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Original Research Article

Impact of health education on knowledge, attitude and practices regarding menstruation and menstrual hygiene among school-going adolescent girls in rural Gurugram, Haryana: a school-based interventional study

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ABSTRACT

Background: Menstrual hygiene management remains a significant public health concern among adolescent girls, particularly in rural settings where misconceptions, stigma, and inadequate resources persist. Health education has been identified as an effective strategy to improve knowledge, attitude, and practices (KAP) related to menstruation.
Methods: A school-based interventional study with a single-group pre-test and post-test design was conducted among 300 adolescent girls aged 10-18 years who had attained menarche. Data were collected using a pre-tested structured questionnaire assessing KAP. A structured health education intervention was delivered in two sessions. The post-intervention assessment was conducted 3 months after the intervention.
Results: Among 300 participants, the majority belonged to the 13-15 years age group (48.7%) and studied in government schools (60.7%). Awareness about menstruation prior to menarche was reported by 59.3% of participants, with mothers being the primary source of information (37.3%). Regarding practices, 68.7% used sanitary pads, whereas 17.3% relied on old cloth. More than half (56%) did not change absorbents ≥3 times per day. Attitudinal assessment revealed that 66.7% felt uncomfortable discussing menstruation, and 60% considered cessation of menstruation as fortunate. Post-intervention, there was a statistically significant improvement in knowledge, attitude, and practice scores ($p<0.05$).
Conclusions: The health education intervention significantly improved menstrual hygiene-related knowledge, attitudes, and practices among adolescent girls. School-based educational programs are effective and should be strengthened to promote safe menstrual hygiene practices and reduce stigma.

Keywords: Adolescent girls, Health education, Intervention study, KAP, Menstrual hygiene

INTRODUCTION

Adolescence is a critical developmental period characterized by rapid physical, psychological, and social changes that lay the foundation for future health and well-being. Among adolescent girls, the onset of menstruation represents a key milestone indicating reproductive maturity, yet it is often accompanied by challenges related to knowledge, hygiene, and sociocultural perceptions.[1] Menstruation is a normal physiological process; however, in many societies, it continues to be surrounded by myths, taboos, and misconceptions that influence how girls perceive and manage their menstrual health.[2]

Globally, a large proportion of adolescent girl's experience menstruation without adequate information, resources, or supportive environments. In low- and

middle-income countries, limited access to accurate health education, affordable sanitary products, and appropriate sanitation facilities further exacerbates these challenges.[3] Cultural norms often discourage open discussion of menstruation, reinforcing secrecy and stigma, which in turn negatively affects menstrual hygiene practices and health-seeking behaviour.[4] Poor menstrual hygiene has been associated with an increased risk of reproductive and urinary tract infections, school absenteeism, and reduced participation in daily activities.[5] Consequently, menstrual health has emerged as an important public health issue linked to gender equity, dignity, and the right to education and health.

Knowledge regarding menstruation includes understanding its biological basis, normal cycle characteristics, and appropriate hygiene practices.[6] Adequate knowledge enables adolescent girls to perceive menstruation as a natural process, whereas inadequate or incorrect information can perpetuate myths such as menstruation being impure or harmful.[7] Attitude toward menstruation reflects beliefs, perceptions, and emotional responses, including comfort in discussing menstrual issues and acceptance of menstruation as a normal phenomenon.[8] Menstrual hygiene practices encompass behaviours such as the type of absorbent used, frequency of changing, personal hygiene, and safe disposal methods. These three components- knowledge, attitude, and practices (KAP)- are interrelated, and improvement in one domain often influences the others.[9]

Despite this interrelationship, knowledge alone does not necessarily translate into healthy practices. Negative attitudes shaped by stigma and embarrassment may hinder the adoption of appropriate behaviours even when knowledge is adequate.[10] Additionally, structural barriers such as a lack of access to water, sanitation, and affordable menstrual products can limit the ability of girls to practice proper hygiene.[11] School environments play a crucial role in menstrual hygiene management; however, inadequate sanitation facilities, lack of privacy, and fear of social embarrassment often lead to absenteeism and decreased academic performance among adolescent girls.[12] Psychosocial factors, including peer pressure and societal expectations, further influence menstrual experiences and may contribute to anxiety, low self-esteem, and social withdrawal.[13]

