

## Literature review: Personal hygiene genitalia and adolescent reproductive health

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### ABSTRACT

Genital hygiene is an essential aspect of maintaining adolescent reproductive health. Poor hygiene practices can increase the risk of infections and other health problems. This study aims to review the relationship between genital personal hygiene and adolescent reproductive health based on various previous studies. The method used was a literature review of eleven scientific articles that discussed genital hygiene, reproductive health education, and factors that affect adolescent behavior in maintaining personal hygiene. The sources studied include quantitative and qualitative research from various countries. The results showed that teenage knowledge about genital hygiene was closely related to hygiene behavior. Health education, the role of parents, and effective methods of conveying information have been proven to contribute to increasing adolescents' awareness of the importance of genitalia hygiene. However, the research still has limitations, such as the lack of longitudinal studies and the lack of focus on adolescent boys. The conclusions of this review confirm that proper education about genital hygiene is essential to prevent reproductive health problems. Further research is needed with a wider population coverage, a more varied approach to methods, and the use of technology in genital hygiene education for adolescents.

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## INTRODUCTION

Adolescent reproductive health is one of the essential aspects of efforts to improve the quality of life of the younger generation. One of the main factors contributing to reproductive health is the practice of personal hygiene, especially in maintaining the cleanliness of the genitalia. Good personal hygiene can prevent various reproductive tract infections and improve adolescent girls' physical and psychological well-being (Ahn & Cho, 2014; Kamazima, 2023; Sitkulan et al., 2024;

Torondel et al., 2018; Zeng et al., 2018) However, there are still many adolescents who have a low level of knowledge about genital hygiene, so they are susceptible to infections and other health problems (Asmara et al., 2023; Damayanti et al., 2024) Therefore, a deep understanding of genital personal hygiene is needed to improve the quality of adolescent reproductive health.

The importance of genital hygiene has been discussed in various studies, highlighting its impact on reproductive health. The survey conducted by (Al-Kotb et al., 2016., Mudey et al., 2010; Ulya et al., 2022) showed that a lack of awareness of genital hygiene can lead to urinary tract infections and sexually transmitted diseases. In addition, other studies show that education about genital hygiene has a crucial role in lowering the risk of infection and improving the quality of life of adolescent girls. (Gökşin & Demirhan, 2024; Umami et al., 2022). Therefore, effective health education interventions must be implemented to increase adolescents' knowledge and awareness regarding the importance of genital hygiene.

In health education, various methods have been applied to increase adolescents' awareness of the importance of genital hygiene. According to research by (Aminah & Mayunita, 2024., Mumtaz et al., 2023., and Noyes et al., 2018), health education provided directly to adolescent girls has proven effective in improving hygiene practices during menstruation. It is in line with a study by (Altundağ, 2024; Nuraini et al., 2024., Sibua et al., 2023), which found that brief education regarding genital hygiene can improve adolescents' skills in maintaining their reproductive health. Therefore, an interactive and participatory-based educational approach needs to be developed to provide a deeper understanding to adolescents about the importance of personal hygiene genitalia.

Social factors and the role of parents also have a significant influence on the hygiene of adolescent genitalia. The study conducted by Sasmita et al. (2024) shows that the involvement of parents in providing reproductive health education to their children has a positive impact on the hygiene practices of adolescent girls. Parents who actively provide information about genital hygiene can help adolescents understand the importance of maintaining reproductive health from an early age. Therefore, family support is urgently needed to increase adolescents' awareness of genital hygiene. In addition to social factors, access to reproductive health services is also a determining factor in maintaining genital hygiene. Research conducted by (Ha et al., 2023; Ngissa et al., 2024) shows that adolescents who have limited access to reproductive health services tend to have a lower level of knowledge about genital hygiene. Therefore, policies that support the accessibility of health services for adolescents are needed so that they can obtain accurate information and adequate services related to reproductive health. Providing proper sanitation facilities in schools and the surrounding environment is also essential in increasing adolescent awareness and hygiene practices. By considering the various aspects that have been discussed, it can be concluded that genital hygiene has a vital role in adolescent reproductive health. Lack of knowledge and awareness of hygiene practices can increase the risk of infection and reduce the quality of life of young women. Therefore, collaborative efforts are needed between families, schools, and health workers to provide comprehensive education about genitalia hygiene. With the proper intervention, it is hoped that adolescent girls can better understand and apply good hygiene habits to improve their overall reproductive health.

