

Behaviour Changes of Elementary School Students Who Had Menarche and Educational Program Needed Relating to Menarche

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Article History

Submitted:

Feb 23, 2023

Reviewed:

March 10, 2023

Approved:

June 1, 2023

Abstract

Menarche marks a critical transition in a girl's life, signaling the onset of biological and reproductive maturity, and, from a fiqh perspective, the entry into the mukallaf stage of religious responsibility. However, this biological milestone is accompanied by significant physical, emotional, and social changes that necessitate appropriate educational interventions. This qualitative study aimed to explore behavioral changes observed in elementary school students following menarche and to identify educational programs needed to support their development. Data were collected through teacher interviews and focus group discussions across six elementary schools in Pekalongan City, Central Java, Indonesia, and analyzed using thematic content analysis. Findings revealed that post-menarche students exhibited increased attention-seeking behaviors towards the opposite sex, heightened self-focus on physical appearance, and active engagement on social media. However, schools lacked targeted educational programs addressing menstruation, reproductive health, and emotional development. This study emphasizes the urgent need for structured educational and counseling programs that integrate biological, psychological, and religious dimensions to support students during menarche, promoting healthy development and well-being. Collaborative efforts between schools, health departments, and educational authorities are recommended to ensure holistic student support.

Keywords: *Menarche, Behavioral Change, Elementary Education, Reproductive Health Education, Student Support Program*

INTRODUCTION

Menarche marks a critical biological milestone in a young female's life, typically occurring between the ages of 10 and 16, with an average onset at 12.4 years (Lacroix et al., 2023). The occurrence of menarche introduces significant physiological and psychological transformations, necessitating both familial and institutional readiness to support adolescents' health and well-being. Menstruation itself, defined as the regular monthly discharge of blood and endometrial tissue, marks the span from menarche to menopause

(Sweet et al., 2012). It not only signifies reproductive maturity but also heralds broader social and emotional responsibilities often unaddressed adequately in traditional education systems. Moreover, the experience of menarche requires critical understanding and adaptation as it intersects with gender identity development and psychosocial adjustment. As such, the onset of menstruation demands robust educational frameworks that enable young girls to navigate this transitional phase with confidence and health literacy. Given its profound implications for adolescent development and gendered health outcomes, studying menarche at the elementary school level becomes not only a biological concern but also a pivotal sociocultural imperative.

Recent trends observed in Pekalongan City indicate an increasing number of elementary school girls experiencing menarche at earlier ages, often as young as grades four and five (Malitha et al., 2020). This phenomenon, markedly different from previous generations, reflects both biological shifts and potential environmental or socio-economic influences (interviews with teachers in Pekalongan, 2022). Teachers have reported an observable rise in the frequency of first menstruations among students, prompting concerns regarding the adequacy of current educational and health support systems. Such changes suggest that traditional approaches, which assume menarche onset closer to middle school age, are no longer sufficient. In light of these developments, educational institutions must urgently recalibrate their health education frameworks to accommodate younger menstruating students. Early menarche not only accelerates the timeline for sexual maturation but also necessitates earlier psychosocial preparation, challenging existing pedagogical models. Therefore, addressing the educational and emotional needs of these students becomes a critical component in safeguarding their holistic development.

Existing literature confirms that early menarche correlates with increased vulnerability to depression, anxiety, early sexual initiation, and a heightened risk of adult health complications such as hypercholesterolemia and cardiovascular disease (Lacroix et al., 2022). Furthermore, research in urban American contexts reveals gaps in menstrual education, with many girls lacking practical knowledge and facing menstrual-related barriers to school participation (Schmitt et al., 2021). Despite these established concerns globally, Indonesian scholarship remains limited in addressing behavioral shifts following menarche at the elementary school level. To date, no studies have systematically explored the psychosocial adaptations or educational needs of Indonesian girls undergoing menarche

during their primary education years. This gap underscores the urgent necessity for empirical inquiry into how early menstruation impacts behavior, socialization, academic engagement, and health literacy in this cultural context. Without such investigations, policy responses and educational interventions risk being uninformed, incomplete, or culturally incongruent. Therefore, this research seeks to bridge this critical void by contextualizing menarcheal experiences within Indonesian elementary education frameworks.

