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Original Article

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Exploring menstrual personal hygiene behavior among adolescent girls: A qualitative study

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ABSTRACT

Introduction: Menstrual personal hygiene is an essential component of adolescent reproductive health. Inadequate menstrual hygiene practices increase the risk of reproductive tract infections and negatively affect adolescents' physical and psychological well-being. Despite increasing awareness, many school-aged girls continue to experience challenges in maintaining appropriate menstrual hygiene. This study aimed to explore menstrual personal hygiene behaviors among adolescent girls and to identify factors influencing these behaviors in a junior high school setting.

Research Methodology: A qualitative descriptive study was conducted among adolescent girls at SMPN 30 Makassar, Indonesia. Eight participants were purposively selected based on their menstrual experience and ability to provide rich information. Additional perspectives were obtained from teachers and parents as supporting informants. Data were collected through in-depth interviews and analyzed using thematic analysis to identify recurring patterns and meanings related to menstrual hygiene behavior.

Results: The study involved 8 primary participants. Four interrelated themes emerged: (1) limited knowledge regarding appropriate menstrual hygiene practices; (2) positive attitudes toward maintaining cleanliness during menstruation despite inconsistent implementation; (3) limited reinforcement from teachers due to irregular health education and monitoring; and (4) strong parental influence, particularly from mothers, in providing information, emotional support, and practical guidance. Overall, participants recognized the importance of menstrual hygiene; however, gaps between knowledge and daily practice remained evident because of insufficient health education and limited environmental support.

Conclusion: Menstrual personal hygiene behavior among adolescent girls is shaped by individual knowledge, attitudes, school support, and family involvement. Strengthening comprehensive school-based menstrual health education while promoting active collaboration between teachers, parents, and healthcare providers may improve healthy menstrual hygiene practices and contribute to better adolescent reproductive health outcomes.

Keywords: adolescents; health behavior; menstruation; menstrual hygiene; reproductive health.

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INTRODUCTION

Adolescence is a critical developmental period characterized by rapid biological, psychological, and social changes, including the onset of menstruation among girls. Menstruation is a normal physiological process; however, its successful management depends largely on adolescents' ability to practice appropriate menstrual personal hygiene[1]. Poor menstrual hygiene practices have been associated with reproductive tract infections (RTIs), urinary tract infections, skin irritation, school absenteeism, reduced self-confidence, and impaired quality of life[2]. Consequently, menstrual hygiene management has become an important public health concern and is recognized as an essential component of adolescent reproductive health and the Sustainable Development Goals (SDGs), particularly those related to health, education, gender equality, and sanitation[3]. Despite increasing global attention to menstrual health, many adolescent girls, especially in low- and middle-income countries, continue to experience inadequate knowledge, misconceptions, and limited access to reliable reproductive health information[4].

Recent evidence indicates that inappropriate menstrual hygiene remains highly prevalent among adolescents. Studies conducted in several Asian countries have consistently reported that many school-aged girls do not change sanitary pads frequently, clean the genital area incorrectly, or rely on inaccurate information obtained from peers rather than health professionals[5]. These behaviors increase susceptibility to reproductive health problems while simultaneously reinforcing stigma and embarrassment surrounding menstruation. In Indonesia, menstrual hygiene continues to be influenced by cultural beliefs, social taboos, and disparities in health education[6]. Although school health programmes have expanded, menstrual health education is often delivered inconsistently and receives limited emphasis within the formal curriculum[7]. As a result, many adolescents enter menarche without adequate preparation or sufficient understanding of appropriate hygiene practices.

Previous studies have identified knowledge as one of the strongest determinants of menstrual hygiene behavior. Adolescents with better knowledge generally demonstrate healthier practices, including regular replacement of sanitary pads, proper genital cleansing, and improved hand hygiene. Nevertheless, knowledge alone does not necessarily translate into appropriate behavior[8]. Behavioral science suggests that health-related practices are influenced by multiple interacting factors, including attitudes, perceived norms, environmental support, and reinforcing social influences. Lawrence Green's PRECEDE behavioral model proposes that health behaviors arise from the interaction of predisposing factors (knowledge and attitudes), enabling factors (availability of facilities and resources), and reinforcing factors (family, teachers, and healthcare providers). This framework provides a comprehensive explanation of why positive health behaviors may not develop even when individuals possess adequate information.

