

The relationship between adolescents' knowledge and personal hygiene during menstruation: A literature review

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Abstract

Introduction: Personal hygiene during menstruation is an important aspect of maintaining the health and well-being of adolescent. Menstruation is a natural physiological process that occurs in every woman, but it is often surrounded by social stigma and limited knowledge on how to properly care for oneself during this period. Adequate knowledge about personal hygiene during menstruation is believed to influence adolescents' behaviors in maintaining their health. Various studies have shown that insufficient understanding of menstrual hygiene can contribute to an increased risk of reproductive tract infections and other health problems.

Method: This study is a literature review, drawing from sources in Google Scholar, PUBMED, and Science Direct, focusing on research published between 2019 and 2024. The study included only original research articles in English or Indonesian with all the required components.

Result and Discussion: From the literature search, 10 studies met the inclusion criteria. Among them, 10 studies found a correlation between knowledge and personal hygiene during menstruation.

Conclusion: According to reviews, Knowledge is associated with the personal hygiene during menstruation in adolescents

Keywords: Knowledge; Personal hygiene; Menstruation; Adolescents

1. Introduction

Adolescence is a phase of growth and development that occurs in physical, emotional, psychological, and social aspects (1). Adolescents generally have a high level of curiosity, enjoy challenges and adventures, and tend to take risks without careful consideration. During this period, the female reproductive system undergoes significant changes, particularly during puberty. These changes involve the production of estrogen by the ovarian follicles, which influences the emergence of secondary sexual characteristics, including menstruation (2).

Menstruation is a physiological phenomenon characterized by uterine bleeding due to the shedding of the uterine lining, a complex network of blood vessels, and an unfertilized egg. Menstruation occurs when the embryo fails to fertilize within the female body. As a result, the endometrial lining, also known as the uterine wall, undergoes enlargement and subsequent shedding as it passes through the female reproductive system (3). Menstruation is an important indicator of health for reproductive-age patients and is crucial for understanding fertility, hormonal balance, the patient's environment, and overall health. However, menstrual patterns alone are not sufficient to fully represent how menstruation may impact health (4). The view in which girls perceive towards menstruation also affects their hygienic

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practice during their menstrual bleeding. Women with better understanding of menses often have safe and clean way of managing their menstrual bleeding and vice versa. It is uncovered that poor menstrual hygiene practice can be a reason for reproductive and genitor-urinary tract infection, cervical cancer, school absenteeism, or drop-out, poor academic performance, lower self-esteem and poor quality of life (5).

According to WHO (2017), women often neglect hygiene of their external genital organs. Vaginal infections affect women worldwide every year, with 10-15% of 100 million women being affected. For example, around 15% of adolescents experience Candida bacterial infections and vaginal discharge. This occurrence is due to the fact that many adolescents are unaware of issues related to the reproductive organs (6). BKKBN (2020), explains that in Indonesia as many as 75% of women have experienced vaginal discharge at least once in their lives and 45% of them can experience vaginal discharge twice or more. Many cases of vaginal discharge are caused by the bacterial candidosis vulva vaginitis (7).

Knowledge of young women about personal hygiene has an influence on the behavior of young women in maintaining and caring for their reproductive health. Lack of behavior in caring for vulva hygiene during menstruation, such as being lazy about changing sanitary napkins, can cause fungal and bacterial infections to occur during menstruation due to bacteria that grow on sanitary napkins. Personal hygiene during menstruation can be done by changing sanitary napkins every 4 hours a day. After bathing and defecating, the vagina is dried with a tissue or towel so that it is not damp. Wear good underwear made from material that easily absorbs sweat (8). Knowledge of young women about menstrual hygiene tends to be inadequate, especially in relation to genetics. Improper and unhygienic handling of personal hygiene can also result in excessive growth of microorganisms and ultimately disrupt the function of the reproductive organs. Personal Hygiene is knowledge, attitudes and proactive actions to maintain and prevent the risk of disease, protecting oneself from the threat of disease (9).