Grounding this study is a phenomenological qualitative approach, aimed at capturing the lived experiences and subjective realities of young girls navigating menarche. Phenomenology, which emphasizes the essence of experiences from participants' perspectives, is particularly suited to understanding nuanced behavioral changes and emotional transitions (Creswell & Poth, 2018). The research employs thematic content analysis to extract patterns and themes from teachers' observations, recognizing that educators serve as crucial informants who witness daily student behavior and developmental shifts. The theoretical underpinning draws on gender socialization theory, which posits that societal expectations and cultural norms shape gendered experiences and self-conceptions from early adolescence (West & Zimmerman, 1987). Within this framework, menarche is not merely a biological event but also a socially constructed transition mediated through education, familial discourse, and peer interactions. By examining menarche through both phenomenological and gendered lenses, the study aspires to produce insights that are not only descriptive but also critically analytical, informing both academic discourse and practical interventions.

The principal aim of this study is to investigate behavioral changes among elementary school girls following menarche and to identify the specific educational programs necessary to support them. This objective emerges as a direct response to the gaps identified in previous research and the contextual urgency observed in Pekalongan City. Specifically, the study seeks to explore how menarche influences girls' emotional regulation, social interactions, academic performance, and self-presentation behaviors. Moreover, it aims to assess the existing educational content, policies, and support services available within schools, evaluating their adequacy and responsiveness to students' evolving needs. By aligning the research purpose with the identified gaps and contextual realities, the study aspires to contribute substantive empirical data that can inform educational planning, health promotion, and gender-responsive pedagogy. Achieving these aims holds the potential to

foster healthier, more equitable school environments that respect and empower young girls navigating the transformative journey of menarche.

This study posits that the onset of menarche significantly alters elementary school girls' behavioral patterns and psychosocial dynamics, necessitating targeted educational interventions. Teachers' observations suggest that post-menarcheal students exhibit heightened self-consciousness, increased engagement with social media, greater concern with physical appearance, and evolving interactions with peers, including boys. These behaviors, while developmentally normative, require sensitive guidance to ensure positive self-image, emotional resilience, and healthy socialization. Supporting data from international research shows that poorly managed menarcheal transitions can contribute to absenteeism, diminished academic engagement, and psychosomatic complaints (Anikwe et al., 2020; Schmitt et al., 2021). Consequently, this study hypothesizes that schools with proactive, comprehensive menarcheal education and support services will demonstrate better psychosocial outcomes among students compared to institutions with minimal or fragmented responses. By systematically analyzing these patterns, the research seeks to validate this hypothesis and advocate for structural reforms in school-based health and gender education policies.

Understanding behavioral changes following menarche among elementary school students is pivotal for developing educational programs that are both age-appropriate and culturally sensitive. This study endeavors to illuminate how early adolescence, accelerated by early menarche, demands timely, structured, and compassionate educational responses from schools and communities alike. By foregrounding teachers' insights and triangulating observational data, the research aspires to offer practical recommendations for enhancing health literacy, emotional support, and gender equity in school environments. Beyond its immediate pedagogical implications, the study contributes to broader discussions on gender, childhood development, and the intersectionality of health and education in transitional societies. As such, it holds value not only for educators and policymakers but also for scholars committed to advancing gender-sensitive research in education and public health domains. Ultimately, empowering young girls through informed, empathetic educational interventions during the critical phase of menarche represents an investment in their holistic well-being and a step toward a more inclusive and supportive educational landscape.

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DISCUSSION

A total of eight persons participated in this study. The participants came from different geographical areas of Pekalongan City. The youngest participant was 28, and the oldest was 55. Six (75%) participants were teachers, and the others (25%) were headmasters. The shortest teaching experience was three years, and the longest was 23 years. The participant profile can be seen in table 1.

Table 1. Participant Profile

No	Name	Age	Position	Teaching experience
1	FY	34	Teacher of Islamic subjects	12 years
2	MR	31	Teacher	7 years
3	M	41	Headmaster	16 years
4	MDA	37	Teacher	15 years
5	K	43	Headmaster	18 years
6	A	55	Teacher	23 years
7	NS	28	Teacher	4 years
8	I	29	Teacher	3 years

Behavior Changes of Menarche Students and the Teacher and School Measures to Address the Changes

There are several behavioral changes and different needs of among elementary students in Pekalongan City, Central Java, Indonesia. Seeking attention, being more selfish, and paying attention to their appearance were the common changes of students in the early menarche (refer to table 2). These changes supported previous study among 2000 adolescents in Shiraz City, Iran, which reported that the most prevalent emotional-behavioural problems among adolescents were emotional symptoms (Tayebi et al., 2020).