Adolescent reproductive health is one of the important aspects in efforts to improve the quality of life of the younger generation. One of the main factors contributing to reproductive health is the practice of personal hygiene, especially in maintaining the cleanliness of the genitalia. Good personal hygiene can prevent various reproductive tract infections as well as improve the physical and psychological well-being of adolescent girls (Ahn & Cho, 2014; Kamazima, 2023; Sitkulan et al., 2024; Torondel et al., 2018; Zeng et al., 2018). However, there are still many adolescents who have a low level of knowledge about genital hygiene, so they are susceptible to infections and other health problems (Asmara et al., 2023; Damayanti et al., 2024). Therefore, a deep understanding of genital personal hygiene is needed to improve the quality of adolescent reproductive health. The importance of genital hygiene has been discussed in various studies

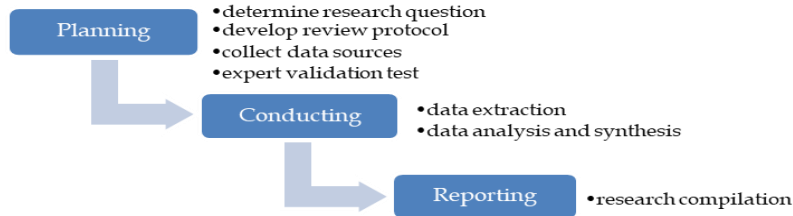
highlighting its impact on reproductive health. A study conducted by (Al-Kotb et al., 2016; Mudey et al., 2010; Ulya et al., 2022) showed that lack of awareness of genital hygiene can lead to urinary tract infections and sexually transmitted diseases. In addition, other studies show that education about genital hygiene has a crucial role in lowering the risk of infection and improving the quality of life of adolescent girls. (Fitri & Lubis, 2021; Gökşin & Demirhan, 2024; Umami et al., 2022). Therefore, effective health education interventions must be implemented to increase adolescents' knowledge and awareness regarding the importance of genital hygiene.

In the context of health education, various methods have been applied to increase adolescents' awareness of the importance of genital hygiene. According to research (Aminah & Mayunita, 2024; Mudey et al., 2010; Mumtaz et al., 2023), health education provided directly to adolescent girls has proven to be effective in improving hygiene practices during menstruation. This is in line with the studies conducted (Altundağ, 2024; Nuraini et al., 2024; Sibua et al., 2023) which found that brief education on genital hygiene can improve adolescents' skills in maintaining their reproductive health. Therefore, an interactive and participatory-based educational approach needs to be developed to provide a deeper understanding to adolescents about the importance of personal hygiene genitalia. Social factors and the role of parents also have a significant influence on the hygiene of adolescent genitalia. The study conducted by Sasmita et al. (2024) shows that the involvement of parents in providing reproductive health education to their children has a positive impact on the hygiene practices of adolescent girls. Parents who actively provide information about genital hygiene can help adolescents understand the importance of maintaining reproductive health from an early age. Therefore, family support is urgently needed in an effort to increase adolescents' awareness of genital hygiene.

