



## **THE EFFECT OF SANITARY PADS USE ON THE INCIDENCE OF PRURITUS VULVA IN STUDENTS OF PRIMA INDONESIA UNIVERSITY**

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### **Abstract**

*Menstruation is a physiological process, but improper use of sanitary pads and poor vulvar hygiene can cause health problems such as vulvar pruritus. This study aimed to determine the frequency of sanitary pad replacement, the effect of disposable sanitary pad use on the incidence of vulvar pruritus, and vulvar hygiene behavior among female students at Prima University, Medan. This study used an analytical observational design with a cross-sectional approach involving 68 female medical students from the 2022 cohort selected through purposive sampling. Data were collected using a questionnaire and analyzed using the Chi-Square test. The results showed that most female students used disposable sanitary pads and the majority experienced mild vulvar pruritus. Data analysis found a statistically significant relationship between the type of sanitary napkin, frequency of replacement, cleanliness of use, and duration of sanitary napkin use with the incidence of vulvar pruritus. It was concluded that sanitary napkin use practices and vulvar hygiene behaviors strongly influence the incidence of vulvar pruritus in female students. It is hoped that female students can better maintain genital hygiene and replace sanitary napkins.*

**Key Words:** Sanitary pads, Vulvar pruritus, Vulva hygiene, Menstruation

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## INTRODUCTION

Menstruation is a physiological process that occurs in women as part of the reproductive cycle. During menstruation, blood and sweat are discharged and then stick to the vulva area, which is a sensitive part of the female body. If not kept clean, the moisture left behind by menstrual blood and sweat can become a breeding ground for bacteria and fungi. The blood that comes out during menstruation contains dead cells from the inner wall of the uterus or endometrium, which contain various microbes such as *Staphylococcus aureus*, *Escherichia coli*, and *Candida albicans* fungi, which are irritating when exposed to the vulva. This can potentially cause various health problems, particularly reproductive tract infections (Aini & Afridah, 2021).

The incidence of reproductive tract infections is quite high, ranging from 35% to 42% according to WHO data from 2019. One type of reproductive tract infection is vaginitis, characterized by severe itching of the female external genitalia, which can be quite disturbing. This condition is known as pruritus vulvae (Zian Sari et al., 2024). The highest incidence of pruritus vulvae worldwide occurs in adolescents. To date, approximately 10% of adolescent girls worldwide frequently experience severe pruritus vulvae (Iis & Rohaeni, 2024). Data from the Indonesian Ministry of Health indicates that 5.2 million adolescent girls frequently experience vulvar pruritus (Aini & Afridah, 2021).

The main factor causing vulvar pruritus is the condition around the vagina, which is highly susceptible to infection. The genital area, which is moist, covered, folded, and unsterile, is also a suitable place for the growth of microorganisms that are harmful to the body (Iis & Rohaeni, 2024). Poor hygiene practices in the female genital area are caused by 30% due to an unhealthy environment and 70% due to the improper use of sanitary pads during menstruation (Ernawati et al., 2023). It was found that over 97% of adolescents in Indonesia prefer to use disposable sanitary pads during menstruation. The use of sanitary pads made from synthetic materials during menstruation can cause irritation to the sensitive skin around the vulva due to the dyes and other chemicals contained in the pads (Aini & Afridah, 2021). Sanitary pads are rectangular-shaped devices used during menstruation, consisting of a cotton pad designed to absorb blood from the vagina during menstruation (Manoppo, 2022).

The materials used in sanitary pads widely available on the market are very dangerous to health. Upon closer inspection, it is found that the base material is not 100% pure cotton but consists of a mixture of wood powder and clothing waste containing chlorine. In this case,

teenagers also report that disposable sanitary pads are uncomfortable and can cause irritation and itching with prolonged use (Panggabean et al., 2022). It is best to avoid sanitary pads that contain gel, as gel can cause itching and irritation. Good sanitary pads are those made of cotton, do not contain perfume, and are not expired (Manoppo, 2022).