This study aims to investigate the relationship between knowledge and personal hygiene during menstruation in adolescents further. The goal is to enhance the understanding of healthcare professionals and adolescents, enabling them to anticipate and mitigate risk factors associated with poor menstrual hygiene. Raising awareness about this condition is essential for reducing its impact on adolescents' physical and psychological well-being, ensuring their overall quality of life.

2. Material and methods

This article is a literature review that examines 10 selected articles based on certain inclusion criteria. The selected articles present original research findings on the relationship between knowledge and personal hygiene during menstruation, especially in adolescents. Articles were published between 2019 and 2024 (in the last five years) and in English or Indonesian. Exclusion criteria were applied to all articles discussing knowledge in relation to personal hygiene during menstruation using methods other than original research. Articles were sourced from several basic data, including Google Scholar, PUBMED, and Science Direct. Each article displayed will be analyzed descriptively, which includes the author and year of publication, research location, research method, research subject, and summary of research findings.

3. Results

Ten articles— seven in Indonesian and three in English—have been reviewed and analyzed as follows.

Table 1 Results of Review of 10 Articles

| No | Author | Research Title | Location | Method | Subject | Result |
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| 1 | Amallya, R., <i>et al.</i> (2022) | Hubungan Tingkat Pengetahuan Personal Hygiene terhadap Perilaku Remaja Putri saat Menstruasi | SMP IT Assu'adaa Bekasi Utara, Indonesia. | Purposive sampling. | 113 female students of SMP IT Assu'adaa Bekasi Utara. | The majority of respondents, namely 65 respondents (57.5%) had poor personal hygiene knowledge, while the majority of respondents, namely 59 respondents |

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| | | | | | | (52.2%) had poor personal hygiene behavior. There is a significant relationship between personal hygiene knowledge and the hygiene behavior of adolescent girls during menstruation (p value = 0.002). |
| 2 | Ruspita, R., <i>et al.</i> (2022). | Hubungan Pengetahuan Terhadap Perilaku Personal Hygiene Saat Menstruasi Pada Remaja Putri | SMPN 3 Bandar Seikijang, Pelawan, Indonesia. | Total sampling. | 82 female students of SMPN 3 Bandar Seikijang. | Statistically the results show that female student with personal good hygiene as many as 44 (53.7%) more than female student with personal hygiene is lacking by 38 (46.3%), as well as from the results of bivariate analysis in shows that the value (p value) = 0.009<0.05, so it can be seen that there is the relationship of knowledge to the personal hygiene during menstruation in adolescents. |
| 3 | Wulandari, R., <i>et al.</i> (2024). | Hubungan Pengetahuan dengan Perilaku Personal Hygiene saat Menstruasi pada Remaja Putri di Pondok Pesantren Miftahunnajah Sleman Yogyakarta | Pondok Pesantren Miftahunnajah Sleman Yogyakarta. | Quantitative analysis with cross-sectional study. | 44 female students of Pondok Pesantren Miftahunnajah Sleman Yogyakarta. | The knowledge of female student regarding personal hygiene during menstruation was in the good category for 23 teenagers (52.3%). Personal hygiene behavior during menstruation among female student was in the Good category, 41 teenagers (93.2%). The results of the bivariate analysis showed that 23 female student (56.1%) had knowledge and behavior in the good category. The results of the analysis obtained a P-Value of 0.001 (<0.05) so that |