The age of menarche was significantly associated with emotional and behavioural difficulties. It is necessary to understand the issues that adolescent females face during adolescence and how to address them.

Another study in China indicated that psychopathological symptoms, suicide, and tendency to self-harm are more prevalent among students with early menarche than those with on-time or late menarche (Deng et al., 2011). Over time, the effects of early menarche on the disorders may diminish. In Chinese girls, early menarche may function as a predictor for disorders.

Table. 2 Behavior changes of menarche students and the teacher and school measures to address the changes

No	Aspects	Details
1	Behaviour changes that can be observed	1. Often seek attention to the opposite sex 2. Often post self-portraits on social media 3. Pay more attention to self-appearance, preen, pay attention to clothing and style
2	Observation in learning activities	During menstruation, some students with high learning motivation were usually weak and lacked enthusiasm. This symptom occurred in almost all female students
3	Teacher attention to changes in female students' attitudes	The teacher had noticed changes in the attitudes and behaviour of menstruating female students. Observed briefly, not specifically
4	The teacher's experience when interacting with students	During the learning session, there were students whose enthusiasm for learning had decreased, and when asked, they answered that their stomach hurt, they were menstruating.
5	School meetings on managing female students who were Menstruating	Schools had never held a meeting to discuss issues related to menstruating students and the services that schools need to provide for them

Menstruation is natural for women. Theoretically, menstruation is the periodic discharge of blood and tissue from the vagina of a woman who is not pregnant as the culmination of the menstrual cycle. Menstruation occurs every 28 days from puberty to menopause, except during pregnancy. Menstrual blood flow occurs for about five days, which varies from woman to woman (Medical Dictionary, 2022). Menstruation is a periodic

event in a sexually mature woman who is not pregnant. A mature egg (ovum) is released from the ovary once every four weeks until menopause (Oxford Reference, 2022).

Menstruation is one of the natural processes of a woman who experiences shedding the inner uterine wall (endometrium) that comes through the vagina (Prawirohardjo, 2007). The first time menstruation in adolescents is called menarche, which generally occurs between 10-16 years, but the average is 12.5 years (Marques, 2022).

Menstrual cycles during adolescence are usually irregular, especially during the first menstrual cycle towards the second menstruation. The immaturity of the hypothalamic-pituitary-ovarian (HPO) in the first years of menarche is the cause of irregular menstrual cycles, so processes vary from the shortest cycle (<20 days) to the longest cycle (>45 days). In the 3rd year after menarche, 60-8-% of menstrual cycles are in the 21-34 days range, which is the typical adult cycle (Hikey and Ballen, 2003).

Based on the data confirmed in the discussion, this study found that many female students at elementary school in Pekalongan City had experienced their first menstruation (menarche). There was a tendency of increasing age of menarche from grades IV to grade VI. Following their menarche, some behavioural changes were observed, such as seeking attention to the opposite sex, posting self-portraits on social media more frequently, and paying more attention to self-appearance, preening, and pay attention to clothing and style. These changes are expected as menarche is related to when they are getting menarche, and more production of reproductive hormones which influencer their physical and psychological changes (Prawirohardjo, 2007). Menarche is also a sign that a girl is already entering puberty, hence she feels attracted to the opposite sex because her sex hormones are already active. This study found that menstruation affect students' learning activities. Some students who usually had high learning motivation experienced weakness and the dip of enthusiasm during menstruation. This changing condition is attributable to, female menstrual blood discharge triggers anemia and hypotension, making them weaker and lacking enthusiasm. Menstruation also brings psychological sensitivity, so they are more vulnerable to mood swings. It is already known that there is a premenstrual syndrome. Premenstrual syndrome (PMS) is prevalent among numerous students (Eshetu et al., 2022). The primary premenstrual symptoms reported by students were abdominal cramps, feelings of depression, and weariness.

Based on the information gathered from the teacher in this study, there was no initiative from teachers to discuss menstruation related issues to seek the appropriate service for them. These findings bring on the analysis of further recommendations as provided in the following explanation.