In addition to social factors, access to reproductive health services is also a determining factor in maintaining genital hygiene. Research conducted by Ha et al. (2023) shows that adolescents who have limited access to reproductive health services tend to have a lower level of knowledge about genital hygiene. Therefore, policies that support the accessibility of health services for adolescents are needed so that they can obtain accurate information and adequate services related to reproductive health. The provision of proper sanitation facilities in schools and the surrounding environment is also an important step in increasing awareness and hygiene practices among adolescents. By considering the various aspects that have been discussed, it can be concluded that genital hygiene has an important role in adolescent reproductive health. Lack of knowledge and awareness of hygiene practices can increase the risk of infection and reduce the quality of life of young women. Therefore, collaborative efforts are needed between families, schools, and health workers in providing comprehensive education about genitalia hygiene. With the right intervention, it is hoped that adolescent girls can better understand and apply good hygiene habits, so that they can improve their overall reproductive health.

## RESEARCH METHOD

This study uses a literature review method to analyze the relationship between genital personal hygiene and adolescent reproductive health. The Literature review was chosen because it allows researchers to collect, evaluate, and synthesize previous research results to gain a more comprehensive understanding of the studied topic. Literature reviews summarise existing research and conduct critical analyses that connect the findings to provide new insights, identify research gaps, and broaden understanding of the researched topic (Chigbu et al., 2023) The Literature review can be briefly explained as the following chart:



**Figure 1.** Flow of the researcher's literature review

The methods carried out by researchers to collect data with documentation techniques include:

1. Data Collection, data is collected from various reliable sources; the databases used include *PubMed*, *Scopus*, *SpringerLink*, and *Google Scholar*. Inclusion criteria include Studies examining the relationship between genital hygiene and adolescent reproductive health, articles that discuss factors affecting genital hygiene, such as health education, sanitation access, and personal hygiene behaviors, studies conducted on adolescent populations (ages 10–19 years) according to the WHO definition, articles available in English or Indonesian and articles published in the last 10 years. Meanwhile, articles irrelevant to the research topic or insufficient empirical data are excluded. This study obtained 11 articles published in the period 2014-2024.
2. Data Analysis, data analysis was carried out using the *narrative synthesis* method to evaluate and compile findings from various literature that had been collected. *Narrative synthesis* is an analysis technique used in literature review to identify patterns, relationships, and differences in the research results studied. Researchers engage peers or experts in the field of adolescent reproductive health to review narrative synthesis to help identify potential biases in the analysis and ensure the objectivity of the results. The database in the search uses keywords that include "personal hygiene genitalia," "adolescent reproductive health," "hygiene practices in adolescents," and "reproductive health and hygiene." After the literature is collected, selection is based on titles, abstracts, and keywords to ensure suitability with the research objectives, and then the synthesis of findings is carried out to identify similarities and differences in the research studied.

## RESULTS AND DISCUSSIONS

**Table 1.** Related research results

No	Title, Author, Year	Research Design	Sample	Variable	Result
1	Personal hygiene practices related to genito-urinary tract and menstrual hygiene management in female adolescents Ahn, S., & Cho, K. 2014	Descriptive surveys	389 adolescents	- Independent Variable: perception of vaginal washing - Dependent variables: Personal hygiene practices relate to genito-urinary tract and menstrual hygiene management	Although washing hands after urinating/ defecating is done well, practices such as wiping from front to back and washing with soap and water are not done well. As many as 28% of respondents reported douching habits.
2	Imparting Genital Hygiene Skills to Adolescents with Intellectual Disabilities	Quasi-experimental with pre-test and post-test models in one group	52 adolescent girls with intellectual disabilities	- Independent Variable: Genital hygiene education - Dependent	Participants' knowledge of genital hygiene increased significantly after the training ( $p < 0.001$ ).