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| | | | | | | there is a correlation between knowledge about personal hygiene and the behavior shown by adolescents. |
| 4 | Rahayu, A., <i>et al.</i> (2022). | Pengetahuan Berhubungan dengan Perilaku Personal Hygiene Saat Menstruasi di SMPN 3 Tempel Sleman | SMPN 3 Tempel Sleman, Indonesia. | Quantitative with cross sectional approach. | 60 female students of SMPN 3 Tempel Sleman. | Most of the female students' knowledge about menstruation was in the good category as many as 40 respondents (66.7%), while the personal hygiene behavior during menstruation was mostly in the moderate category as many as 40 respondents (66.7%) with a p-value of 0.036 and $\tau=0.287$. There were an as sociation between knowledge about menstruation with personal hygiene behavior during menstruation at SMPN 3 Tempel Sleman with low association. |
| 5 | Cahyani, R., <i>et al.</i> (2022). | Pengaruh Pendidikan Kesehatan Menstrual Hygiene terhadap Pengetahuan siswi | Madrasah Aliyah Darul Huda, Ponorogo, Indonesia. | Quasi-experimental research design with Pre-test and Post-test Control Groups Design. And sampling was using purposive sampling. | 72 teenage girls in grade XI. | A p-value of 0.142 indicates that there is no significant difference between the two groups in the pre-test results on menstrual hygiene. However, after the intervention was provided to the treatment group, a significant difference was found in the post-test results on menstrual hygiene between the intervention and control groups, with a p-value of 0.000. Therefore, there is a significant difference |

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| | | | | | | in knowledge between the intervention and control groups before and after receiving health education. |
| 6 | Salsabila, S., <i>et al.</i> (2024). | Hubungan antara Pengetahuan dan Praktik menstrual Hygiene dengan Kejadian Pruritus Vulvae pada Remaja Putri di SMAN 3 Sumedang | SMAN 3 Sumedang, Indonesia. | Quantitative research with a cross-sectional approach. | 148 teenage girls in grade 11. | Good knowledge was observed in 70 respondents (47.3%). Good menstrual hygiene practices were reported by 78 respondents (52.7%). The occurrence of mild vulvar pruritus was found in 63 respondents (42.6%). The relationship between knowledge of menstrual hygiene and the occurrence of vulvar pruritus was significant (p-value = 0.008; R = 0.216), as well as the relationship between menstrual hygiene practices and the occurrence of vulvar pruritus (p-value = 0.009; R = 0.213). This indicates that there is a relationship between knowledge of menstrual hygiene and menstrual hygiene practices with the occurrence of vulvar pruritus in adolescent girls at SMAN 3 Sumedang in 2023. |

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| 7 | Kunaedi, I., <i>et al.</i> (2023). | Hubungan Tingkat Pengetahuan dan Sikap dengan Perilaku Menstrual Hygiene pada Remaja Putri di SMKN Buah Dua. | SMKN Buah Dua, Indonesia. | Purposive Sampling. | 82 female students of SMKN Buah Dua. | The research results show that out of 82 (100%) adolescent girls, 51 girls (62.2%) had good knowledge, while 31 girls (37.8%) had limited knowledge. Among the adolescent girls, 56 (68.3%) had a positive attitude, and 26 (31.7%) had a negative attitude. Additionally, 54 (65.9%) adolescent girls exhibited positive behavior, while 28 (34.1%) exhibited negative behavior. The results of the bivariate analysis using the Spearman Rank test showed a significant relationship between the level of knowledge and menstrual hygiene behavior (p value = 0.008), while no significant relationship was found between attitudes and menstrual hygiene behavior (p value = 0.628). |
| 8 | Belayneh, Z., & Mekuriaw, B. (2019) | Knowledge and menstrual hygiene practice among adolescent school girls in southern Ethiopia | Godeo zone high schools, Ethiopia | cross-sectional study. | 791 teenage girls. | From a total of 791 adolescent girls participated in this study, 68.3% had poor knowledge of menstruation. About 48.1% of school girls used absorbent materials, and 69.5% clean their external genitalia. Generally, 60.3% of girls had poor menstrual hygienic practice. Age less than 15 years [OR = 1.71:95% CI (1.22, 2.39)], longer days of menstrual flow [OR = 2.51:95% CI (1.66, |

