

## **The Length of Use of Panty Liner with the Incidence of Vaginal Discharge in Adolescent Girls**

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### **ABSTRACT**

**Background:** The phenomenon in women and adolescent girls has experienced vaginal discharge in 60% of adolescents (15-22 years old) and 40% of women (23-45 years old); if left, vaginal discharge can have bad impacts on health, one of which is cervical cancer, it was found that the main cause of cervical cancer in Indonesia is poor quality sanitary napkins. Physiological vaginal discharge usually occurs before and after menstruation, and abnormal vaginal discharge is called pathological vaginal discharge, which occurs due to an infection in the vagina.

**Purpose:** The purpose of the study was to determine the relationship between the length of wearing panty liners and the incidence of vaginal discharge in adolescent girls.

**Methods:** The quantitative method with the correlation analysis method and using a cross-sectional design, the research instrument used a questionnaire. The population was 95 students, and the number of samples was 79 people with purposive sampling techniques; the data were analyzed with univariate and bivariate analysis.

**Results:** The results showed that there was a relationship between the length of wearing panty liners and the incidence of vaginal discharge in adolescent girls. The results showed that there was a significant relationship between the duration of panty liner use and the incidence of vaginal discharge among adolescent girls. A total of 44 respondents (55.7%) used panty liners in the abnormal category, while 35 respondents (44.3%) were in the normal usage category, with a p-value of  $0.001 < 0.05$ .

**Conclusion:** This indicates that wearing panty liners for an extended period can increase the risk of vaginal discharge in adolescent girls. It is recommended that the use of panty liners be limited and replaced periodically to prevent vaginal discharge and maintain the health of the intimate organs.

**Keywords:** panty liner, teen girl, vaginal discharge

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**BACKGROUND**

According to WHO, about 75% of women in the world will experience vaginal discharge at least once in their lifetime. As many as 45% of women experience vaginal discharge twice or more, while in women in Europe the rate of vaginal discharge is 25%. The incidence of vaginal discharge in Europe is only 25%, while in Indonesia itself, 50% of women experience vaginal discharge. The incidence of vaginal discharge in Indonesia continues to increase every year until it reaches 70% (Tanaka *et al* 2020). According to the WHO (World Health Organization), Indonesia is the country with the No.1 cervical cancer in the world, and the use of poor-quality sanitary napkins causes 62% of it (Adams *et al* 2021). According to data from the Central Sulawesi Provincial Health Office, the percentage of women who experience vaginal discharge is 42.4%, and around 15% of women in Central Sulawesi are infected (Chow *et al* 2021).. However, symptoms of vaginal discharge and itching occur in only 3%-5% of adolescents who experience vaginal discharge (Vizza *et al*. 2020). Many women in Indonesia do not know about vaginal discharge, so they consider vaginal discharge as an ordinary and trivial thing, in addition to the embarrassment when women/adolescents experience vaginal discharge often makes the woman/teenager reluctant to consult a doctor (Vizza *et al*. 2020).

Based on a preliminary study conducted on adolescent girls, student activities that are too crowded and minimal school environment conditions for toilets and water are also tricky. The weather in Pagimana sub-district, which tends to be hot, can increase the humidity of the genital area and may increase the risk of vaginal discharge. By conducting interviews with eight adolescent female respondents, it was obtained, namely six adolescent women used panty liners and experienced vaginal discharge, no odor, precise color, and no itching. In contrast, two female students used panty liners and did not experience vaginal discharge. So I, as a writer, am interested in taking the title of the long-term relationship between the use of panty liners and the incidence of vaginal discharge in adolescent girls (Tanaka *et al* 2020).

Several predisposing factors, including internal factors and external factors, cause vaginal discharge. Physical fatigue is a condition experienced by a person due to increased energy expenditure because it forces the body to overwork and physically drain. Increased energy expenditure suppresses the secretion of the hormone estrogen (Sawicki *et.al* 2021). The decrease in the secretion of the hormone estrogen causes a decrease in glycogen levels. Glycogen is used by Lactobacillus goserelin for metabolism. The rest of this metabolism is lactic acid which is used to maintain vaginal acidity. If lactic acid is produced in small amounts, bacteria, fungi, and parasites can quickly develop. Stress is the body's non-specific response to disturbed bodily needs, a universal phenomenon that occurs in daily life and is inevitable; everyone experiences it. Physical fatigue and stress (such as the demands of academics that are considered too severe, poor test results, and 17 tasks that accumulate) can affect the work of hormones in a woman's body, including triggering an increase in estrogen hormones (Mirmonsef, P., et al.2014).

Younger people will experience higher stress compared to older people. Personal hygiene is self-care carried out to maintain physical and psychological health (Haas *et.al*. 2020). Personal hygiene habits are a person's self-care habits to maintain health and are influenced by values and skills. Compliance with personal hygiene is necessary for individual comfort, safety, and health. Good personal hygiene habits aim to improve health, where the skin is the first defense against infection. The use of vaginal cleaning fluids can increase the risk of vaginal infections because these fluids can cause the natural bacteria that are useful for cleaning the vaginal area to die, and the pH balance in the vagina is disturbed (Lin *et.al*.2021).