Student Needs, Recommended Programs, and Policies Related to Menarche

Based on the interview with teachers, there is a lot of needs and recommendation for programs and policies to improve education supporting menarche students and student health. All requirements and recommendations can be seen in the tables. Tabel 3. School program to address issues related to menarche.

Tabel 3. Program schools needed relating to menarche

No	Variables	Description
1	School program on managing female students who were menstruating	Schools do not yet have a special program to deal with students faced with menstruation related issues
2	Special guidance for female students regarding reproductive health, Islamic jurisprudence and psychological guidance	<ol style="list-style-type: none"> 1. The school does not yet have a special guidance program regarding student growth and development 2. Guidance regarding reproductive health has never been given 3. Guidance on menstruation and psychology has never been given
3	Teacher's views on reproductive health guidance, menstruation and psychology	<ol style="list-style-type: none"> 1. Schools and madrasas need guidance on reproductive health and child development 2. The guidance is considered very important and helpful for female student
4	School facilities for female students	Schools do not yet have facilities to cater for the needs of female students who are already Menstruating

Table 3 indicates that there was no specific program, guidance and facilities provided by school for students during their menarche period. Teachers viewed that schools and *madrasas* need guidance on reproductive health and child development.

Table 4. Educational services for elementary students based on mental and biological maturity

No	Education services	Description
1	Education about menstruation and health	Given to students from grade IV
2	Menstruation education and religious obligations	Given to students starting grade IV
3	Education about puberty, mental health and social relations	Given to students starting grade VI

Table 4 shows that education related to health, menstruation and religious were given for elementary student in between grade IV-VI.

Table 5. Education Policy and Services

No	Variables	Description
1	Guidance from the Department of Education or Department of Religion regarding educational services for female students who are already menstruating	The school has never received guidance, training or other forms of managing the growth and development of students from the Department of Education or the Department of Religion of Pekalongan City.
2	Guidance for students from the Department of Education, Department of Religion, and Department of Health	Students have never received guidance from the Department of Education, Department of Religion, and Department of Health regarding reproductive health, menstrual problems and psychological guidance.
3	Menstruation materials for students	Subject about menstruation was given to fifth-grade students in religion and science lessons.
4	The teacher's opinion about Menstruation Material	The menstrual subject is very important for female students; as menstruation progresses, menstrual material needs to be given from grade IV
5	Other materials needed for female students	According to the teacher, four materials need to be taught: Reproduction system, how to maintain the health of the reproductive organs, <i>fiqh</i> menstruation, sex education, and adolescent mental health and behavior.

Table 5 reveals no specific guidance and training to address reproductive health provided by the Government in the primary school. Students only received menstruation

materials in the science and religion subjects. Teachers said that the menstruation subject was crucial and should be given in-depth for students.

Table 6. School needs for education about psychosexual and psycho students

No	Variables	Description
1.	The school needs related to female students' menstruation	<ul style="list-style-type: none"> a. A particular program for all grade four, five, and six students about menstruation so that if they experience menstruation, they have sufficient knowledge and are not surprised. b. Materials that need to be provided: how to maintain the health of the reproductive organs, the meaning and impact of menstruation for women, procedures for hygiene and health during menstruation, how to protect oneself from uncleanness, psychological guidance and mental health and association with the opposite sex and religious laws and guidelines for worship. c. Schools need special facilities for counseling students who have experienced menstruation and puberty. Special facilities include special officers (teachers can do it) educational and counseling materials, and counseling rooms. d. The school prepares sanitary napkins, a change of clothes, antihypertensive drugs, vitamins and other medicines needed by students who experience menstruation with heavy and accompanying symptoms. e. Special guidance and counselling materials especially to accompany the psychology of female students. f. Schools need educational tools such as posters, pocketbooks, digital educational media, and textbooks appropriate to children's physical and psychological health.
2	School aspirations for the Department of Education	<ul style="list-style-type: none"> a. The Department of Education should provide education/socialization to schools about techniques for accompanying students who have menstruation b. Facilitate school equipment for counselling, education and guidance on child development c. Improve the function of the School Health Unit (<i>Unit Kesehatan Siswa/UKS</i>).