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| | | | | | | 3.80]] and poor knowledge of menses [OR = 1.48:95% CI (1.04, 2.1)] had a significantly associated with poor menstrual hygiene practice. Majority of adolescent school girls had poor knowledge regarding menstruation and their hygienic practices are incorrect. |
| 9 | Aziz, A., <i>et al.</i> (2024). | A comparative study of the knowledge and practices related to menstrual hygiene among adolescent girls in urban and rural areas of Sindh, Pakistan | urban and rural school. | analytical cross-sectional study design. | 159 female students from urban and 159 female students from rural school | It was found that the main source of knowledge about menstruation for adolescent girls in rural and urban areas is their mothers. A higher percentage of urban schoolgirls (81%) are aware of the use of sanitary pads during menstruation. The majority of girls from urban areas demonstrated adequate knowledge, while only 38% of rural girls showed satisfactory results. Nearly 71% of urban girls were found to have a good quality of life, compared to only 12% of girls in rural areas. the lack of information and availability of resources to provide information is a major cause of significant differences in knowledge and practices among rural and urban adolescent girls. |
| 10 | Ghimire, S., <i>et al.</i> (2024). | Effects of health education intervention on menstrual hygiene knowledge and | Two government basic schools in Pokhara Metropolitan, Nepal | True Experimental design, Purposive sampling. | 80 female students from two school | The findings showed significant improvement in the knowledge and practice level of adolescent girls on |

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| | | practices among the adolescent girls of Pokhara Metropolitan, Nepal | | | | menstrual hygiene after health education intervention. Participants in the intervention group showed a significant increase in knowledge scores from 10.0% to 67.0%, while the non-intervention group remained unchanged at 7.5%. Good menstrual hygiene practices scores in the intervention group increased significantly from 22.5% to 67.0%, whereas the non-intervention group saw a slight rise from 20.0% to 22.5%. Regarding observed practice scores in menstrual hygiene, significant improvement was observed in the intervention group (45.0% to 100.0%) in contrast to the non-intervention group (25.0% to 27.5%) |
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4. Discussion

4.1. Correlation Between knowledge and personal hygiene during menstruation

Based on a review of 10 articles, all articles showed a significant correlation between knowledge and personal hygiene in adolescent. These studies emphasize that the better an individual's knowledge about personal hygiene during menstruation, the better their personal hygiene behavior during menstruation will be.

A study conducted SMP IT Assu'adaa in Bekasi city using Purposive sampling showed that most adolescents with The majority of adolescents have poor knowledge of personal hygiene and exhibit poor personal hygiene behavior. This indicates that poor knowledge is associated with poor personal hygiene behavior ($P = 0.002$). This is because when adolescents receive information about personal hygiene during menstruation, their knowledge increases. Once adolescents have knowledge about this, it is more likely to encourage them to practice proper and correct hygiene behavior during menstruation (1). This study in line with research Ruspita et al, which stated that most adolescents also have female students with personal good hygiene as many as 44 (53.7%) more than female student with personal hygiene is lacking by 38 (46.3%), as well as from the results of bivariate analysis in shows that the value (p value) = $0.009 < 0.05$ as obtained, indicating that there is a significant relationship between knowledge and hygiene behavior during menstruation (2).

Research by Cahyani et al, showed a significant difference in knowledge between the intervention and control groups after receiving health education using a booklet as a medium. The post-test results of both groups indicated a significant difference. This may have been due to the fact that the intervention group, after receiving the educational material, experienced an increase in knowledge, resulting in all respondents in the intervention group having good knowledge. In the control group, although there was an increase in knowledge, it was not as significant as in the intervention group (10). The knowledge of adolescent girls increased after receiving health education on menstrual hygiene. Health education can lead to a shift from what is not understood to being understood, from what is unknown to being known, and can bring about a change in knowledge (11). This study in line with research Ghimire et al, Participants in the intervention group showed a significant increase in knowledge scores from 10.0% to 67.0%, while the non-intervention group there was minimal difference between the pretest and posttest in knowledge-related items except one that heard about menstrual hygiene 67.5% vs 90.0%. Overall non-intervention group demonstrated no improvement in their high knowledge level, remaining at 7.5% (12).

