

Relationship between Reproductive Health Knowledge and Personal Hygiene Behavior During Menstruation in Adolescents

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Abstract:

This study aimed to analyze the relationship between reproductive health knowledge and personal hygiene behavior during menstruation among adolescents. Adequate knowledge of reproductive health is considered an important factor influencing menstrual hygiene practices, which play a crucial role in preventing reproductive tract infections. This research employed a quantitative cross-sectional design involving adolescent female students selected through a simple random sampling technique (N=30). Data were collected using a structured questionnaire measuring levels of reproductive health knowledge and menstrual hygiene behaviors. The data were analyzed using the chi-square test to determine the relationship between the two variables. The results showed that most respondents had a moderate level of reproductive health knowledge and adequate personal hygiene behavior during menstruation. Statistical analysis indicated a significant relationship between reproductive health knowledge and personal hygiene behavior ($p < 0.05$), suggesting that better knowledge is associated with improved hygiene practices ($\chi^2 = 33,95$, $df = 4$, $p < 0,001$). These findings highlight the importance of reproductive health education in schools to enhance adolescents' awareness and behavior regarding menstrual hygiene. The study implies that strengthening health education programs can contribute to better menstrual hygiene management and reduce the risk of reproductive health problems among adolescents.

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INTRODUCTION

Menstruation is a natural physiological process experienced by adolescent girls as part of reproductive maturation, yet it remains a significant public health and educational concern due to its close relationship with personal hygiene

practices and reproductive health outcomes. During menstruation, the female reproductive system becomes more vulnerable to infections, particularly when menstrual hygiene is not properly maintained (Soeiro, 2023). Appropriate personal hygiene behavior – such as regularly changing sanitary pads, cleaning the genital area correctly, and maintaining overall bodily cleanliness – plays a crucial role in preventing reproductive tract infections and ensuring comfort during the menstrual period. However, in many settings, including adolescent populations, menstrual hygiene management is still influenced by limited knowledge, sociocultural taboos, and inadequate access to reproductive health information (S. F. Shah, 2023).

Adolescence is a critical developmental stage characterized by rapid physical, psychological, and social changes. At this stage, individuals begin to experience menarche and must adapt to new bodily conditions that require adequate understanding and self-care practices (Mudi, 2023). Unfortunately, many adolescents lack comprehensive knowledge about reproductive health, particularly regarding menstruation and hygiene management. This lack of knowledge often leads to inappropriate behaviors such as infrequent changing of sanitary products, improper genital cleaning techniques, and misconceptions about menstruation itself. Such behaviors can increase the risk of infections, discomfort, and psychological distress (Betsu, 2024).

Reproductive health knowledge is considered a foundational element in shaping healthy behavior. According to health behavior theories, such as the Knowledge-Attitude-Practice (KAP) model, knowledge serves as an initial determinant that influences attitudes and subsequently behavioral practices (Khanal, 2023). In the context of menstrual hygiene, adolescents who possess adequate knowledge about reproductive health are expected to demonstrate better hygiene practices compared to those with limited knowledge (Aziz, 2024). However, behavior is not solely determined by knowledge; it is also influenced by environmental, cultural, and socioeconomic factors. This complexity suggests that the relationship between reproductive health knowledge and personal hygiene behavior during menstruation may not be linear and requires further empirical investigation (Atari, 2024).

Despite various school-based reproductive health education programs, gaps in adolescents' understanding and practices remain evident. In many cases, reproductive health education is delivered in a limited or fragmented manner, often focusing more on biological aspects without emphasizing practical hygiene management (Ayele, 2025). Moreover, cultural norms in certain communities may restrict open discussion about menstruation, leading adolescents to rely on peers or informal sources of information, which are not always accurate. These conditions contribute to inconsistent menstrual hygiene practices among adolescents (Andargie, 2025).

Previous studies have shown varying results regarding the relationship between reproductive health knowledge and menstrual hygiene behavior. Several studies report a significant association, indicating that higher knowledge levels are linked to better hygiene practices and reduced reproductive health risks. For example, adolescents with good knowledge tend to be more consistent

in changing sanitary pads and maintaining genital hygiene (Nurunnahar, 2025). Previous studies have reported inconsistent findings regarding the relationship between menstrual hygiene knowledge and hygiene practices, particularly across different sociocultural and school environments. Given the unique contextual characteristics of the study setting, it remains unclear whether knowledge alone is associated with menstrual hygiene management behavior among adolescents. Therefore, examining this bivariate relationship serves as an important baseline exploratory step before incorporating additional contextual factors in multivariable analyses (Shrestha, 2025).