Health education is a key strategy to address these challenges by improving knowledge, shaping positive attitudes, and promoting healthy practices.[14] School-based health education interventions provide a structured platform to deliver accurate information about menstruation and menstrual hygiene in a supportive environment.[15] Such interventions may include lectures, interactive sessions, demonstrations, and peer education approaches.[16] Evidence suggests that health education significantly improves menstrual knowledge and dispels misconceptions among adolescent girls. It also promotes positive attitudinal changes, reducing stigma and increasing confidence in managing menstruation.[17] Furthermore, educational interventions have been shown to enhance hygienic practices, such as the use of safe absorbents, regular changing, and proper disposal, thereby reducing the risk of infections and improving overall well-being.[18]

However, the effectiveness of health education interventions may vary depending on factors such as duration, content, delivery methods, and reinforcement strategies. One-time interventions may lead to short-term improvements, whereas sustained and interactive approaches are more likely to result in long-term behavioural change. Additionally, translating improved knowledge and attitudes into practice is influenced by contextual factors, including the availability of menstrual hygiene products and sanitation infrastructure.[19]

Despite increasing recognition of menstrual health as a public health priority, there remains a paucity of interventional studies assessing the comprehensive impact of health education on knowledge, attitude, and practices related to menstruation among adolescent girls, particularly in rural settings. Therefore, the present study was undertaken to evaluate the effect of a structured health education intervention on knowledge, attitude, and menstrual hygiene practices among school-going adolescent girls in rural Gurugram, Haryana.

METHODS

Study design and setting

A school-based intervention study with a single-group pretest-post-test design was conducted to assess the impact of a structured health education intervention on knowledge, attitudes, and practices (KAP) regarding menstruation and menstrual hygiene. The study was carried out over 1 year (01 February 2025 to 31 January 2026) in three senior secondary schools located in the rural field practice area under the primary health centre (PHC) at Garhi Harsaru, Gurugram district, Haryana.

Study population and participants

The study population comprised adolescent girls aged 10-18 years who had attained menarche and were enrolled in classes V-XII in the selected schools. Participants who provided assent and whose parents/guardians gave written informed consent were included in the study. Students who were absent on the day of data collection were excluded, despite three follow-up visits.

Sample size and sampling technique

The sample size was calculated for a paired comparison of mean knowledge scores, assuming a small effect size (Cohen's d=0.2), a 95% confidence level, and 80% power. The minimum required sample size was estimated at 196, which was increased to 216 to account for a 10%

non-response rate. However, a complete enumeration was undertaken, and all 300 eligible adolescent girls in the selected schools were included in the study to enhance statistical power and precision.

Study tool and data collection

Data were collected using a pre-designed, pre-tested, structured, self-administered questionnaire comprising four sections: Section A: socio-demographic characteristics (descriptive, no scoring). Section B: knowledge regarding menstruation (10 scored items; total score range: 0-10). Section C: attitude toward menstruation assessed using a 4-point Likert scale (6 items; score range: 0-18), with reverse scoring applied to negatively framed questions. Section D: practices related to menstrual hygiene (7 core scored items; score range: 0-7).

The questionnaire was explained to participants prior to administration to ensure clarity and completeness of responses.

Scoring and categorization

Knowledge, attitude, and practice scores were calculated according to predefined criteria. Scores were categorized using mean-based cut-offs: Knowledge: poor (<6) and good (≥6), attitude: negative (<9) and positive (≥9), practice: poor (<4) and good (≥4).

Study Procedure

The study was conducted in three phases:

Pre-intervention phase

Baseline data were collected after obtaining necessary permissions and informed consent. Participants completed the questionnaire independently under supervision.