Research on the relationship between sanitary pad use and the occurrence of vulvar pruritus among students is important to provide an understanding of the potential health risks posed by improper use of sanitary pads. Personal hygiene is maintained by changing sanitary pads 4-5 times a day during menstruation. The normal limit for wearing a full and damp sanitary pad is six hours and should not exceed six hours (Manoppo, 2022). Another study by Hendriyeni (2024), conducted using a literature review method, states that prolonged use of sanitary pads will have an impact on women's reproductive health, such as vaginal discharge, irritation, itching, and infection.

Based on the background described above, the researchers were interested in conducting research among female students at Prima University in Medan, aiming to explore the effect of sanitary pad use on the incidence of vulvar pruritus among students and provide useful information for preventing related health problems. The results of this study are expected to clarify the external factors that influence the onset of vulvar pruritus, so that the results can be used as a basis for further research in the field of reproductive health, particularly in relation to vulvar care during menstruation. In addition, it provides important information about the importance of maintaining vulvar hygiene during menstruation and choosing the right sanitary napkins to prevent vulvar pruritus.

## METHODS

This study used an analytical observational study with a cross-sectional design to determine the effect of sanitary napkin use on the incidence of vulvar pruritus. The study population consisted of all female students of the Faculty of Medicine, Prima University Medan, class of 2022, totaling 205 people. Using the Slovin formula and a confidence level of 0.1, a minimum sample size of 68 female students was obtained. The sampling technique used was purposive sampling. The inclusion criteria were female students aged 18-24 years, currently menstruating, using sanitary pads, and willing to participate. The research instrument was a questionnaire. Data analysis techniques used the Chi-Square correlation test to test the hypothesis.

## RESULTS AND DISCUSSION

### Univariate Analysis

The results of the study show the distribution of sanitary pad types used by female students at Prima University Medan during menstruation. The data can be seen in Table 1 below:

Table 1. Frequency Distribution of Sanitary Napkin Types Used

Type of Sanitary Napkin Used	Frequency	Percentage
Disposable sanitary pads	45	66
Cloth sanitary pads	23	33.8
<b>Total</b>	<b>68</b>	<b>100</b>

Table 1 shows that most students use disposable sanitary pads during menstruation, namely 45 students (66.2%). Meanwhile, 23 students (33.8%) use cloth sanitary pads.

The results show the frequency distribution of sanitary napkin replacement by female students at Prima University Medan during menstruation. The data can be seen in Table 2 below:

Table 2. Frequency Distribution of Sanitary Napkin Replacement

Frequency of Sanitary Napkin Replacement	Frequency	Percentage (%)
1-2 times	25	36
3-4 times	42	61.8
5 times or more	1	1.5
<b>Total</b>	<b>68</b>	<b>100</b>

Table 2 shows that most students change sanitary pads 3–4 times a day, namely 42 people (61.8%). A total of 25 people (36.8%) change sanitary pads 1–2 times a day, while only 1 person (1.5%) changes sanitary pads  $\geq$  5 times a day.

The research results show the distribution of sanitary pad usage among students at Prima University Medan during menstruation. The data can be seen in Table 3 below:

Table 3. Frequency Distribution of Sanitary Napkin Usage

Sanitary Napkin Usage Hygiene	Frequency	Percentage
Yes	45	66
No	23	33.8
<b>Total</b>	<b>68</b>	<b>100.0</b>

From Table 3, it can be seen that most students maintain hygiene when using sanitary pads during menstruation, namely 45 people (66.2%), while 23 people (33.8%) do not maintain hygiene when using sanitary pads.

The research results show the distribution of sanitary pad usage duration by students at Prima University Medan during menstruation. The data can be seen in Table 4 below:

Table 4. Frequency Distribution of Sanitary Pad Usage Duration

Duration of Sanitary Pad Usage	Frequency	Percentage (%)
4-6 hours	38	55.9
7-9 hours	22	32.4
More than 9 hours	8	11.8
<b>Total</b>	<b>68</b>	<b>100.0</b>

From Table 4, it can be seen that most students use sanitary pads for 4–6 hours, namely 38 people (55.9%). A total of 22 people (32.4%) use sanitary pads for 7–9 hours, while 8 people (11.8%) use sanitary pads for more than 9 hours.