In addition, there is a lack of context-specific studies focusing on adolescent populations in certain regions where cultural norms and access to reproductive health education may differ significantly. This gap emphasizes the need for localized research to better understand behavioral patterns and influencing factors within specific communities (Armini, 2023). Without such understanding, health education interventions may not be effectively tailored to the needs of adolescents. Based on these considerations, this study is conducted to analyze the relationship between reproductive health knowledge and personal hygiene behavior during menstruation among adolescents (Qasass, 2023). The study is grounded in the assumption that reproductive health knowledge plays a significant role in shaping menstrual hygiene practices, although it may interact with other contributing factors. By identifying the nature of this relationship, the study aims to provide empirical evidence that can support the development of more effective reproductive health education programs in schools and community settings (Tesfay, 2024).

The findings of this study are expected to contribute to the existing body of knowledge on adolescent reproductive health, particularly in the area of menstrual hygiene management. Furthermore, the results may serve as a basis for policymakers, educators, and health practitioners in designing targeted interventions to improve adolescents' awareness and behavior regarding menstrual hygiene (Hadımlı, 2024). Ultimately, enhancing reproductive health knowledge is anticipated to promote healthier hygiene practices, reduce the risk of reproductive tract infections, and support the overall well-being of adolescent girls. Thus, the objective of this study is to determine the relationship between reproductive health knowledge and personal hygiene behavior during menstruation among adolescents (Nastiti, 2023). The hypothesis proposed is that there is a significant relationship between reproductive health knowledge and personal hygiene behavior during menstruation, where higher levels of knowledge are associated with better hygiene practices.

RESEARCH METHODS

This study employed a quantitative research approach with a correlational design to examine the relationship between reproductive health knowledge and personal hygiene behavior during menstruation among adolescents. The correlational design was selected because the study aimed to identify the degree and direction of the relationship between two variables without manipulating the research environment. The unit of analysis in this study was adolescent

female students in a selected senior high school setting, where menstruation-related health behaviors are relevant and observable in daily school life (N=30).

The location of the study was a public senior high school in an urban area, where adolescent students represent a diverse background in terms of socioeconomic status and access to health information. The primary sources of information in this study were respondents, specifically adolescent female students who had experienced menstruation. These respondents provided data related to their level of reproductive health knowledge and personal hygiene practices during menstruation through structured questionnaires.

Data collection was conducted using a survey method with a self-administered questionnaire as the main instrument. The questionnaire consisted of two main sections: the first section measured reproductive health knowledge, including understanding of menstruation, reproductive system functions, and hygiene practices; the second section assessed personal hygiene behavior during menstruation, such as frequency of sanitary pad changes, genital hygiene practices, and general cleanliness behavior. The instrument was developed based on relevant literature and previous validated studies, and it was tested for validity and reliability prior to data collection (Cronbach's alpha validity test). The data collection process was carried out directly in the school setting after obtaining permission from the school administration and informed consent from respondents. Respondents completed the questionnaires in a supervised environment to ensure clarity and reduce response bias. No interviews, FGDs, or observations were conducted, as the study focused on measurable self-reported data.

Data analysis was conducted using the SPSS statistical software. The analysis process included data coding, data entry, and data cleaning before statistical testing. Descriptive analysis was used to describe the characteristics of respondents and the distribution of variables. Furthermore, inferential analysis was conducted using the chi-square test to determine the relationship between reproductive health knowledge and personal hygiene behavior during menstruation. The stages of analysis followed data reduction, where irrelevant or incomplete data were excluded; data display, where results were organized in tables and frequency distributions; and data verification, where statistical results were interpreted to draw conclusions. The level of significance was set at $p < 0.05$ to determine statistical significance. The results of the analysis were then interpreted to assess whether there was a meaningful relationship between the two variables, and findings were discussed in relation to existing theories and previous studies on adolescent reproductive health behavior.

RESULTS AND DISCUSSION

Results

Based on the data obtained from 30 respondents, the level of reproductive health knowledge among adolescents was categorized into three levels: good, moderate, and poor. The results showed that most respondents had a moderate level of knowledge.

Table 1. Descriptive Analysis of Reproductive Health Knowledge

Category of Knowledge	Frequency (n)	Percentage (%)
Good	11	36.7
Moderate	13	43.3
Poor	6	20.0
Total	30	100

The table 1 indicates that 13 respondents (43.3%) had a moderate level of reproductive health knowledge, while 11 respondents (36.7%) had good knowledge. Meanwhile, 6 respondents (20.0%) were categorized as having poor knowledge. These findings suggest that although some adolescents already possess adequate understanding regarding reproductive health, a considerable proportion still lacks sufficient knowledge related to menstruation and reproductive hygiene. The descriptive statistical results also showed that the average knowledge score among respondents was 70.9, with the highest score being 91 and the lowest score being 45. This indicates that respondents generally had a moderate understanding of reproductive health concepts.