Intervention phase

A structured health education intervention was delivered in two interactive sessions, each 1 hour, conducted at a 15-day interval. Participants were divided into batches of approximately 25 students to facilitate interaction. The intervention included PowerPoint presentations, educational videos, a demonstration of menstrual hygiene products, and interactive discussions. Small-group discussions addressing myths and taboos related to menstruation were also held.

Post-intervention phase

A post-intervention assessment was conducted 3 months after completion of the intervention, using the same questionnaire to evaluate sustained changes in KAP. All participants completed the follow-up assessment, with no loss to follow-up.

Statistical analysis

Data were entered into Microsoft Excel and analysed using Statistical Package for the Social Sciences (SPSS) version 22.0. Descriptive statistics were used to summarize sociodemographic characteristics and KAP variables, presenting them as frequencies and percentages. Mean scores for knowledge, attitude, and practices were calculated. The effectiveness of the intervention was assessed by comparing pre- and post-intervention mean scores using the paired t-test. Associations between sociodemographic variables and pre-intervention KAP scores were analysed using the Chi-square test. A p value of <0.05 was considered statistically significant.

Ethical considerations

The study was approved by the Institutional Ethics Committee of SGT University. Permission was obtained from school authorities prior to data collection. Written informed consent from parents/guardians and assent from participants were obtained. Participation was voluntary, and participants' confidentiality and anonymity were strictly maintained.

RESULTS

A total of 300 adolescent girls participated in the study. All participants completed both pre- and post-intervention assessments, with no loss to follow-up.

Sociodemographic characteristics

The age-wise distribution of study participants showed that the majority belonged to the 13-15 years age group (48.7%), followed by 16-18 years (28.6%) and 10-12 years (22.7%) (Figure 1). Most participants were studying in government schools (60.7%), while 39.3% were from private schools (Figure 2).

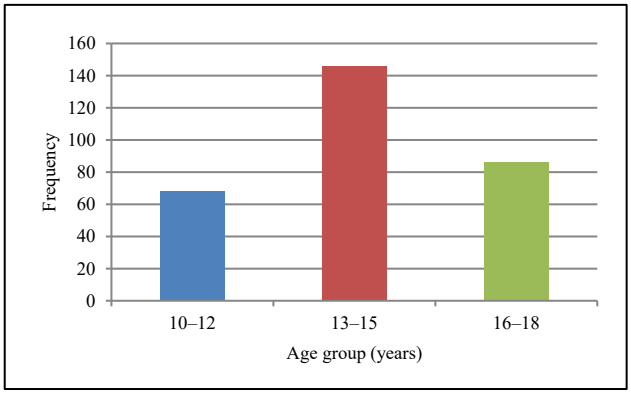

Figure 1: Distribution of study participants according to age group (n=300).

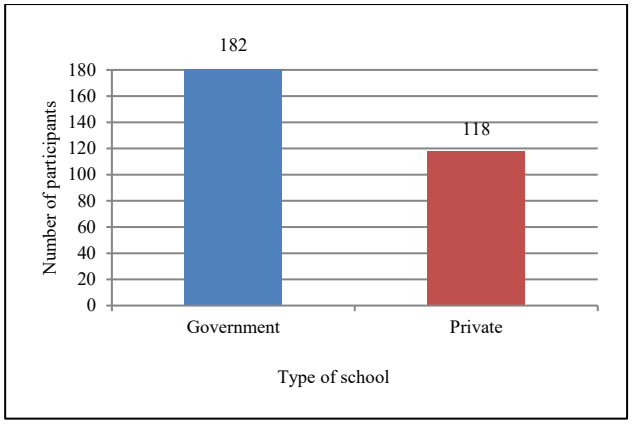

Figure 2: Distribution of study participants according to type of school (n=300).