Emerging qualitative evidence further demonstrates that adolescents' menstrual hygiene behaviors are strongly shaped by their surrounding social environment. Parents, particularly mothers, frequently serve as the primary source of menstrual information and emotional support during menarche[9]. Open communication within families has been associated with greater confidence and healthier menstrual practices among adolescent girls. Similarly, teachers play an important educational role by providing accurate reproductive health information and fostering supportive school environments[10]. However, many teachers report limited confidence, insufficient training, or discomfort when discussing menstruation, resulting in irregular health education and inconsistent reinforcement of healthy behaviors. In addition,

inadequate school sanitation facilities and limited privacy further reduce adolescents' ability to practice recommended menstrual hygiene, even when they understand its importance.

Although research on menstrual hygiene has grown substantially, several important gaps remain. Most previous studies have employed quantitative cross-sectional designs that identify associations between knowledge, attitudes, and practices but provide limited insight into adolescents' experiences and the contextual factors influencing menstrual hygiene behaviors. Qualitative studies in Indonesian junior high school settings are still limited and often focus on individual knowledge or practices without examining the combined influence of teacher support and parental involvement. Furthermore, few studies have interpreted menstrual hygiene behaviors using Lawrence Green's Behavioral Framework, limiting the development of theory-informed interventions. This study addresses these gaps by adopting a qualitative descriptive approach to explore menstrual personal hygiene behavior among adolescent girls at SMPN 30 Makassar, Indonesia. It examines adolescents' knowledge, attitudes, teacher support, and parental involvement to better understand the contextual factors that facilitate or hinder healthy menstrual hygiene practices. By integrating perspectives from students, teachers, and parents within Lawrence Green's behavioral framework, this study offers a more comprehensive explanation of menstrual hygiene behavior than previous research focused primarily on quantitative outcomes. The findings are expected to contribute to behavioral health research and inform culturally appropriate, school-based menstrual health promotion programs involving both educational institutions and families.

MATERIALS AND METHODS

Study Design

This study employed a qualitative descriptive design to explore menstrual personal hygiene behaviors among adolescent girls. A qualitative descriptive approach was considered appropriate because it enables researchers to obtain comprehensive descriptions of participants' experiences, perceptions, and behaviors in their natural context without imposing predetermined theoretical interpretations. This design facilitates an in-depth understanding of how adolescents perceive menstrual hygiene practices and the contextual factors that influence these behaviors.

Setting and Participants

The study was conducted at SMPN 30 Makassar, South Sulawesi, Indonesia, between June and July 2026. Participants were selected using purposive sampling, aiming to recruit individuals capable of providing rich and relevant information regarding menstrual hygiene practices.

The inclusion criteria for the primary participants were:

- female students enrolled at SMPN 30 Makassar;
- aged 12–15 years;
- had experienced menarche;
- willing to participate voluntarily; and
- able to communicate their experiences clearly.

Supporting informants included female homeroom teachers who were familiar with students' health education activities, while key informants consisted of mothers or parents directly involved in providing menstrual guidance at home. Individuals who were unwilling to participate, unable to complete the interview, or whose parents declined participation were excluded. A total of eight adolescent girls participated as primary informants, complemented

by supporting informants from teachers and parents. Recruitment continued until data saturation was achieved, whereby no substantially new information emerged from subsequent interviews.

Data Sources

This study primarily used primary qualitative data obtained through face-to-face in-depth interviews. Secondary data, including school demographic information, student characteristics, and supporting institutional documents, were collected to provide contextual understanding of the research setting.

Data Collection

Data were collected using semi-structured, in-depth interviews guided by an interview protocol developed from Lawrence Green's behavioral framework and the relevant literature on menstrual hygiene.