No	Title, Author, Year	Research Design	Sample	Variable	Result
3	Attending a Special Education Centre: A Quasi-experimental Study on Effect of Short Education Altundag, S 2024 Effectiveness of Health Education Toward Personal Hygiene During Menstruation Among Adolescent Girls Aminah, A., & Mayunita, A. 2024	Quasi-experiment with one group pretest-posttest design	75 students of class X	Variable: Knowledge of genital hygiene  - Independent Variables: Health education on personal hygiene - Dependent Variables: Level of knowledge about personal hygiene	Health education is effective in increasing young women's knowledge about personal hygiene (p-value 0.000)
4	The relationship of the role of parents in providing reproductive health education and care of genital organ hygiene in adolescent women in MAN Model Manado Sasmita, A., Hayati, U., Popang, C. T., & Sulistiyowati, A. N. 2024	Analytical surveys with cross-sectional design	73 teenage girls	- Independent Variable: The role of fathers and mothers in providing reproductive health education - Dependent Variable: Maintenance of genital hygiene	Most parents have a less-than-optimal role in maintaining the cleanliness of the genital organs in adolescent girls (64.4%)
5	The Relationship between Knowledge of External Genital Hygiene and the Incidence of <i>Flour Albus</i> (Vaginal Discharge) in Grade 12 Adolescents of SMA PGRI 1 Bekasi City in 2023 Damayanti, R., Junita, F., & Nisa, H. 2024	Cross-sectional	91 12th grade teens	- Independent Variable: Knowledge of external genital hygiene - Dependent Variable: Incidence of <i>Flour Albus</i> (vaginal discharge)	There was a significant relationship between knowledge of genital hygiene and the incidence of <i>Flour Albus</i> in adolescent girls (p < 0.05)
6	Engaging with Children and Adolescents: A systematic review of participatory methods and approaches in research informing the development of health resources and interventions. Freire, K., Pope, R., Jeffrey, K., Andrews, K., Nott, M., & Bowman, T. 2022	Systematic Review	26 articles	- Independent Variable: Participatory methods in adolescent health research - Dependent variables: Effectiveness of developed health interventions	Various methods and activities were applied in the study to involve children as participants, but few studies provided sufficient evidence regarding the participatory approach used.
7	The Effectiveness of Genital Hygiene	Quasi-experimental	103 students	- Independent Variable:	There was a significant increase in

No	Title, Author, Year	Research Design	Sample	Variable	Result
	Education Given to Secondary School Girls Gökşin, İ., & Demirhan, İ. 2024	with pre-test and post-test in one group		Genital hygiene education - Dependent Variables: Genital hygiene knowledge and practices	knowledge and practice of genital hygiene after being given education (p < 0.05)
8	Evaluation of Genital Hygiene Behaviors of Female Secondary School Students: In Turkiye Kuruc, H. S., & Avci, N. 2024	Cross-sectional study	194 students	- Independent Variable: Genital hygiene behavior - Dependent Variable: Level of knowledge and practice of genital hygiene	Most female students know pretty well about genital hygiene, but the hygiene practices still vary. Factors such as parental education and access to sanitation facilities influence hygiene behavior.
9	It's like a burden on the head': Redefining Adequate Menstrual Hygiene Management Throughout Women's Varied Life Stages in Odisha, India. MacRae, E. R., Clasen, T., Dasmohapatra, M., & Caruso, B. A. 2019	A qualitative study with in-depth interviews	68 women (16 unmarried women, 12 newly married women, 22 married women, and 18 older women)	- Independent Variable: Management of menstrual hygiene (MCM) - Dependent Variable: Impact of MKM on women's physical, psychosocial, and economic well-being	Women in Odisha experience various challenges in menstrual hygiene management, including limited access to sanitary products, social stigma, and lack of proper sanitation facilities. It has an impact on their physical, psychosocial, and productivity.
10	Genital Health and Hygiene among Adolescent Girls of Lalitpur Metropolitan City, Nepal Kumar Shah, S., Maharjan, P., Karki, K., Subedi, S., Shrestha, S., Laxmi Maharjan, P., Upadhyay, A., & Gurung, M 2019	Quantitative studies with a cross-sectional approach	400 high school students	- Independent Variable: Genital hygiene knowledge and behavior - Dependent Variables: Reproductive health and risk of infection	The level of knowledge about genital hygiene varies, with most adolescents still lacking an understanding of the importance of hygiene during menstruation
11	The Level of Knowledge of Adolescent Girls About Vulva Hygiene During Menstruation at Tompaso Adventist High School Meriam, A. S., & Sitompul, M 2022	Quantitative with a pre-experimental one-group pretest-posttest design	100 students in grades 1-3 of high school	- Independent Variable: Level of knowledge of vulvar hygiene during menstruation - Dependent Variable: Vulvar hygiene practices during menstruation	Most respondents had moderate to low knowledge about vulva hygiene during menstruation.