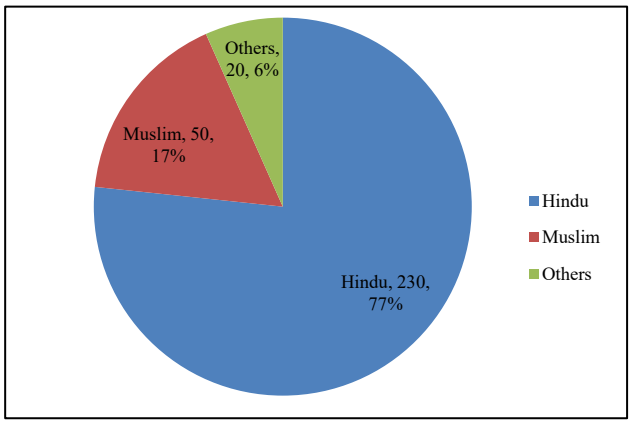

Figure 3: Distribution of study participants according to their religion (n=300).

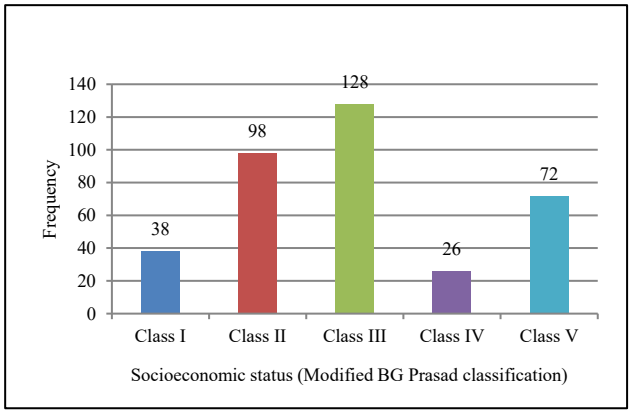

Figure 4: Distribution of study participants according to their socioeconomic status (n=300).

Most participants were Hindus (76.7%), followed by Muslims (16.7%) and others (6.7%) (Figure 3). According to the Modified BG Prasad classification, the largest proportion of participants belonged to socioeconomic class III (42.7%), followed by class V (24.0%), class I (12.7%), class II (12.0%), and class IV (8.7%) (Figure 4). The distribution of participants according to age at menarche revealed that most girls attained menarche between 12-14 years of age (Figure 5).

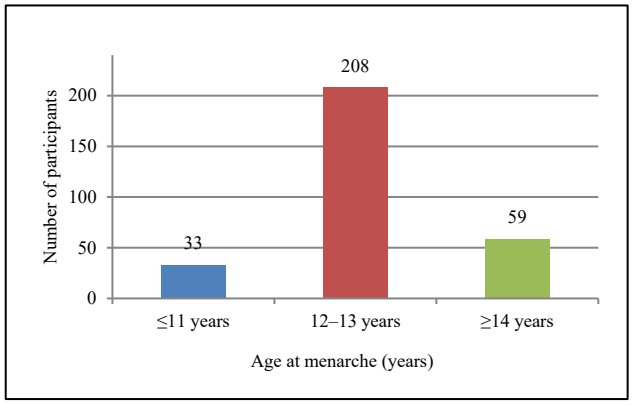

Figure 5: Distribution of study participants according to age at menarche (years) (n=300).

Knowledge regarding menstruation

Awareness of menstruation prior to menarche was reported by 59.3% of participants. Mothers were the primary source of information (37.3%), followed by friends (18.0%) and teachers (15.3%). A majority (71.3%) recognized menstruation as a normal physiological process; however, only 48.7% correctly identified the uterus as the source of menstrual bleeding. Knowledge regarding hormonal causation was present in 42.7% of participants, while 31.3% considered it a disease and 26.0% a curse. Less than half of the participants knew the normal menstrual cycle interval (46.0%) and duration (42.0%). Additionally, 66.0% were aware that poor menstrual hygiene could lead to infection.