The study results show the frequency distribution of vulvar pruritus cases among female students at Prima University, Medan. The data can be seen in Table 5 below:

Table 5. Frequency Distribution of Vulvar Pruritus Incidence

Incidence of Vulvar Pruritus	Frequency	Percentage (%)
Mild	43	63.2
Moderate	16	23.5
Heavy	9	13.2
<b>Total</b>	<b>68</b>	<b>100.0</b>

From Table 5, it can be seen that most female students experienced mild vulvar pruritus, namely 43 people (63.2%). A total of 16 people (23.5%) experienced moderate pruritus, while 9 people (13.2%) experienced severe vulvar pruritus.

### Bivariate Analysis

A bivariate test was then conducted to determine the relationship between the type of sanitary pad and the occurrence of vulvar pruritus among female students at Prima Medan University. The results of the data analysis can be seen in Table 6 below:

Table 6. Results of the Test on the Relationship Between Sanitary Pad Type and the Occurrence of Vulvar Pruritus Among Female Students at Prima Medan University in 2025

Occurrence of Vulvar Pruritus	Type of Sanitary Pad						P-Value	
	Disposable sanitary pads		Cloth sanitary pads		Total			
	f	%	f	%	f	%		
Light	40	58.8	3	4.4	43	63.2		
Moderate	2	2.9	14	20.6	16	23.5		
Weight	3	4.4	6	8.8	9	13.2	0.000	
<b>Total</b>	<b>45</b>	<b>66.2</b>	<b>23</b>	<b>33.8</b>	<b>68</b>	<b>100.0</b>		

The results of the test on the relationship between the type of sanitary napkin and the incidence of vulvar pruritus presented in Table 4.7 show that among female students who used disposable sanitary napkins, most experienced mild vulvar pruritus, namely 40 people (58.8%), while 2 people (2.9%) experienced moderate pruritus and 3 people (4.4%) experienced severe pruritus. Meanwhile, among female students who used cloth sanitary pads, most experienced moderate pruritus vulvae, namely 14 people (20.6%), followed by severe pruritus vulvae in 6 people (8.8%) and mild pruritus vulvae in 3 people (4.4%).

The Chi-Square statistical test yielded a significance value of  $p = 0.000$  ( $p < 0.05$ ), so  $H_a$  was accepted. This indicates that there is a significant relationship between the type of

sanitary napkin and the incidence of vulvar pruritus among female students at Prima University Medan in 2025.

A bivariate test was then conducted to determine the relationship between the frequency

Table 7. Results of the Test of the Relationship between the Frequency of Sanitary Napkin Replacement and the Incidence of Vulvar Pruritus among Female Students at Prima Medan University in 2025

Occurrence of Vulvar Pruritus	Pad Changing Frequency						Total	P-Value
	1-2 times		3-4 times		5 times or more			
	f	%	f	%	f	%	f	%
Light	9	13.2	33	48.5	1	1.5	43	63.2
Moderate	7	10.3	9	13.2	0	0	16	23.5
Weight	9	13.2	0	0	0	0	9	13.2
<b>Total</b>	<b>25</b>	<b>36.8</b>	<b>42</b>	<b>61.8</b>	<b>1</b>	<b>1.5</b>	<b>68</b>	<b>100.0</b>

The results of the test on the relationship between the frequency of sanitary pad replacement and the occurrence of vulvar pruritus, as shown in Table 7, indicate that female students who replaced their sanitary pads 3–4 times per day mostly experienced mild vulvar pruritus, with 33 individuals (48.5%). Among female students who changed sanitary pads only 1–2 times per day, 9 (13.2%) experienced mild pruritus, 7 (10.3%) moderate pruritus, and 9 (13.2%) severe pruritus. Meanwhile, among female students who changed sanitary pads  $\geq 5$  times per day, most were in the mild category, namely 1 person (1.5%).