Interviews explored four principal domains:

- knowledge regarding menstrual hygiene;
- attitudes toward menstrual hygiene practices;
- teachers' roles in providing menstrual health education; and
- parental support during menstruation.

Each interview lasted approximately 30–60 minutes, was conducted in a private setting within the school or participants' homes, digitally audio-recorded with participants' permission, and supplemented by field notes documenting non-verbal expressions and contextual observations.

To enhance data quality, the interview guide was reviewed by experts in public health and qualitative research before data collection. Pilot interviews were conducted to improve question clarity. All interview recordings were transcribed verbatim immediately after each interview, and transcripts were compared with audio recordings to ensure transcription accuracy.

Quality Assurance and Trustworthiness

The credibility and trustworthiness of the findings were established using the criteria proposed by Lincoln and Guba, including:

- Credibility, achieved through prolonged engagement, triangulation of adolescent, teacher, and parent perspectives, and member checking;
- Transferability, ensured by providing detailed descriptions of the study setting, participants, and research procedures;
- Dependability, maintained through an audit trail documenting methodological decisions throughout the research process; and
- Confirmability, supported by researcher reflexive notes and independent review of coding decisions.

Data Analysis

Data were analyzed using reflexive thematic analysis following the six-phase approach proposed by Braun and Clarke:

- familiarization with the data;
- generation of initial codes;
- searching for themes;
- reviewing themes;
- defining and naming themes; and
- producing the final report.

Interview transcripts were read repeatedly to gain immersion in the data before systematic coding. Similar codes were grouped into categories and subsequently synthesized into overarching themes representing participants' experiences. Data management and coding were performed using NVivo 14 (QSR International) to facilitate organization, retrieval, and thematic development. Because this investigation employed a qualitative research design, statistical hypothesis testing, descriptive statistics beyond participant characteristics, bivariate analyses, multivariable regression models, significance testing, and p-values were not applicable.

Ethical Approval

Ethical approval was obtained from the Research Ethics Committee of Universitas Tamalatea Makassar before commencement of the study. (Approval Number: 010/V/UTAMA/LP/P/V/2026 Prior to participation, all participants and their parents or legal guardians received written and verbal explanations regarding the study objectives, interview procedures, confidentiality, voluntary participation, and the right to withdraw at any time without consequences. Written informed consent was obtained from parents or legal guardians, while verbal or written assent was obtained from all adolescent participants before interviews were conducted. Participant anonymity was maintained by assigning identification codes, and all electronic data were securely stored in password-protected files accessible only to the research team.

RESULTS

A total of eight informants participated in this study, comprising six adolescent girls as primary participants, one homeroom teacher as a supporting informant, and one parent as a key informant. Participants ranged in age from 12 to 54 years, providing multiple perspectives regarding menstrual personal hygiene behaviors. Data collection was concluded when data saturation was achieved, as no new codes or concepts emerged during the final interviews and thematic redundancy was observed across participants. Thematic analysis identified four major themes and eight subthemes that explain menstrual personal hygiene behavior among adolescent girls.

Theme 1. Limited Knowledge of Menstrual Personal Hygiene

Subtheme 1.1. Basic understanding of menstrual hygiene

Most participants recognized menstrual hygiene as maintaining genital cleanliness and changing sanitary pads regularly. However, their understanding was largely limited to practical routines rather than broader reproductive health concepts.

One participant explained:

> *"I only know that during menstruation we should keep the genital area clean, change sanitary pads regularly, and bathe every day so we do not get infections."* (AJ, 13 years)

Another participant stated:

> *"I only know that I should change my sanitary pad when it is full and also change my underwear."* (MR, 12 years)

Subtheme 1.2. Knowledge gaps regarding the purpose of menstrual hygiene

Several adolescents admitted that they did not fully understand the concept or health benefits of menstrual hygiene.

One participant reported:

> *"I don't really know what menstrual personal hygiene actually means. I only know that I should use sanitary pads during menstruation."* (NA, 13 years)

These findings indicate that knowledge remained superficial and focused primarily on routine practices rather than prevention of reproductive health problems.