Attitude towards menstruation

A considerable proportion of participants demonstrated restrictive beliefs. About 60.0% disagreed with celebrating menarche, while 63.3% opposed allowing contact with others or entry into the kitchen during menstruation. Most participants (66.7%) reported discomfort in discussing menstruation, and an equal proportion supported religious restrictions. Additionally, 60.0% expressed that they would consider themselves fortunate if menstruation stopped permanently.

Practices related to menstrual hygiene

Sanitary pads were the most used absorbent (68.7%), while 17.3% used old cloth. Among cloth users, the main reasons were easy availability (66.0%) and high cost (59.6%). Only 44.0% of participants reported changing absorbents at least three times per day. Disposal practices varied: 32.0% used dustbins, 24.0% flushed in toilets, and 28.0% disposed of indiscriminately. Although 59.3% reported daily bathing and 65.3% washed hands after changing absorbents, only 39.3% practiced proper genital hygiene during each change.

Table 1: Comparison of pre- and post-intervention KAP scores (n=300).

Domains	Pre-intervention Mean±SD	Post-intervention Mean±SD	t-value	P value
Knowledge	5.8±1.5	7.5±1.3	-26.165	<0.001*
Attitude	8.9±2.7	11.1±2.6	-34.405	<0.001*
Practice	3.9±1.2	4.8±1.2	-17.129	<0.001*

*Values represent the pre-intervention and post-intervention mean scores ± standard deviations of knowledge attitude and practices among participants.

Table 2: Association of sociodemographic variables with pre-intervention KAP scores (proportion with good/positive scores) (n=300).

Variables	Category	Good knowledge (%)	P value	Positive attitude (%)	P value	Good practice (%)	P value
Age group (years)	10-12	73.5	0.417	50.0	0.506	72.1	0.179
	13-15	65.8		54.1		58.9	
	16-18	72.1		59.3		62.8	
Type of school	Government	69.8	0.835	54.4	0.907	57.1	0.009
	Private	68.6		55.1		72.1	
Religion	Hindu	67.1	0.717	56.2	0.863	59.6	0.358
	Muslim	71.7		53.8		64.2	
	Others	70.8		52.1		70.8	
Mother's education	Illiterate	67.2	0.072	58.6	0.765	62.1	0.494
	Primary	64.9		56.8		56.8	
	Secondary	66.1		50.9		64.3	
	Higher secondary and above	83.9		55.1		69.6	
Father's education	Illiterate	66.7	0.501	50.0	0.806	72.2	0.598
	Primary	72.4		58.2		58.2	
	Secondary	64.2		51.9		65.1	
	Higher secondary and above	73.1		55.1		64.1	
Socioeconomic status	Class I	63.2	0.604	71.1	0.249	63.2	0.907
	Class II	75.0		55.6		58.3	
	Class III	66.4		51.6		61.7	
	Class IV	76.9		46.2		69.2	
	Class V	72.2		54.2		65.3	
Type of family	Nuclear	69.5	0.984	54.9	0.997	62.8	0.995
	Joint	69.6		54.3		63.0	
	Three generation	68.2		54.5		63.6	

Values represent the proportion (%) of participants with good knowledge, positive attitude, and good practices.

Effect of health education intervention

There was a statistically significant improvement in knowledge, attitude, and practice scores following the intervention (Refer to Table 1).

Association of sociodemographic factors with pre-intervention KAP scores

The association between sociodemographic variables and pre-intervention knowledge, attitude, and practice scores is presented in Table 2. No statistically significant association was observed for knowledge and attitude domains ($p>0.05$). However, practice scores showed a statistically significant association with school type ($p=0.009$), with better practices among students in private schools.

Overall, the study demonstrated that while a moderate proportion of adolescent girls had baseline awareness regarding menstruation, significant gaps persisted in knowledge, attitudes, and hygienic practices. Sociodemographic factors were not significantly associated with knowledge and attitude scores; however, better practices were observed among students from private schools. Following the structured health education

intervention, there was a marked and statistically significant improvement in mean knowledge, attitude, and practice scores, indicating the intervention's effectiveness in enhancing menstrual hygiene awareness and behaviours among rural school-going adolescent girls.