Table 8. Results of the Test of the Relationship between Sanitary Pad Usage and the Incidence of Vulvar Pruritus among Female Students at Prima University Medan in 2025

Incidence of Vulvar Pruritus	Sanitary Pad Usage			Total	P-Value	
	Yes		No			
	f	%	f	%	f	%
Light	41	60.3	2	2.9	43	63.2
Moderate	1	1.5	15	22.1	16	23.5
Weight	3	4.4	6	8.8	9	13.2
<b>Total</b>	<b>45</b>	<b>66.2</b>	<b>23</b>	<b>33.8</b>	<b>68</b>	<b>100.0</b>

The results of the test on the relationship between sanitary pad hygiene and the incidence of vulvar pruritus in Table 8 show that among female students who used sanitary pads with good hygiene, 45 people (66.2%) experienced mild vulvar pruritus, namely 41 people (60.3%), 1 person (1.5%) experienced moderate pruritus, and 3 people (4.4%) experienced severe pruritus.

Meanwhile, among female students who used sanitary pads with poor hygiene, 23 people (33.8%) experienced mild pruritus, 15 people (22.1%) experienced moderate pruritus, and 6 people (8.8%) experienced severe pruritus. Overall, out of 68 respondents, 43 (63.2%)

of sanitary napkin replacement and the incidence of vulvar pruritus among female students at Prima University Medan. The results of the analysis can be seen in Table 7 below:

Table 7. Results of the Test of the Relationship between the Frequency of Sanitary Napkin Replacement and the Incidence of Vulvar Pruritus among Female Students at Prima Medan University in 2025

The Chi-Square statistical test yielded a significance value of  $p = 0.000$  ( $p < 0.05$ ), so  $H_a$  was accepted. This indicates that there is a significant relationship between the frequency of pad replacement and the incidence of vulvar pruritus among female students at Prima University Medan in 2025.

A bivariate test was then conducted to determine the relationship between sanitary pad hygiene and the incidence of vulvar pruritus among female students at Prima University Medan. The results of the analysis can be seen in Table 8 below:

experienced mild pruritus, 16 (23.5%) moderate pruritus, and 9 (13.2%) severe pruritus.

The Chi-Square statistical test yielded a significance value of  $p = 0.000$  ( $p < 0.05$ ), so  $H_a$  was accepted. This indicates that there is a significant relationship between sanitary pad hygiene and the incidence of vulvar pruritus among female students at Prima University Medan in 2025.

A bivariate test was then conducted to determine the relationship between the duration of sanitary napkin use and the incidence of vulvar pruritus among female students at Prima University Medan. The results of the analysis can be seen in Table 9 below:

Table 9. Results of the Test of the Relationship between the Duration of Sanitary Napkin Use and the Incidence of Vulvar Pruritus among Female Students at Prima University Medan in 2025

Occurrence of Vulvar Pruritus	Duration of Sanitary Pad Use						Total	P-Value
	4-6 hours		7-9 hours		More than 9 hours			
	f	%	f	%	f	%	f	%
Light	37	54.4	6	8.8	0	0.0	37	63.2
Moderate	1	1.5	15	22.1	0	0.0	1	23.5
Weight	0	0.0	1	1.5	8	11.8	0	13.2
<b>Total</b>	<b>38</b>	<b>55.9</b>	<b>22</b>	<b>32.4</b>	<b>8</b>	<b>11.8</b>	<b>38</b>	<b>100.0</b>

The results of the test on the relationship between the duration of sanitary napkin use and the incidence of vulvar pruritus in Table 9 show that among female students who used sanitary napkins for 4–6 hours, 38 people (55.9%) experienced mild vulvar pruritus, namely 37 people (54.4%), 1 person (1.5%) experienced moderate pruritus, and none experienced severe pruritus. Among female students who used sanitary pads for 7–9 hours, 22 people (32.4%) experienced mild pruritus, 15 people (22.1%) experienced moderate pruritus, and 1 person (1.5%) experienced severe pruritus. Meanwhile, among female students who used sanitary pads for more than 9 hours, 8 people (11.8%) did not experience mild or moderate pruritus, but most experienced severe pruritus, namely 8 people (11.8%). Overall, out of 68 respondents, 43 (63.2%) experienced mild pruritus, 16 (23.5%) moderate pruritus, and 9 (13.2%) severe pruritus.