Theme 2. Positive Attitudes but Inconsistent Hygiene Practices

Subtheme 2.1. Awareness of the importance of cleanliness

Most participants expressed positive attitudes toward maintaining hygiene during menstruation and believed that good hygiene improved comfort and health.

As one participant explained:

> *"I feel cleaner and more comfortable when I keep myself clean during menstruation."* (AJ, 13 years)

Subtheme 2.2. Inconsistent implementation in daily practice

Despite recognizing its importance, several adolescents reported changing sanitary pads only twice daily or waiting until the pad became completely saturated before replacement.

One participant stated:

> *"I usually change my sanitary pad only twice a day because I wait until it is completely full."* (AS, 13 years)

Others described immediately replacing pads when menstruation occurred at school, although some delayed replacement because of limited access or inconvenience.

Theme 3. Limited Reinforcement from the School Environment

Subtheme 3.1. Inconsistent menstrual health education

Most adolescent girls perceived that teachers rarely discussed menstrual hygiene during classroom activities.

One participant commented:

> *"We have never really received information from teachers specifically about menstrual hygiene."* (AS, 13 years)

Another participant stated:

> *"Teachers only rarely talk about those topics."* (AJ, 13 years)

Subtheme 3.2. Limited school support and monitoring

Although some participants acknowledged that sanitary pads might be available in the school health unit, they perceived teacher involvement and monitoring as insufficient.

Conversely, teachers believed they had provided information and encouragement whenever opportunities arose, indicating differences in perceptions between students and educators regarding the adequacy of school support.

Theme 4. Parents as the Primary Source of Menstrual Guidance

Subtheme 4.1. Practical guidance from mothers

Parents, particularly mothers, were consistently described as the main providers of menstrual health information. Guidance commonly included changing sanitary pads regularly, maintaining personal cleanliness, bathing frequently, and proper disposal of used sanitary pads.

One participant explained:

> *"My mother tells me to change my sanitary pad regularly, bathe frequently, and wrap used pads before throwing them away."* (A, 13 years)

Subtheme 4.2. Variation in communication within families

While several participants reported feeling comfortable discussing menstruation with their mothers, others experienced embarrassment or limited communication, leading them to seek information from friends or the internet.

One participant stated:

> *"I don't feel very comfortable talking to my mother because we don't live together, so I usually ask my friends or search on my phone."* (Participant)

The findings demonstrate that menstrual personal hygiene behavior was influenced by the interaction of predisposing factors (knowledge and attitudes), reinforcing factors (teacher and parental support), and the surrounding social environment. Although participants generally acknowledged the importance of maintaining menstrual hygiene, incomplete knowledge, inconsistent hygiene practices, limited reinforcement from schools, and variations in parental communication affected the adoption of optimal menstrual hygiene behaviors. Parents, especially mothers, emerged as the most influential source of practical guidance, whereas teacher involvement remained inconsistent across participants. These findings support the application of Lawrence Green's behavioral framework in explaining menstrual personal hygiene behavior among adolescent girls.