DISCUSSION

The present study assessed the impact of a structured health education intervention on knowledge, attitude, and practices (KAP) regarding menstruation and menstrual hygiene among school-going adolescent girls in rural Gurugram. The findings demonstrated that although a moderate proportion of participants had baseline awareness about menstruation, substantial gaps existed in scientific knowledge, attitudes, and hygienic practices. Following the intervention, there was a statistically significant improvement in all three domains, indicating the effectiveness of the health education programme.

At baseline, 59.3% of participants were aware of menstruation prior to menarche, with mothers being the primary source of information. This finding is consistent with studies by Rastogi et al and Kumari et al, which also identified mothers as the primary source of information, highlighting the continued reliance on informal, potentially incomplete sources of knowledge.[20,21] However, the level of pre-menarche awareness in the present study was relatively higher than in some rural settings, suggesting gradual improvement but still indicating the need for structured school-based education.

In terms of knowledge, although 71.3% of participants recognized menstruation as a normal physiological process, only 48.7% correctly identified the uterus as the source of menstrual bleeding and 42.7% understood its hormonal basis. Similar gaps in biological understanding have been reported in studies by Yadav et al and Belayneh et al, where misconceptions regarding menstruation were prevalent despite moderate awareness levels.[23,24] These findings suggest that superficial awareness does not necessarily translate into accurate scientific knowledge.

Attitudinal findings revealed the persistence of restrictive beliefs and stigma. A large proportion of participants reported discomfort in discussing menstruation (66.7%) and supported cultural and religious restrictions. These findings are in agreement with studies by Pal et al and Parasuraman et al, which highlighted the influence of sociocultural norms in shaping negative attitudes toward menstruation.[25,26] The persistence of such attitudes underscores the need for interventions that go beyond information dissemination and address deep-rooted beliefs.

Menstrual hygiene practices were found to be suboptimal, with only 44% of participants changing absorbents at least three times a day and a considerable proportion practicing inappropriate disposal methods. Although 68.7% used sanitary pads, cost and accessibility remained barriers for others. Similar findings have been reported in studies by Ahmed et al and Kumari et al, where economic constraints and lack of access influenced hygiene practices.[21,27] This highlights that knowledge alone is insufficient without supportive environmental and economic conditions.

The health education intervention resulted in a significant improvement in knowledge, attitude, and practice scores ($p<0.001$). The mean knowledge score increased from 5.8 to 7.5, attitude score from 8.9 to 11.1, and practice score from 3.9 to 4.8. These findings are consistent with multiple interventional studies, including those by Haque et al, Lonimath et al, and Vagha et al, which demonstrated significant improvements in menstrual hygiene-related outcomes following educational interventions.[20,28,29] Similarly, systematic reviews by Evans et al and Joshi et al have reported that structured and interactive educational approaches are effective in improving menstrual health knowledge and practices among adolescents.[30,31]

The association analysis revealed no statistically significant relationship between sociodemographic variables and knowledge or attitude scores, which is comparable to findings from several previous studies. However, a significant association was observed between type of school and practice scores, with better practices among students from private schools. This may be attributed to better access to resources, sanitation facilities, and affordability of menstrual products, highlighting disparities in menstrual hygiene management.

From a public health perspective, the findings of this study emphasize the critical role of school-based health education programmes in improving menstrual hygiene management. However, for sustained behavioral change, such interventions should be complemented with improvements in sanitation infrastructure, availability of affordable menstrual products, and involvement of parents, teachers, and community stakeholders. Addressing sociocultural stigma through community engagement is equally important.

The use of a single-group pre-test-post-test design without a control group limits the ability to attribute the observed improvements solely to the health education intervention. The study was conducted in three schools in rural Gurugram; therefore, the findings may not be generalizable to adolescents from urban settings or other regions. Additionally, menstrual hygiene practices were assessed through self-reported responses, which may be subject to recall and social desirability bias. Finally, the post-intervention assessment was conducted after 3 months; therefore, the long-term sustainability of the observed improvements could not be evaluated.