3	School aspirations for the Health Service	a. The Health Office can provide education/knowledge to teachers about menstruation, its problems and management from a health science perspective b. The education office produces educational materials for students about health, reproductive health and mental health c. Facilitating UKS with health education activities according to school needs
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Table 6 shows the teachers' views about the school needs related to female students' menstruation, school aspirations for the Department of Education, and School aspirations for the Health Service. Teachers generally viewed that schools need particular programs, materials, facilities, medicine, guidance and tools to support students during their menarche.

All programs mentioned above are based on the current situation and student needs. As we understand, menarche is the first menstruation that brings many challenges among female students. From the biology perspective, menarche indicates that the student has entered a period of sexual maturity, and the reproductive organs are functioning perfectly. During this phase, fertilization and pregnancy can occur as menarche, the initial occurrence of menstrual blood, is a well-documented and significant milestone in female puberty that marks the onset of ovulation and reproductive capability (Guldbrandsen et al, 2014).

Providing sufficient menstrual hygiene facilities, free hygiene products, and timely instruction on menstruation health for both boys and girls is an essential intervention in schools (World Health Organization, 2022). These measures are necessary to promote health, well-being, and equal chances for learning and prevent pregnancy before marriage.

On the other hand, a student getting their menarche has a lot of behavioral changes, as mentioned in the previous paragraph, such as starting to put interest in the opposite sex, concern about their physical appearance, selfishness and lack of enthusiasm during learning activities. Thus, programs and policies at school should provide support to ensure that students can understand the border or friendship between the opposite sex and politeness in friendship. It is important as so many cases related to free sex and pregnancy before marriage affect adolescent health and wellness. A study found that married women utilise MHS more than single women who are pregnant (86% to 67,1%) (Mekwunyei, 2020).

Moreover, pregnancy at a young age is also a risk because young age correlates with less frequent antenatal visits (Kurniati et al., 2018). Lack of antenatal visits means that the health of the mother and baby are not closely monitored.

The importance of a positive body image is an important message to convey to the students, as poorer body image significantly correlated with the quality of life (Schwieger et al., 2016). Furthermore, tips on improving their learning motivation are also essential to prevent students from making poor choices in terms of activities rather than joining class/study. These explanations have been detailed in tables 3 and 4.

Although all needs were identified, recommended programs could not be realized without support from related departments such as the Department of Education, the Department of Religion, and the Department of Health in Pekalongan City. There is a need for a strong collaboration from various actors and institutions to put the programs in place. The recommendations in terms of the involvement of various departments have been explained in Tables 6 and 7.

Attempts to develop additional education about menstruation and the psychological development of students are theoretically very open. First, the Government provides opportunities for educational institutions to develop their curricula and programs. In the Education Unit Level Curriculum concept (KTSP), academic units can develop teaching materials and other programs following the school's characteristics and students' needs. Likewise, based on the concept of the Free Learning Curriculum, schools can design their curriculum and educational services, taking into account the needs of students. The curriculum is no longer a standardized document but a dynamic guide. Students are no longer objects but subjects and become leaders of learning activities (Ministry of Education and Higher Education Indonesia, 2022)

In the context of governance and government organization, education is one of the areas included in regional autonomy affairs. In Law No. 32 of 2004 article 14, one of the mandatory district/city government affairs is the administration of the education sector and the allocation of potential human resources (UU RI, 2004). With the handing over of education affairs to the regional Government, the regional Government has the mandate to carry out the task of decentralizing education. Decentralization of education refers to the delegation of authority from the central Government to provincial governments to carry out

planning, implementation of education, and address problems in their regions (Hidayat, 2016). Decentralized education for Elementary Schools and Madrasah Ibtidaiyyah is an academic unit under the Government of Pekalongan City and the Office of Religion of Pekalongan City. Therefore, the local Government, in this case the Pekalongan City Education Office and the Pekalongan City Office of Religion, can design educational policies that are enforced at the Pekalongan City government level or encourage education units to compile additional content at the Education Unit Level Curriculum.

Based on data, programs and analysis of collaboration between the Health Office of Pekalongan City and the elementary school, the opportunity to develop additional education for elementary school is also very open. The Department of Health of Pekalongan City has a health promotion program, one of the targets of which is Elementary School and Madrasah *Ibtidaiyyah* students. The Department of Health, through The Community Health services (Pusat Kesehatan Masyarakat/Puskemas) is collaborating with Elementary Schools and Madrasah *Ibtidaiyyah* regarding health services.