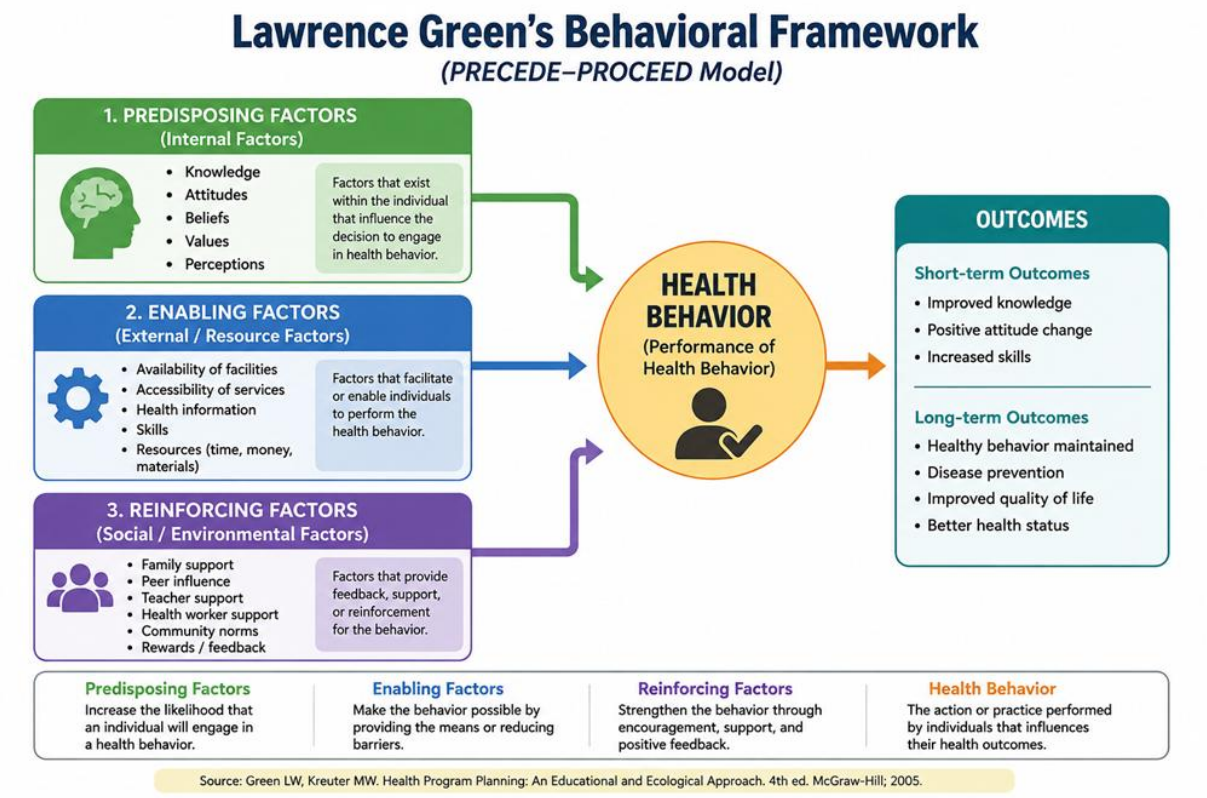

Figure 1. Lawrence Green's Behavioral Framework for Menstrual Personal Hygiene Behavior among Adolescent Girls.

This figure illustrates Lawrence Green's Behavioral Framework, demonstrating that menstrual personal hygiene behavior is influenced by three interrelated domains. Predisposing factors include knowledge, attitudes, beliefs, and perceptions that motivate health behavior. Enabling factors refer to the availability of facilities, access to health information, and resources that facilitate appropriate menstrual hygiene practices. Reinforcing factors encompass support and encouragement from parents, teachers, healthcare providers, peers, and the surrounding

social environment. The interaction of these factors promotes positive menstrual personal hygiene behaviors, ultimately contributing to improved reproductive health, disease prevention, and enhanced quality of life among adolescent girls.

DISCUSSION

The present study provides a comprehensive understanding of menstrual personal hygiene behavior among adolescent girls by demonstrating that appropriate hygiene practices are influenced by multiple interrelated behavioral and environmental factors rather than by knowledge alone. Although most participants recognized the importance of maintaining personal hygiene during menstruation, their understanding remained largely limited to basic practices such as changing sanitary pads and cleaning the genital area. Their explanations rarely reflected a broader understanding of reproductive health, infection prevention, or the physiological basis of menstrual hygiene. More importantly, positive attitudes toward menstrual hygiene did not consistently translate into healthy daily practices. Several participants acknowledged changing sanitary pads only when they were completely saturated or replacing them less frequently than recommended, indicating that awareness of appropriate behavior alone was insufficient to support consistent implementation. These findings reinforce the notion that menstrual hygiene behavior represents a complex health behavior requiring not only cognitive understanding but also supportive social and environmental conditions.

