

Hygienic Behavior of Adolescents in Choosing the Use and Disposal of Feminine Sanitary Napkins in Surakarta

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Submitted : 06 - 07 - 2025

Reviewed : 16 - 07 - 2025

Accepted : 06 - 12 - 2025

ABSTRACT

Introduction: Poor menstrual hygiene practices among adolescent girls, including incorrect sanitary pad usage and improper disposal, pose significant health concerns. Limited economic resources and inadequate sanitation facilities further lead some adolescents to use less hygienic alternative pads. The wide variety of sanitary pads available on the market also means adolescents may not prioritize pad quality.

Objective: This study aims to describe adolescent girls' practices regarding sanitary pad usage, specifically concerning pad type selection, frequency of changing, handwashing practices, and pad disposal.

Methods: This descriptive survey employed a quantitative approach, involving 101 adolescent girls who met the study criteria. Samples were purposively selected from several junior high schools in Surakarta.

Results: Among the 101 adolescent girl respondents, 41% were 13 years old and in the 8th grade of junior high school. Regarding sanitary pad usage practices in Surakarta, 85.6% lived with their parents, and 78.2% chose disposable pads. Additionally, 52.5% changed their pads twice daily, 29.7% consistently washed their hands before and after using pads, 54.5% wrapped used pads before disposing them in the trash, and 45.5% rinsed pads with water to clean off blood before disposal.

Conclusion: The majority of adolescents in this study primarily use disposable pads and change them twice daily (during morning and evening baths). However, not all adolescents wash their hands before and after using sanitary pads. Importantly, the practice of disposing of used pads is generally good, with most cleaning the pads, wrapping them in plastic, and then discarding them in the trash.

Keywords: Practice, sanitary pad use, adolescents, junior high school

Jurnal Keperawatan Duta Medika diterbitkan oleh Universitas Duta Bangsa Surakarta.

Website: ojs.udb.ac.id

Introduction

The menstrual cycle is a natural biological process experienced by women during their reproductive years (Mukherjee *et al.*, 2020). However, this topic is still considered sensitive and is rarely discussed openly across various cultural settings (Oktavia, Lestari, and Sari, 2024), including in Surakarta. Conversations about menstruation are often regarded as taboo (UNICEF, 2023), leading to limited information and poor public understanding of how to maintain the cleanliness of female reproductive organs during menstruation, particularly in relation to the use of sanitary pads. The lack of comprehensive education can promote improper practices, which may ultimately have negative impacts on women's physical and mental health (Tshivule and Rasweswe, 2025).

A fundamental aspect of menstrual hygiene management is the selection and use of safe sanitary pads that meet appropriate hygiene standards. Both disposable and reusable pads are essential needs for women during menstruation. However, significant gaps in access to these products remain, particularly among women living in remote areas or those facing economic constraints. Previous studies have shown that women in developing countries often encounter difficulties in obtaining adequate sanitary pads due to social, economic, and infrastructural barriers (Hennegan and Montgomery, 2016).

Weak economic conditions and inadequate sanitation facilities lead some women to use unhygienic alternatives, such as used cloth or tissue. Research conducted in the coastal areas of Lampung revealed that the practice of using unsterilized cloth remains common, which increases the risk of urinary tract infections and reproductive health problems (Wati, Ririanty and

Nafikadini, 2019). Similar findings have also been reported at the local level. A study conducted in Kediri Regency found that most adolescent girls change their sanitary pads fewer than four times a day, do not replace their underwear regularly, choose pads that are not appropriate for their menstrual flow, and clean themselves from back to front, which do not meet proper hygiene standards (Pythagoras, 2018). This phenomenon is largely driven by a lack of education, limited access to sanitary pads, and the misconception that changing pads too frequently is wasteful. Such practices can lead to irritation, infections, and other health problems (Achmad, Bambang and Wittiarika, 2024). The limited understanding of menstrual management further exacerbates the situation. Low levels of knowledge regarding reproductive organ care are closely associated with poor hygiene practices during menstruation. (Amallya Faj'ri, Sunirah and H Wada, 2022).

A study in Surabaya revealed that 46.15% of vocational high school female students change their pads twice a day, and there are still 2% who change them once a day (Achmad, Bambang and Wittiarika, 2024). The frequency of changing pads during menstruation is related to the knowledge possessed about menstrual management, and good knowledge will relate to decision-making in pad usage (Puspita, Rahayu and Excoelsa, 2021).

The availability of various menstrual hygiene products on the market, including disposable pads, cloth pads, and menstrual cups, reflects a wide range of options. In general, women tend to choose disposable pads (Aini, 2024). However, preferences for these product types are largely influenced by tradition, perceived convenience, cost, and access to information. A comprehensive understanding of the advantages and disadvantages of each type of menstrual product—both from health and environmental perspectives—has not yet been fully achieved by all women.