CONCLUSION

The present study demonstrated that although a moderate level of awareness regarding menstruation exists among adolescent girls, significant gaps persist in scientific knowledge, attitudes, and hygienic practices, largely influenced by sociocultural beliefs and resource constraints. The structured school-based health education intervention led to a statistically significant improvement in knowledge, attitude, and practice scores, highlighting its effectiveness as a simple and scalable strategy for improving menstrual hygiene management. These findings underscore the need for integrating comprehensive menstrual health education into school curricula, along with strengthening access to affordable sanitary products, adequate sanitation facilities, and supportive environments. A multisectoral approach involving schools, families, and community stakeholders is essential to ensure sustained behavioral change and to promote the overall health, dignity, and well-being of adolescent girls.

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REFERENCES

1. Hillard PJ. Menstruation in young girls: a clinical perspective. Obstet Gynecol. 2002;99(4):655-62.
2. Tan DA, Haththotuwa R, Fraser IS. Cultural aspects and mythologies surrounding menstruation and abnormal uterine bleeding. Best Pract Res Clin Obstet Gynaecol. 2017;40:121-33.
3. Patel K, Panda N, Sahoo KC, Saxena S, Chouhan NS, Singh P, et al. A systematic review of menstrual hygiene management (MHM) during humanitarian crises and/or emergencies in low-and middle-income countries. Front Public Health. 2022;10:1018092.
4. Olson MM, Alhelou N, Kavattur PS, Rountree L, Winkler IT. The persistent power of stigma: A critical review of policy initiatives to break the menstrual silence and advance menstrual literacy. PLOS Glob Public Health. 2022;2(7):e0000070.
5. Tegegne TK, Sisay MM. Menstrual hygiene management and school absenteeism among female adolescent students in Northeast Ethiopia. BMC Public Health. 2014;14(1):1118.
6. Popat VB, Prodanov T, Calis KA, Nelson LM. The menstrual cycle: a biological marker of general health in adolescents. Ann New York Acad Sci. 2008;1135(1):43-51.
7. Dasgupta A, Sarkar M. Menstrual Hygiene: How Hygienic is the Adolescent Girl? Indian J Community Med. 2008;33(2):77-80.
8. Ene N, Bolarinwa OA, Adedigba C, Oyeleye J, Boboye I, Nwosu U, et al. "If I use pad, I feel comfortable and safe": a mixed-method analysis of knowledge, attitude, and practice of menstrual hygiene management among in-school adolescent girls in a Nigerian city. BMC Public Health. 2024;24(1):1721.
9. Blue S, Shove E, Carmona C, Kelly MP. Theories of practice and public health: understanding (un)healthy practices. Crit Public Health. 2016;26(1):36-50.
10. Nyblade L, Stockton M, Nyato D, Wamoyi J. Perceived, anticipated and experienced stigma: exploring manifestations and implications for young people's sexual and reproductive health and access to care in North-Western Tanzania. Cult Health Sex. 2017;19(10):1092-107.
11. Kaur R, Kaur K, Kaur R. Menstrual hygiene, management, and waste disposal: practices and challenges faced by girls/women of developing countries. J Environ Public Health. 2018;2018:1730964.
12. Chinyama J, Chipungu J, Rudd C, Mwale M, Verstraete L, Sikamo C, et al. Menstrual hygiene management in rural schools of Zambia: a descriptive study of knowledge, experiences and challenges faced by schoolgirls. BMC Public Health. 2019;19(1):16.
13. Johnston-Robledo I, Chrisler JC, Bobel C, Winkler IT, Fahs B, Hasson KA, et al. The menstrual mark: Menstruation as social stigma. In: The Palgrave Handbook of Critical Menstruation Studies. Singapore: Palgrave Macmillan; 2020:181-99.
14. Sharma M. Theoretical foundations of health education and health promotion. Jones and Bartlett Learning; 2021.
15. Lahme AM, Stern R, Cooper D. Factors impacting on menstrual hygiene and their implications for health promotion. Glob Health Promot. 2018;25(1):54-62.
16. Shackleton N, Jamal F, Viner RM, Dickson K, Patton G, Bonell C. School-based interventions going beyond health education to promote adolescent health: systematic review of reviews. J Adolesc Health. 2016;58(4):382-96.
17. Evans RL, Harris B, Onuegbu C, Griffiths F. Systematic review of educational interventions to improve the menstrual health of young adolescent girls. BMJ Open. 2022;12(6):e057204.
18. Sommer M, Torondel B, Hennegan J, Phillips-Howard PA, Mahon T, Motivans A, et al. How addressing menstrual health and hygiene may enable progress across the Sustainable Development Goals. Glob Health Act. 2021;14(1):1920315.
19. Elledge MF, Muralidharan A, Parker A, Ravndal KT, Siddiqui M, Toolaram AP, et al. Menstrual hygiene management and waste disposal in low- and middle-income countries- a review of the literature. Int J Environ Res Public Health. 2018;15(11):2562.
20. Haque SE, Rahman M, Itsuko K, Mutahara M, Sakisaka K. The effect of a school-based educational intervention on menstrual health: an