Based on an analysis of eleven kinds of literature, it was found that genital personal hygiene has a significant relationship with adolescent reproductive health. Some of the main findings obtained are as follows:

1. The importance of genital hygiene in adolescents, adolescent reproductive health depends on biological factors and is influenced by good personal hygiene behavior. Ahn & Cho (2014) highlighted that poor genital hygiene can increase the risk of urinary tract infections and other reproductive health disorders in adolescent girls. Improper hygiene practices during menstruation, such as the use of unhygienic sanitary pads or lack of hand washing before and after changing pads, can lead to health complications. These findings align with research by Gökşin & Demirhan (2024), which shows that genital hygiene education is vital in reducing the risk of infection in adolescent girls. Another study by Kuruc & Avci (2024) in Turkey also revealed that many adolescent girls have not implemented good genital hygiene habits. The study found that a lack of understanding of the importance of personal hygiene led to unhygienic practices, such as rarely changing underwear or not correctly washing the genital area. Therefore, it is vital to increase adolescents' awareness of genital hygiene to prevent various reproductive health problems.
2. The relationship between knowledge and hygiene behavior of genitalia, several studies have shown a significant relationship between adolescents' level of knowledge about genital hygiene and their daily practices. Damayanti et al. (2024) found that the level of expertise in genital hygiene is directly related to the incidence of *flour albus* (vaginal discharge) in adolescent girls. The results of this study indicate that the lower the level of knowledge, the higher the risk of experiencing abnormal vaginal discharge due to inadequate hygiene practices. Meriam & Sitompul (2022) also found that many adolescent girls do not have a good understanding of *vulva hygiene* during menstruation. This study shows that school health education is less effective in improving personal hygiene behavior. Therefore, a more interactive and evidence-based educational method is needed so adolescents can better understand the importance of genital hygiene.
3. The role of parents and education in instilling the habit of genital hygiene, genital hygiene education is not only the school's responsibility but also an essential role of parents. Sasmita et al. (2024) emphasized that the role of parents in providing reproductive health education has a significant influence on the hygiene habits of adolescent girls. Adolescents who get an education from their parents tend to have better hygiene habits than those who rely only on information from peers or the Internet. In addition, in his research, Altundağ (2024) found that providing genital hygiene education to adolescents with intellectual disabilities significantly improved their skills in maintaining personal hygiene. It suggests that proper education, even for special-needs groups, can positively impact their hygiene behavior.
4. Adverse effects of lack of genital hygiene on reproductive health, lack of attention to genital hygiene can have a detrimental impact on adolescent reproductive health. MacRae et al. (2019) found that inadequate menstrual hygiene management can burden women at various stages of their lives. In India, many women still have difficulty accessing adequate sanitation facilities, so they are at risk of reproductive tract infections. This finding is in line with the research of Kumar Shah et al. (2019) in Nepal, which showed that low levels of genital hygiene contributed to the high rate of infection in adolescent girls. In the study, more than 60% of respondents reported experiencing genital irritation and recurrent infections due to poor hygiene habits.
5. The effectiveness of genital hygiene education in increasing adolescent awareness, genital hygiene education has proven effective in increasing adolescents' awareness of the importance of maintaining reproductive health. Aminah & Mayunita (2024) showed that health education interventions can significantly improve the understanding and practice of menstrual hygiene in adolescent girls. In addition, Freire et al. (2022) highlight the importance of participatory methods in providing health education to adolescents. This method allows adolescents to be more actively involved in learning, making the information provided more effortless to

understand and apply daily. Therefore, a more innovative and interactive educational approach needs to be developed to increase the effectiveness of genital hygiene counseling.