Findings from previous studies on women's pad usage indicate the environmental pollution caused by the disposal of non-biodegradable sanitary products (Peberdy, Jones and Green, 2019). The microplastic components found in disposable pads are extremely difficult to break down and require a very long decomposition period, involving multiple stages (Afriliana *et al.*, 2025). Nevertheless, women continue to prefer disposable pads due to their practicality.

The impact of disposable pads also affects women's reproductive health (Marroquin *et al.*, 2024). However, their practicality remains a major factor attracting women to choose these products. Problems related to women's sanitary pad usage practices have broad implications for their overall quality of life. Inadequate pad use, unhygienic behaviors, and limited knowledge about menstrual management can contribute to reduced productivity, increased absenteeism in schools or workplaces, and the development of various health complications (Czura, Menzel and Miotto, 2020). Therefore, investigating pad usage practices is not only crucial in the context of health but also highly relevant from social, educational, and public policy perspectives.

Preliminary studies conducted in two randomly selected junior high schools found that 11 female students chose disposable pads because they were inexpensive and comfortable to use. Among these 11 students, four reported changing their pads only once a day for economic reasons. They also stated that when they felt menstrual blood beginning to flow, they would immediately go to the toilet to prevent the pad from becoming quickly saturated. Additionally, six of the students explained that they disposed of used pads by wrapping them in plastic and throwing them into the school trash bin.

Based on this background, an in-depth and comprehensive study is needed to examine pad usage practices in Surakarta. The problem formulation designed to explore this phenomenon is: "How do adolescent girls practice menstrual hygiene, specifically in choosing sanitary pads, changing pads, including frequency and duration of use, washing hands before and after attaching pads, and disposing of used pads?"

This research aims to describe menstrual pad usage practices among adolescent girls in Surakarta, including the selection of pad types, handwashing after removing pads, and methods of pad disposal.

Research Methodology

A descriptive survey with a cross-sectional approach was conducted directly at the selected research sites by distributing questionnaires that had been tested for validity and reliability, yielding a Cronbach's Alpha value of 0.7. This study aims to describe the practices of junior high school adolescents in using sanitary pads during menstruation. A total of 101 respondents from public and private junior high schools in Surakarta were selected using a purposive sampling technique. The inclusion criteria for respondents were: female students who had begun menstruating, were able to communicate well, and were willing to complete the questionnaire sincerely.

Data collection was carried out by visiting the junior high schools with the assistance of homeroom and subject teachers. The visits were conducted on Saturdays because schools operate on a five-day schedule, allowing Saturday to be used for research activities. Univariate analysis was performed to describe respondent characteristics, frequency distributions, and percentages of variables related to sanitary pad usage, including pad type selection, frequency and duration of pad use, handwashing before and after attaching pads, and methods of pad disposal. This research has received ethical approval from the Research Ethics Committee of Universitas 'Aisyiyah Surakarta and is declared to comply with the principles of research ethics according to applicable standards (ethics approval number: 458/V/AUEC/2025)

Results

The results of data analysis on the research describing the implementation of women's sanitary pad usage among adolescents in Surakarta are presented in several tables. More clearly, it can be seen in the following tables:

1. Characteristics of Junior High School Adolescents as Research Respondents

Table 1 About the Characteristics of Junior High School Adolescents in Surakarta

NO	VARIABLE	FREQUENCY	(%)
1	Age		
	a. 12 years	38	37.7
	b. 13 years	41	40.6
	c. 14 years	22	21.8
2	Grade/Class		
	a. 7	42	41.6
	b. 8	59	58.4
	c. 9	0	0
3	Living White		
	a. Parents	86	85.1
	b. Grandmother	8	7.9
	c. Siblings	3	3.0
	d. Boarding	3	3.0
	e. Others	1	1
	Total	101	100

The data presented in Table 1 indicate that junior high school adolescents aged 12 to 13 years have already experienced menstruation. The majority are currently in the 8th grade, and 85.1% of these teenagers live with their parents.

2. Selection of Women's Sanitary Pad Types

The univariate data analysis results on the variable of selecting women's sanitary pad types among junior high school adolescents are presented in Table 2.

Table 2 Selection of Women's Sanitary Pad Types Among Junior High School Adolescents in Surakarta

Variable	Frequency	(%)
Types of Sanitary Pads Chosen by Adolescents		
a. Disposable Pads	79	78,2
b. Cloth Pads	12	11,9
c. Menstrual Cup	4	4.0
d. Herbal Pads	6	5.9
Total	101	100

Adolescent behavior in choosing the type of sanitary pad during menstruation varies, with the majority 78.2% opting to use disposable pads.