The Chi-Square statistical test produced a significance value of  $p = 0.000$  ( $p < 0.05$ ), so Ha was accepted. This shows that there is a significant relationship between the duration of sanitary napkin use and the incidence of vulvar pruritus among female students at Prima University Medan in 2025.

## Discussion

The results of this study indicate a significant influence between sanitary napkin use practices, including type, frequency of replacement, hygiene, and duration of use, and the incidence of vulvar pruritus among female students at Prima Medan University. Statistical test results show a significant relationship between the type of sanitary napkin and the incidence of vulvar pruritus ( $p=0.000$ ). The majority of respondents (66.2%) used disposable sanitary pads, and most cases of pruritus were in the mild category. These findings partly contradict the research conducted by Indriyani (2021), which found no significant relationship between the choice of sanitary pad type and the incidence of vulvar pruritus.

However, this study also found a highly significant association between the frequency of pad replacement and the occurrence of vulvar pruritus ( $p=0.000$ ). Respondents who changed sanitary pads only 1-2 times a day showed an increase in the proportion of moderate and severe pruritus. These findings are in line with research conducted by Laily et al. (2022) who studied personal hygiene behavior during menstruation, which found that respondents with poor personal hygiene behavior, including infrequent sanitary pad changes, had a higher risk of experiencing vulvar pruritus. Menstrual blood that accumulates on sanitary pads that are not changed frequently increases moisture, temperature, and pH in the vulva area, making it an ideal medium for the growth of pathogenic bacteria within 1-2 hours.

This condition then triggers infection and irritation, manifested as itching or pruritus.

Additionally, these findings are supported by the study Anis (2020), which found a correlation between the number of sanitary pads used (inversely proportional to the frequency of changing) and the occurrence of genital irritation during menstruation.

This study also found a significant relationship between sanitary pad hygiene behavior ( $p=0.000$ ) and duration of use ( $p=0.000$ ) with the occurrence of vulvar pruritus. Exclusive use of sanitary pads for more than 9 hours was associated with severe pruritus, and respondents who did not maintain hygiene (e.g., did not wash their hands before/after changing sanitary pads) were more prone to pruritus.

These findings are consistent with the research by Salsabila et al. (2024), which found a significant association between menstrual hygiene practices (including frequency of changing and cleanliness) and the occurrence of vulvar pruritus. Good menstrual hygiene practices recommend changing sanitary pads every 4-6 hours to prevent bacterial colonization. Duration of use exceeding this limit (such as 9 hours in this study) directly violates the principles of menstrual hygiene, thereby significantly increasing the risk of mechanical irritation and microbial growth, leading to more severe vulvar pruritus.

Thus, the results of this study reinforce that vulvar pruritus in female students is a multifactorial issue, influenced not only by the type of product used but more predominantly by hygiene practices and the duration of product contact with sensitive areas.

## CONCLUSION

Based on the results of the study, it can be concluded that there is a significant influence between the type of sanitary napkin, frequency of replacement, cleanliness of use, and duration of use on the incidence of vulvar pruritus among female students at Prima University in Medan. Poor vulva hygiene practices, such as infrequent pad changes and prolonged wear, significantly increase the risk and severity of vulvar pruritus. Therefore, education on proper menstrual hygiene management is crucial to prevent reproductive health problems among female students.

This study also suggests that future research should add other variables such as knowledge, type of sanitary napkin, and history of skin allergies, as well as involve a larger number of respondents so that the results are more comprehensive.

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