6. Implications and recommendations for improving adolescent genital hygiene, based on the findings of the above research, it is vital to increase education efforts and health interventions in maintaining the hygiene of adolescent genitalia. Reproductive health education should focus more on evidence-based and interactive approaches. One of the recommendations is integrating genital hygiene education into the school curriculum with a more practical approach. In addition, the role of parents and health workers must also be strengthened in providing accurate information to adolescents. Awareness campaigns on social media can also effectively reach more teens with positive health messages.

## CONCLUSION

Based on the literature review that has been carried out, genital personal hygiene has a very important role in maintaining adolescent reproductive health. Good hygiene practices, especially during menstruation, can prevent various health problems such as urinary tract infections, flour albus (vaginal discharge), and genital irritation. However, there are still many adolescents who do not have a sufficient understanding of the importance of genital hygiene, which contributes to the high incidence of infections and other reproductive health disorders. The analyzed studies show that low levels of knowledge are directly related to poor hygiene behavior, so education provided through schools and the active role of parents have proven to be a major factor in increasing adolescents' awareness of the importance of genital hygiene. In addition, more interactive and participation-based learning methods can increase the effectiveness of reproductive health education. The lack of genital hygiene not only has an impact on physical health, but can also affect the psychosocial well-being of adolescents, so a more comprehensive strategy is needed in genital hygiene education, including the integration of materials in the school curriculum, increasing the role of parents, and the use of digital media to expand the reach of information. With more effective and evidence-based interventions, it is hoped that adolescents will be able to better understand and implement good genital hygiene practices, which will ultimately contribute to improving overall reproductive health and prepare them to lead healthier and better adult lives.

**Limitations:** Limited population variation: This literature review primarily focuses on research conducted in a few specific countries and educational institutions, so the results may not fully reflect conditions in other regions or cultures. **Limitations of research methods:** Most of the studies analyzed used quantitative methods, such as surveys and questionnaires, which may not have illustrated in depth the social and cultural factors that affect adolescent genital hygiene. **Lack of longitudinal studies:** Most of the available studies are cross-sectional, so they have not been able to show a stronger cause-and-effect relationship between genital hygiene education and its impact on reproductive health in the long term. **Focus on adolescent girls:** The majority of studies address genital hygiene in teenage girls, while aspects of reproductive hygiene in adolescent boys still receive little attention, although they are also at risk of health problems due to poor hygiene. **Limitations in evaluating educational effectiveness:** Some educational interventions reviewed have not been thoroughly assessed over the long term to measure sustainable behavioral change.

**Recommendations for future research:** Expansion of studies to a wide range of social and cultural contexts, Future research should involve a broader and more diverse population, including in rural areas or with different cultures, to get a more comprehensive picture of genitalia hygiene practices. A more in-depth qualitative research approach, Further studies must adopt qualitative research methods, such as in-depth interviews or *focus group discussions* (FGDs), to understand the social, cultural, and psychological factors influencing adolescent hygiene behavior. Longitudinal studies to measure long-term impact, Research with a longitudinal approach is needed to see how genital hygiene education impacts behavioral changes and adolescent reproductive health in the long term. Increased focus on adolescent boys Given the importance of

genital hygiene for reproductive health in general, future research should also examine adolescent boys' hygiene practices and knowledge levels and their impact on their health. Evaluate the effectiveness of different educational methods, Further studies need to compare the efficacy of various educational methods, such as digital-based education, school-based interventions, and the role of the family in improving adolescent genital hygiene. The use of technology in reproductive health education. With the increasing use of digital media, future research may explore how mobile apps, social media, and *e-learning* can increase genital hygiene awareness and practices among adolescents.

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