Table 3. Behavior of Changing Women's Sanitary Napkins During Menstruation Based on Frequency in 24 Hours in Junior High School Adolescents in Surakarta

Variable	Frequency	(%)
Adolescents' sanitary napkin changing behavior based on frequency:		
1. Every time they urinate or defecate	10	9.9
2. At least twice a day	33	32.7
3. When bathing	53	52.5
4. Rarely, to save sanitary napkins	5	5
Total	101	100

Based on the results of data analysis regarding when adolescent girls change their sanitary pads during menstruation, it was found that most of them change their pads when they take a bath, meaning twice a day—in the morning and in the evening. Table 3 also shows that 5% of adolescents rarely change their pads during menstruation for reasons of saving money.

Table 4. Overview of Handwashing Before and After Changing Sanitary Pads Among Junior High School Adolescents in Surakarta

NO	Variable	Frequency	Percentage (%)
1	Always	30	29.7
2	Sometimes	49	48.5
3	Rarely	21	20.8
4	Never	1	1
Total		101	100

The description of handwashing behavior among adolescents when using and removing sanitary pads is categorized into four groups: always washing hands, sometimes washing hands, rarely washing hands, and never washing hands. Table 4 shows that 48.5% of junior high school adolescents sometimes wash their hands when changing sanitary pads, and 20.8% rarely wash their hands.

Table 5. Overview of how to dispose of sanitary napkins after use among junior high school students in Surakarta

No	Variable	Frequency	(%)
1	Wrapped in plastic and thrown in the trash	55	54.5
2	Washed and squeezed to remove the blood. Once clean, wrap it in paper and throw it away	46	45.5
3	Wrapped in plastic and burned	0	0

4	Floated down the toilet to prevent environmental pollution	0	0
Total		101	100

Table 5 shows that the practice of disposing of feminine sanitary products in research is categorised into four methods: 1) wrapped in plastic and thrown in the bin, 2) washed and squeezed to remove blood, then wrapped in paper and discarded, 3) wrapped in plastic and burned, and 4) flushed down the toilet. Most teenagers dispose of used menstrual pads by wrapping them in plastic and throwing them in the bin. The majority, 54.5%, of teenagers dispose of used menstrual pads by wrapping them in plastic and throwing them in the bin.

Discussion

Table 1 presents information indicating that the average age of menarche ranges from 12.5 to 13 years. This aligns with previous research, which states that the average age of menarche is between 12.5 and 13 years (Ramraj, Subramanian, and G, 2021; Zurawiecka and Wronka, 2021). Empirical data from various studies show that the onset of menstruation has progressively advanced; for women born between 1963 and 2013, the age of menarche ranged from 9 to 17 years, with the period from 2004 to 2013 reflecting an average age of 12.28 years (Ganabathy and Hidayat, 2016). At this age, adolescents are typically in the eighth and ninth grades of junior high school.

The results of the univariate analysis based on residence status show that most adolescents live with their parents; however, some live with siblings, grandparents, or even in boarding houses. Psychologically, junior high school adolescents still require guidance in personal care, including menstrual management. Family support is essential in helping them address their health-related concerns (Pawestri, Rejeki and Yolanda, 2023). Support can be in the form of material, education, and guidance (Rahmawati, Rahmawati and Safitri, 2023).

The discussion on the results of women's sanitary pad selection behaviour during menstruation revealed in this study that Indonesian women continue to prefer ready-to-use pads (Rahmawati, Rahmawati and Safitri, 2023); (Htun, Laosee and Rattanapan, 2021), (Daniel *et al.*, 2023). This result also aligns with research in Ethiopia, where 66.5% of adolescent girls used commercially sold absorbent pads (Ayele *et al.*, 2025), as well as in Australia, where 69.5% of women reported using disposable pads (Ramsay *et al.*, 2023).

An interesting finding from this study is that 11.9% of adolescents use reusable cloth pads. Even in a developed country like Australia, reusable pads are still used by 37% of women (Ramsay *et al.*, 2023). The use of cloth pads can help reduce environmental pollution and is considered healthier because it does not contain chemical substances that may cause irritation to the vaginal area.

Other findings related to pad selection show that 5.9% of adolescents choose pads with added herbal components, and 4% choose to use menstrual cups. Disposable pads are preferred by adolescents primarily due to their practicality (Basri, Utaminingsih and Tisya, 2021), as they do not require washing and can be discarded once saturated. However, the use of disposable pads made from materials modified with various chemical substances—such as those widely available on the market—is suspected to trigger cancer due to their carcinogenic properties (Habibie *et al.*, 2019); (Woo *et al.*, 2019). This is further reinforced by Warashinta *et al.*, who reported that one package of sanitary pads is equivalent to four plastic bags, which release harmful toxins when burned (Woo *et al.*, 2019); Warashinta, Astari, and Merdikawati, 2021). Another impact of disposable pads is the increase in waste that damages the environment (Peberdy, Jones and Green, 2019). Sanitary pad waste is difficult to decompose by the soil, challenging to process for destruction, and ultimately disrupts environmental health.