Personal hygiene behavior during menstruation was also classified into three categories: good, moderate, and poor. The findings demonstrated that most respondents showed moderate hygiene behavior.

Table 2. Descriptive Analysis of Personal Hygiene Behavior During Menstruation

Category of Personal Hygiene Behavior	Frequency (n)	Percentage (%)
Good	11	36.7
Moderate	13	43.3
Poor	6	20.0
Total	30	100

The table 2 above shows that 13 respondents (43.3%) demonstrated moderate personal hygiene behavior during menstruation. Furthermore, 11 respondents (36.7%) showed good hygiene practices, while 6 respondents (20.0%) had poor hygiene behavior. These results indicate that although many adolescents have begun to implement proper menstrual hygiene practices, some respondents still exhibit inadequate hygiene behaviors that may increase the risk of reproductive tract infections. The average score for personal hygiene behavior was 72.0, with the highest score recorded at 93 and the lowest score at 47. Overall, the respondents' hygiene behavior during menstruation can be considered moderately adequate.

The Chi-square test was conducted to determine the relationship between reproductive health knowledge and personal hygiene behavior during menstruation among adolescents. The analysis was performed using a significance level of 0.05.

Table 3. Chi-Square Test Analysis of Reproductive Health Knowledge and Personal Hygiene Behavior

Statistical Test	Value
Chi-Square (χ^2)	33.95
df	4
p-value	0.000

Based on table 3, The Chi-square test results showed a p-value of 0.000, which is smaller than the significance level of 0.05 ($p < 0.05$). Therefore, the null hypothesis (H_0) was rejected and the alternative hypothesis (H_1) was accepted. This finding indicates that there is a significant relationship between reproductive health knowledge and personal hygiene behavior during menstruation among adolescents. Respondents with higher levels of reproductive health knowledge tended to have better personal hygiene behavior during menstruation. Conversely, respondents with limited knowledge were more likely to demonstrate inadequate hygiene practices. These results support the theory that knowledge is an important factor influencing health behavior. Adequate reproductive health knowledge can increase adolescents' awareness regarding the importance of maintaining hygiene during menstruation, thereby encouraging healthier practices and reducing the risk of reproductive tract infections.

Discussion

The findings of this study demonstrated that there is a significant relationship between reproductive health knowledge and personal hygiene behavior during menstruation among adolescents. The Chi-square analysis showed a p-value of 0.000 ($p < 0.05$), indicating that adolescents with higher levels of reproductive health knowledge tended to exhibit better personal hygiene practices during menstruation. Most respondents with good knowledge demonstrated appropriate hygiene behaviors, such as regularly changing sanitary pads, cleaning the genital area properly, and maintaining overall body cleanliness during menstruation. Conversely, respondents with limited reproductive health knowledge were more likely to display poor hygiene practices. These results confirm that knowledge is an important determinant influencing adolescent health behavior (Oliveira, 2023).

The relationship identified in this study can be explained through behavioral health theories, particularly the Knowledge-Attitude-Practice (KAP) theory, which emphasizes that knowledge forms the basis for behavioral development. Adolescents who understand the importance of menstrual hygiene are more aware of the health risks associated with poor hygiene practices, including reproductive tract infections, skin irritation, and discomfort (Borges, 2024). Consequently, adequate knowledge encourages adolescents to adopt healthier behaviors. The findings also suggest that reproductive health education has a direct impact on adolescents' decision-making processes regarding menstrual hygiene management. The impact of proper reproductive health

knowledge is not only reflected in improved hygiene practices but also in increased confidence, comfort, and awareness among adolescents regarding their reproductive health (Yadav, 2024).

This study is consistent with previous research that found a positive association between reproductive health knowledge and menstrual hygiene behavior among adolescent girls. Earlier studies reported that adolescents with sufficient reproductive health education were more likely to practice appropriate menstrual hygiene behaviors compared to those with inadequate knowledge (Aini, 2025). Similar findings were also observed in studies conducted in school settings where health education interventions significantly improved students' hygiene practices during menstruation. However, this study provides an additional contribution by emphasizing the distribution of knowledge levels and hygiene behaviors among adolescents within the research setting (V. Shah, 2025). The findings demonstrate that although a considerable number of respondents had moderate knowledge and behavior levels, there remains a distribution gap in access to reproductive health understanding among adolescents (Getahun, 2026).