The collaboration between the Health Service and Schools/Madrasahs consists of providing light equipment for Health Unit at School (Usaha Kesehatan Sekolah/UKS) activities, providing immunizations, providing health education, dental check-ups and providing referrals if needed (Kandang Panjang elementary school, 2019). In light of the growth and development of elementary students, Health Department can develop programs in collaboration with elementary schools.

For example, in letter (c), the cooperation agreement reads that the second party (Puskemas) provides health education to students once a year. Activities that have been carried out include counselling about nail health and hygiene, brushing teeth and eating well. Considering that many female students are already menstruating and the students' psychological maturity tends to developed in a fast pace, counseling activities for students in the future can be adjusted. Counselling themes may include menstruation, reproductive health, puberty and other topics. Schools and *madrasahs* can submit requests for resource persons from the Puskemas as the Puskemas already have units for health promotion and UKS coaching (Personal Communication with dr. Endah, 2022). Providing School-based health centers (SBHCs) is also important as it could enhance the accessibility of healthcare services for students by reducing various obstacles such as financial constraints, geographical

limitations, age-related factors, and cultural disparities (Kjohlhede and Lee, 2021). In addition, giving access on mental health service at school is also necessary. A study in Iran found a significant reduction in the prevalence of moderate-to-severe mental health issues among the students in the intervention group compared to the control group (Shahraki-Sanavi et al., 2020). Hence, implementing strategies such as identifying student challenges, fostering parent-teacher collaboration, and seeking guidance from expert counsellors can prove to be effective in offering pragmatic resolutions.

Counselling about menarche and menstruation remains essential, especially in urban settings, as a study (n=1157) indicates that 67.20% of rural participants had a good knowledge on puberty, menarche, and menstruation. Conversely, only 46.00% students in the urban setting had adequate knowledge of the same issues (Ajong et al., 2020).

Based on the text of the cooperation agreement, schools also have several obligations, including supporting all school health programs. Schools must also prepare at least two teachers to accompany the implementation of health services. However, in focus group discussions, only a few reports were found that UKS were active in carrying out activities effectively. Many UKS have minimal facilities and limited services. This finding does not align with the criteria of a child-friendly school which include: practical guidance on the operation and management of child-friendly schools, elaboration on the roles of school administrators, teachers, non-teaching employees, students, parents, communities, and local and national education authorities, to create safe, welcoming learning environments for children (UNICEF, 2006). The function of school and UKS as well as teacher should be elaborated sufficiently to provide safe and comfortable environment for students during the menarche phase.

The key to realizing the idea of developing educational materials on menstruation and student growth is schools' concern for their students' biological and psychological development. School policies and programs based on the needs of students are also needed. Moreover, the Government should provide policies and facilities in accordance to the school's and students' needs.

CONCLUSION

This study revealed that school and *Madrasah Ibtidaiyyah* principals and teachers were generally aware that some of their students had experienced menarche, yet there is a paucity of systematic data collection on the number of menarche cases, menstruation patterns, and associated symptoms affecting learning activities. Schools had not yet mapped the specific physical and psychological needs of these students, nor had they established specialized programs to support them effectively. This gap in identification and service provision underscores the critical need for educational institutions to develop responsive programs that accommodate the biological and emotional transitions experienced by female students.

The findings emphasize that while some *Madrasah Ibtidaiyyah* and private elementary schools had initiated menstruation-related education, including *fiqh*-based teachings and extracurricular activities like princess-themed sessions, these efforts were insufficiently structured and did not fully meet students' developmental needs. Meanwhile, public elementary schools addressed menstruation within the context of Biology and Physical Education subjects; however, educational stakeholders acknowledged that the content remained minimal and underdeveloped. Textbook materials on menstruation and reproductive health were sparse, leaving significant gaps in students' knowledge and preparedness. These insights illustrate an urgent necessity to enhance both curricular and extracurricular approaches concerning reproductive health education in schools.

Recognizing these limitations, this study recommends the development of comprehensive educational and counseling services focusing specifically on menarche, menstruation, and reproductive health. Additionally, there is a pressing need to create a supportive physical and psychosocial school environment that ensures female the maintainence of students' health and academic participation during menstruation. Future research should investigate innovative, culturally sensitive models for integrating reproductive health education into school curricula and assess their impact on students' well-being, thus contributing to a more gender-responsive educational system.

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