The subsequent discussion regarding the frequency of changing sanitary pads throughout the day revealed that adolescents typically change their pads 2 to 3 times daily. This finding is consistent with previous studies stating that adolescents generally change their pads 2–3 times a day, and only replace them when they are full or when they begin to feel uncomfortable (Fajrin Violita, Lisda Oktavia Madu Pamangin, 2025).

The practice of changing sanitary pads at least twice a day is also found in Surabaya, where 48% of vocational school students change their pads when taking a bath (Achmad, Bambang and Wittiarika, 2024). This phenomenon may increase the risk of reproductive health problems in women. The long interval between morning and evening bath times increases moisture in the vaginal area due to menstrual blood, and blood accumulated in the pad may react with chemical substances in the pad material, potentially causing tissue damage around the vagina (Upson, Shearston and Kioumourtzoglou, 2023). Several studies recommend changing sanitary pads 3–4 times a day to maintain genital health (Rachmat *et al.*, 2024). This study differs from findings in Ethiopia, where adolescents change their sanitary pads at least three times a day during menstruation (Ayele *et al.*, 2025), while in China, girls change their pads as frequently as possible to maintain health (Sun *et al.*, 2024).

In this study, the practice of disposing of sanitary pads was categorized into four methods: (1) wrapping the pad in plastic and throwing it in the trash; (2) washing and squeezing the pad to remove the blood, then wrapping it in paper once clean and disposing of it; (3) wrapping the pad in plastic and burning it; and (4) disposing of it in the toilet. Based on the data presented in Table 5 regarding sanitary pad disposal methods, 54.5% of adolescents disposed of pads by wrapping them in plastic and throwing them directly into the trash. Meanwhile, 45.5% rinsed the pads first to remove menstrual blood before wrapping them in plastic and discarding them. No participants reported disposing of pads by burning them or flushing them down the toilet. These data indicate that adolescents have low awareness of personal care during menstruation. The findings of this research support previous studies indicating that adolescents in India have not adopted adequate personal hygiene practices during menstruation (Borkar *et al.*, 2022). This study demonstrates a decline in hygiene practices related to handwashing compared to a previous study in 2018, which reported that adolescent girls always washed their hands with water and soap before and after using sanitary pads (Davis *et al.*, 2018). Previous references have found the same, that the behaviour of adolescents regarding hygiene during menstruation is still lacking (Ahmed *et al.*, 2025), (Arslan, Yanık and Pekşen Akça, 2025).

Most teenagers dispose of used menstrual pads by wrapping them in plastic and throwing them in the bin. The majority, 54.5%, of teenagers dispose of used menstrual pads by wrapping them in plastic and throwing them in the bin. The discussion regarding the disposal behaviour of used menstrual pads, as revealed by research findings, indicates that adolescents predominantly dispose of their waste wrapped in plastic without prior washing. This finding is consistent with a study conducted in Jayapura, which reported that adolescents cleaned menstrual blood from the pad before wrapping it in plastic and disposing of it (Fajrin Violita, Lisda Oktavia Madu Pamangin, 2025). These disposal practices indicate that adolescents demonstrate good hygiene behavior, as rinsing the pad before disposal can reduce unpleasant odors in the environment and lower the risk of bacterial growth, since residual menstrual blood may attract other microorganisms.

Conclusion and Recommendations

The practice of sanitary napkin use among junior high school adolescent girls in Surakarta was analyzed through five main indicators: the characteristics of adolescents who have experienced menstruation, preference for sanitary napkin type, hand-washing habits before and after sanitary napkin use, frequency of sanitary napkin replacement, and the disposal method of used sanitary napkins. Based on the analysis, the majority of respondents entered menarche between the ages of 12 and 13 and tended to choose disposable sanitary pads as their primary choice. Within one day, the majority replace their sanitary pads twice, namely during the morning and afternoon baths. However, the habit of washing hands before and after changing sanitary pads has not been

consistently practiced. On the other hand, the majority of respondents showed relatively good behavior in disposing of used sanitary pads, which is by wrapping them first with plastic before disposing them in the trash bin. Furthermore, there are several students who apply an additional step of flushing the sanitary pad with water to reduce residual blood before the pad is wrapped and disposed of, indicating an awareness of cleanliness and sanitation ethics.

Recommendations

There is a need for education for adolescents on personal hygiene during menstruation and proper sanitary pad replacement. For other researchers, further studies are needed on the determinants of hand-washing behavior during menstruation and the role of schools in facilitating clean practices for adolescent girls during menstruation.

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