The findings can be interpreted using Lawrence Green's Behavioral Framework, which explains health behavior through the interaction of predisposing, enabling, and reinforcing factors. Predisposing factors, represented by knowledge and attitudes, appeared moderately favorable among participants because most adolescents expressed positive perceptions regarding the importance of cleanliness during menstruation[11,12]. However, enabling factors, including access to consistent reproductive health education, school facilities, and reliable health information, were less evident. Likewise, reinforcing factors varied considerably between school and family environments[13,14]. Parents, particularly mothers, emerged as the strongest source of information, emotional support, and behavioral guidance, whereas teacher involvement was perceived as inconsistent and limited. These findings indicate that menstrual hygiene behavior cannot be viewed solely as an individual responsibility but rather as a socially influenced behavior shaped by interactions between adolescents and their surrounding environments[15,16]. Consequently, interventions aimed at improving menstrual hygiene should simultaneously strengthen adolescents' knowledge, improve supportive school environments, and enhance family engagement to facilitate sustainable behavioral change.

An important conceptual contribution of this study lies in identifying differences between teachers' and students' perceptions regarding menstrual health education. Teachers generally believed they had provided sufficient information and motivation whenever opportunities were available, whereas most students perceived that discussions regarding menstruation were infrequent and lacked continuity[17,18]. This discrepancy suggests that the effectiveness of health education depends not only on the availability of information but also on its consistency, relevance, accessibility, and the extent to which students perceive educational support[19]. Therefore, menstrual health promotion should be integrated systematically into school health programs rather than relying on occasional counseling sessions or informal discussions. Establishing structured menstrual health education within the school curriculum may improve communication between teachers and students while simultaneously reducing the stigma that continues to surround menstruation in many educational settings[20].

The present findings are consistent with previous research indicating that menstrual health literacy among adolescent girls remains inadequate despite generally positive attitudes toward menstrual hygiene[21]. Studies conducted across several low- and middle-income countries have similarly reported that many adolescents understand the need to maintain cleanliness during menstruation but lack comprehensive knowledge regarding appropriate hygiene practices and reproductive health risks[22]. Such knowledge gaps have been associated

with poor menstrual hygiene behaviors, increased susceptibility to reproductive tract infections, discomfort during menstruation, and reduced participation in school activities. The current findings therefore strengthen existing evidence that improving menstrual health literacy remains a priority within adolescent reproductive health promotion[23].

The study also confirms the pivotal role of parents, particularly mothers, in shaping menstrual hygiene behaviors. Most participants described their mothers as the primary source of practical information regarding sanitary pad use, genital hygiene, bathing practices, and emotional reassurance during menstruation[24]. Similar observations have been reported in previous qualitative studies, where open communication between mothers and daughters was associated with greater confidence, healthier menstrual practices, and reduced anxiety during menarche[25]. However, this study also revealed that some adolescents experienced limited communication with their parents and instead relied on peers or internet sources for menstrual information. This finding highlights the importance of strengthening family-based reproductive health education while simultaneously improving adolescents' access to accurate and evidence-based information from schools and healthcare professionals.

Unlike many previous quantitative studies that primarily examine statistical associations between knowledge and menstrual hygiene practices, this qualitative investigation provides deeper insight into how adolescents experience menstrual hygiene within their everyday social environments[26]. The findings demonstrate that behavioral decisions are influenced not only by individual knowledge but also by educational experiences, interpersonal relationships, cultural norms, and perceptions of institutional support. By applying Lawrence Green's Behavioral Framework, this study extends existing literature through a more comprehensive explanation of how predisposing, enabling, and reinforcing factors collectively shape menstrual hygiene behavior among Indonesian adolescent girls. This theoretical perspective provides valuable guidance for designing multifaceted interventions that address behavioral determinants at both individual and environmental levels.