The distribution of respondents across knowledge categories indicates that reproductive health information may not yet be equally accessible to all adolescents. Some respondents still showed poor levels of knowledge and inadequate hygiene practices, suggesting disparities in educational exposure, family communication, and access to accurate health information (Oshineye, 2023). This unequal distribution highlights the importance of ensuring comprehensive reproductive health education programs that can reach adolescents from diverse social and educational backgrounds. The impact of unequal knowledge distribution may contribute to broader public health challenges, particularly increased vulnerability to reproductive health problems among adolescents with inadequate hygiene practices (Dogra, 2024). In addition, environmental and social factors may also influence the relationship between knowledge and behavior. Although adolescents may possess adequate knowledge, external barriers such as limited sanitation facilities, lack of access to sanitary products, cultural taboos, and insufficient parental guidance can affect the implementation of healthy behaviors (Adyani, 2023). Nevertheless, knowledge remains a foundational factor that can empower adolescents to make informed decisions regarding their reproductive health. Therefore, strengthening reproductive health literacy is essential in promoting positive behavioral outcomes (Raj, 2026).

The contribution of this research lies in its ability to provide empirical evidence regarding the impact of reproductive health knowledge on menstrual hygiene behavior among adolescents. The study contributes to the growing body of literature emphasizing the importance of adolescent reproductive health education as a preventive strategy against reproductive tract infections and other menstrual health complications (Göl, 2026). Furthermore, the findings contribute to public health promotion efforts by identifying the need for targeted educational interventions focused on menstrual hygiene management. The practical contribution of this study is particularly relevant for schools, healthcare

providers, and policymakers. Schools can utilize the findings to improve reproductive health curricula and integrate practical menstrual hygiene education into health programs. Healthcare professionals can develop adolescent-friendly educational campaigns aimed at increasing awareness regarding menstrual hygiene management. Policymakers may also consider strengthening school-based reproductive health services and ensuring equitable distribution of menstrual hygiene resources and educational materials (Kuponyi, 2026).

Based on the findings, several action plans can be proposed to maximize the impact of reproductive health education among adolescents. First, schools should conduct regular reproductive health counseling and menstrual hygiene education programs involving teachers, healthcare workers, and parents (Minnal, 2025). Second, educational institutions should improve the distribution of accurate reproductive health information through interactive learning methods, peer education, and digital media platforms that are accessible to adolescents. Third, schools and local health authorities should collaborate to provide adequate sanitation facilities and affordable menstrual hygiene products to support healthy practices among students (Rahman, 2026). Furthermore, future interventions should focus not only on increasing knowledge but also on addressing environmental and cultural barriers that influence adolescent hygiene behavior. Community involvement is essential to reduce stigma surrounding menstruation and encourage open communication regarding reproductive health issues (Conteh, 2026). The impact of these interventions is expected to improve adolescents' quality of life, reduce reproductive health risks, and create a healthier adolescent population overall. Overall, the findings of this study emphasize that reproductive health knowledge has a significant impact on personal hygiene behavior during menstruation among adolescents (Ganguly, 2026). Improving the distribution of reproductive health education and resources is essential to ensure that all adolescents have equal opportunities to develop healthy menstrual hygiene practices. Therefore, comprehensive and sustainable reproductive health education programs are necessary to promote positive behavioral changes and improve adolescent reproductive health outcomes (Febriany, 2024).

CONCLUSION

This study concludes that there is a significant relationship between reproductive health knowledge and personal hygiene behavior during menstruation among adolescents, where higher levels of knowledge are associated with better hygiene practices. The findings indicate that reproductive health education has an important impact on adolescents' awareness and behavior in maintaining menstrual hygiene, which may help reduce the risk of reproductive tract infections and improve overall well-being. Merge the entire conclusion into a single paragraph. Rewrite the future recommendations to suggest specific, advanced methodological approaches: 'Future studies should employ structural equation modeling (SEM) with a minimum sample size of $n=200$ to map out direct and indirect pathways of the KAP framework, integrating WASH infrastructure as a key moderating variable. Scientifically, this

study contributes empirical evidence regarding the relationship between knowledge and behavior in adolescent reproductive health, while practically it provides useful information for schools, healthcare providers, and policymakers in developing educational programs and improving the distribution of reproductive health information. The strength of this research lies in its quantitative approach and statistical analysis, which clearly identified the relationship between variables. However, the study was limited by a relatively small sample size and reliance on self-reported questionnaires. Future research is recommended to involve broader populations and additional variables, such as cultural, environmental, and socioeconomic factors influencing menstrual hygiene behavior.

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