In a study conducted in Urban and Rural School, Pakistan, using a correlation study on 159 female adolescents A higher percentage of urban schoolgirls (81%) are aware of the use of sanitary pads during menstruation. The majority of girls from urban areas demonstrated adequate knowledge, while only 38% of rural girls showed satisfactory results. Nearly 71% of urban girls were found to have a good quality of life, compared to only 12% of girls in rural areas. the lack of information and availability of resources to provide information is a major cause of significant differences in knowledge and practices among rural and urban adolescent girls (13). It is investigated that knowledge towards menstruation have significant associations with menstrual hygienic practices of girls (14).

Likewise, research Kunaedi et al, explained that there was a relationship between knowledge and hygiene behavior in 82 female students of SMKN Buah Dua $p = 0.008$ ($p < 0.05$) and the correlation coefficient value = 0.008 which means the level of correlation of variables in the high category with a positive direction (15). This study is in line with research Wulandari et al, The results of the bivariate analysis indicate that knowledge is related to personal hygiene behavior, with a p-value of $0.001 < 0.05$. Respondents who have adequate or good knowledge of personal hygiene are more likely to exhibit good personal hygiene behavior. Additionally, the findings of this study support research that has found a correlation between adolescent girls' knowledge and how they maintain personal hygiene during menstruation (16).

In the study by Rahayu et al., on 60 female students of SMPN 3 Tempel Sleman, The statistical test using Kendall Tau yielded a significance of 0.036 with a (p-value < 0.05), proving that there is a relationship between knowledge about menstruation and personal hygiene behavior during menstruation at SMPN 3 Tempel Sleman. The correlation value of $T = 0.287$, when interpreted in terms of correlation coefficients, falls into the low category with a positive direction of relationship (9). Knowledge is related to menstrual hygiene behavior. The higher an individual's knowledge about menstrual hygiene, the greater the likelihood that they will apply good practices in menstrual hygiene behavior, and vice versa (17).

In the study by Salasabila et al., Out of 70 respondents with good knowledge, almost half experienced mild vulvar pruritus (47.1%), and out of 45 respondents with adequate knowledge, nearly half also experienced mild vulvar pruritus (46.7%). Among 33 respondents with poor knowledge, the majority experienced severe vulvar pruritus (51.6%). The statistical test showed a p-value of 0.008 ($p < 0.05$), which indicates a significant relationship between knowledge about menstrual hygiene and the occurrence of vulvar pruritus in adolescent girls at SMAN 3 Sumedang in 2023, with $R = 0.216$. This means that students with poor knowledge are 0.216 times more likely to experience vulvar pruritus compared to students with good knowledge (18). Good knowledge will have an impact on good vulva hygiene behavior. Proper menstrual hygiene, when practiced consistently, will help maintain the moisture level around the vulva, making it difficult for microorganisms such as bacteria or fungi to thrive. This will also prevent itching that could lead to redness, and scratching, which can trigger infections or vulvar pruritus during menstruation (19).

5. Conclusion

A review of ten journal articles revealed that most of them showed an association between knowledge and personal hygiene during menstruation. The higher an individual's knowledge about menstrual hygiene, the greater the likelihood that they will apply good practices in menstrual hygiene behavior, it is important to realize that improving adolescents' knowledge about menstrual hygiene, one example is conducting health education on personal hygiene during menstruation for adolescents to enhance their level of knowledge. Health care professionals play an important role in this context. In addition to screening, they can provide education and counseling on personal hygiene during menstruation.

Compliance with ethical standards

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Disclosure of conflict of interest

There is one findings that contradict the theory.

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