Several limitations should be considered when interpreting these findings. First, the study was conducted in a single junior high school, which may limit the transferability of the findings to adolescents living in different cultural, educational, or socioeconomic contexts. Second, as a qualitative descriptive study, the objective was to obtain rich contextual understanding rather than statistical generalization; therefore, the findings should be interpreted as explanatory rather than representative of the broader adolescent population. Third, participants described their own behaviors and experiences during interviews, creating the possibility of recall bias and social desirability bias. Although triangulation with teachers and parents enhanced the credibility of the findings, discrepancies between reported and actual behaviors cannot be completely excluded. Finally, the study primarily explored behavioral determinants and did not comprehensively investigate structural factors such as sanitation infrastructure, menstrual product affordability, school policies, or broader sociocultural influences that may also affect menstrual hygiene practices.

The findings of this study have several implications for future research and policy development. Future investigations should involve adolescents from multiple schools and diverse geographical settings to improve the transferability of findings and explore contextual differences in menstrual hygiene behavior. Mixed-methods studies combining qualitative exploration with quantitative assessment would provide stronger evidence regarding the relationships among knowledge, school support, parental involvement, and menstrual hygiene practices. Longitudinal intervention studies are also needed to evaluate the effectiveness of comprehensive school-based menstrual health education programs that actively involve teachers, parents, healthcare providers, and peer educators. Furthermore, future research should integrate behavioral theories with broader ecological and gender-sensitive perspectives by examining the influence of sanitation facilities, menstrual product accessibility, cultural beliefs, digital health education, and public health policies. Such evidence would support the development of integrated menstrual health promotion strategies that strengthen collaboration between schools, families, healthcare systems, and policymakers, ultimately contributing to

improved reproductive health and well-being among adolescent girls.

CONCLUSIONS

This study explored menstrual personal hygiene behavior among adolescent girls and found that these behaviors are influenced by the interaction of individual, educational, and family-related factors. Although most participants recognized the importance of maintaining personal hygiene during menstruation, their knowledge remained limited, resulting in inconsistent hygiene practices. Positive attitudes toward menstrual hygiene did not always translate into appropriate behaviors because of insufficient menstrual health literacy, inconsistent health education at school, and limited reinforcement from teachers. In contrast, parents, particularly mothers, played a pivotal role by providing information, emotional support, and practical guidance that encouraged healthier menstrual hygiene practices. These findings support Lawrence Green's Behavioral Framework, demonstrating that menstrual hygiene behavior is shaped by the combined influence of predisposing, enabling, and reinforcing factors rather than by knowledge alone. The findings highlight the need for comprehensive, school-based menstrual health promotion programs that integrate reproductive health education into the regular curriculum while strengthening collaboration among schools, families, and healthcare providers. Policies should prioritize teacher capacity-building, improved access to adolescent-friendly menstrual hygiene facilities, and parental engagement in menstrual health education. Such evidence-based interventions have the potential to improve menstrual hygiene practices, reduce reproductive health risks, and promote the overall health and well-being of adolescent girls.

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Conflict of Interest
The authors declare that there are no financial, professional, or personal conflicts of interest that could have influenced the design, conduct, analysis, interpretation, or publication of this study.

Authors' Contributions
ZulHijeria Tamrin: Conceptualization, Methodology, Investigation, Data Curation, Formal Analysis, Writing – Original Draft.
Diana Mirja Togubu: Methodology, Validation, Formal Analysis, Writing – Review & Editing, Supervision.
Musfirah: Investigation, Data Curation, Validation, Writing – Review & Editing.

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Declaration of Generative AI Use
During the preparation of this manuscript, the authors used generative artificial intelligence solely to improve language clarity, grammar, and readability. All scientific content, study design, data collection, analysis, interpretation of findings, and final editorial decisions were performed exclusively by the authors. The authors have carefully reviewed and take full responsibility for the accuracy and integrity of the final manuscript.

Data Availability Statement

The datasets generated and analyzed during the current study are not publicly available because they contain information that could compromise participant confidentiality. De-identified data may be made available by the corresponding author upon reasonable request and subject to approval by the relevant institutional ethics committee and applicable ethical requirements.

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