intervention study among adolescent girls in Bangladesh. BMJ Open. 2014;4(7):e004607.
21. Kumari S, Srishti. Knowledge and practice on menstrual hygiene among girl students in Saharsa district of Bihar. Int J Pharm Clin Res. 2024;16(2):292-300.
22. Pal J, Ahmad S, Siva A. Impact of health education regarding menstrual hygiene on genitourinary tract morbidities: an intervention study among adolescent girl students in an urban slum. Int J Res Med Sci. 2017;5(11):4937-1.
23. Yadav RN, Joshi S, Poudel R, Pandeya P. Knowledge, attitude, and practice on menstrual hygiene management among school adolescents. J Nepal Health Res Council. 2017;15(3):212-6.
24. Rastogi S, Khanna A, Mathur P. Uncovering the challenges to menstrual health: knowledge, attitudes and practices of adolescent girls in government schools of Delhi. Health Educ J. 2019;78(7):839-50.
25. Belayneh Z, Mekuriaw B. Knowledge and menstrual hygiene practice among adolescent school girls in southern Ethiopia: a cross-sectional study. BMC Public Health. 2019;19(1):1595.
26. Parasuraman G, Vijay V, Balaji S, Nisha B, Dutta R, Jain T. Impact of health education intervention on menstruation and its hygiene among urban school-going adolescent girls in Thiruvallur, Tamilnadu. J Fam Med Prim Care. 2022;11(9):5271-6.
27. Ahmed T, Hasan MK, Aunto TK, Ahmed T, Zahid D. Menstrual hygiene knowledge and practices among adolescent schoolgirls in flood-affected rural Bangladesh. Reprod Health. 2025;22(1):87.
28. Kumari S, Srishti. Knowledge and practice on menstrual hygiene among girl students in Saharsa district of Bihar. Int J Pharm Clin Res. 2024;16(2):292-300.
29. Vagha K, Sawhney S, Varma A, Vagha JD, Mishra N, Varma Sr A. Assessment of the impact of a short-term intervention on menstrual hygiene practices of adolescent girls in rural parts of central India. Cureus. 2023;15(9).
30. Evans RL, Harris B, Onuegbu C, Griffiths F. Systematic review of educational interventions to improve the menstrual health of young adolescent girls. BMJ Open. 2022;12(6):e057204.
31. Joshi K, Mendhe D. Effectiveness of various interventions on menstrual health and hygiene among adolescent girls: a systematic review. J Pharm Bioallied Sci. 2025;17(Suppl 1):S84-7.

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