

Additionally, practical measures such as providing menstrual hygiene products and ensuring school facilities are supportive can reinforce the idea that menstruation is a normal and manageable part of life. When infrastructure and messaging align, girls are more likely to feel seen, respected, and supported.

However, gaps in the existing literature must be acknowledged. Most of the current studies are cross sectional and focus primarily on South Asia and parts of Africa. There is a need for more longitudinal and experimental research across diverse global settings to establish causal relationships and assess long term outcomes. Additionally, greater attention should be given to transitional age groups (18–24 years), as their experiences can inform adult menstrual health behaviors and beliefs.

VI. Conclusion

This review affirms the vital interconnection between menstrual knowledge and attitudes among adolescent girls. When girls possess accurate information about menstruation, they are better prepared to manage it and less likely to view it with fear or shame. In turn, positive attitudes foster openness, confidence, and proactive behavior, leading to improved health and well being.

To advance menstrual health equity, efforts must focus on integrated strategies that educate, destigmatize, and empower. School based education should be complemented by community engagement, infrastructure improvements, and policy support. Addressing menstrual knowledge and attitudes is not just a health intervention—it is a pathway to gender equity, educational attainment, and psychosocial resilience.

Ultimately, ensuring that every girl understands and feels confident about her menstruation is a fundamental step toward her full participation in society. Stakeholders across sectors must commit to breaking the cycle of silence and misinformation, replacing it with knowledge, respect, and dignity. By doing so, we invest not only in girls' futures but in the health and progress of entire communities.

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