Sanitary napkins are products in the form of sheets/pads made of cellulose or synthetic materials used to absorb menstrual fluids or vaginal fluids. In production, sanitary napkins derived from cellulose are bleached/bleached (Warashinta *et.al.* 2021). The bleaching used does not use chlorine, usually using hydrogen peroxide. The use of panty liners is categorized with good scoring in panty liners; it is known how long women who experience menstrual cycles or people with flour albus wear panty liners in a day, namely 3-4 hours (normal), equal to or more than 6 hours (risk) and poor use of panty liner in this case washing using soap and drying indoors without exposure to sunlight or/ good use of pantyliner in this case washing using soap and drying outside the house exposed to sunlight (Pontes *et.al* 2014). The use of panty liners is one of the causes of vaginal discharge. Where in the wearer, the temperature will increase by 1.5°C; this condition will boost the growth of germs and fungi that cause vaginal discharge. Generally, panty liners are used when getting vaginal discharge or excess vaginal discharge from the vagina. But many women are wrong in using panty liners. Panty liners should be used for a short period, and the use of pantyliners with a minimum frequency of replacement every day will be more likely to cause vaginal discharge due to increased temperature, humidity, and pH, which results in microorganisms that cause vaginal discharge to develop.

## **OBJECTIVE**

Is there a relationship between the length of use of panty liners and the incidence of vaginal discharge in female students?

## **METHODS**

### **Study site and setting**

This type of research is quantitative with a correlation analysis method and uses a cross-sectional design. Correlation analysis studies are techniques used to analyze the relationship between independent and dependent variables. Cross-sectional is a design to study the correlation dynamics between risk factors and effects through approaches, observations, or data collection at a time. In this method, the study wanted to see the relationship between the long use of panty liners and the incidence of vaginal discharge in adolescent girls.

### **Data collection**

The questionnaire is structured in a closed and open format for quantitative and qualitative data collection. Before filling out the questionnaire, respondents were explained the purpose of the research and the correct way to fill it out. Filling in is done anonymously to maintain the confidentiality and convenience of respondents. The collected data were then analyzed using descriptive and inferential statistical methods to evaluate the relationship between the length of wearing panty liners and the incidence of vaginal discharge in adolescent girls. Purposive sampling is a method of sample selection that is carried out based on a specific purpose or purpose determined by the researcher before the questionnaire is used to search for data on respondents. Validity and reliability tests are first carried out.

### **Statistical analysis**

Statistical analysis in this study was carried out to evaluate the relationship between the length of wearing panty liners and the incidence of vaginal discharge in adolescent girls. The statistical analysis steps applied include: Data on respondent characteristics (age, panty liner usage habits, and incidence of vaginal discharge) were analyzed descriptively to provide an overview of the variables in this study. The results of the descriptive analysis are presented in the form of percentages, frequencies, averages, and standard deviations. Chi-Square Test: To test the relationship between the variables of the length of wearing panty liners (categories <4 hours, 4-8 hours, and >8 hours) and the incidence of vaginal discharge, the chi-square test was used. This test evaluated whether there was a significant association between the duration of

panty liner use and the frequency of vaginal discharge experienced by respondents. Spearman Correlation Test: Since the data obtained are ordinal, the Spearman correlation test is used to measure the strength and direction of the relationship between the length of wearing panty liner and the severity of vaginal discharge symptoms (based on the frequency and intensity reported by respondents). Logistic Regression Analysis: To test the effect of prolonged wearing of panty liners on the risk of vaginal discharge, a binary logistic regression analysis was conducted. This analysis allows researchers to determine the likelihood or odds ratio (OR) of vaginal discharge based on the category of duration of wearing panty liners, taking into account other factors such as personal hygiene habits. The analysis results are considered significant if the p-value < 0.05. This analysis is carried out using statistical software such as SPSS or R to ensure the accuracy of the results. For the panty liner and vaginal discharge variable questionnaires, validity tests and reliability tests have been carried out by researchers. Meanwhile, the variables of physical fatigue, stress, personal hygiene, and feminine cleansing soap are questionnaires adopted by researchers. The data generated in this study was processed by editing, coding, tabulating, and centering techniques.

## RESULTS

### Univariate Analysis

**Table 1.** Old Illustration of Panty Liner

Question Material	Yes	No	Yes	No
	f	%	f	%
Do you often use panty liners?	62	78,5	17	21,5
			≤ 4 O'clock	> 4 O'clock
How long do you use panty liners?	18	22,8	61	77,2

**Table 2.** Vaginal Discharge Incident Answer Results

Question Material	Yes	No	Yes	No
	f	%	f	%
Have you ever experienced discharge of non-blood fluid from the vaginal cavity outside of your menstrual cycle?	43	54,4	36	45,6

### Bivariate Analysis

**Table 3.** Extended Use of Panty Liner with Vaginal Discharge

Duration of Use of Panty Liners	Occurrence of		Total	P
	Normal	Abnormal		
Normal	25	10	35	
Abnormal	11	33	44	.001
	36	43	79	

It illustrates that the most significant number of respondents used abnormal panty liners, as many as 44 people (55.7%). In comparison, respondents who wore panty liners for the duration of wearing the normal category were 35 (44.3%). This study provides an overview of how most respondents use panty liners abnormally. This means that panty liners are often used daily, are not used only as necessary, and are used for more than a few hours. The results of the respondent's answers to the questionnaire on the prolonged use of panty liners proved that

the respondents used panty liners abnormally, namely from the results of most respondents' answers for the "Yes" category were found in question number 1, as many as 62 people (78.5%), namely "Do you often use panty liners." This respondent's question suggests that they often use panty liners. Respondents who use panty liners are more often a habit that can cause vaginal discharge and other diseases. According to (Hennegan et al., 2016). The behavior of respondents who were included on average was supported by the answers of respondents in the " $\leq 4$  Hours" category in question number 2, as many as 18 people (22.8%), namely "How long do you use panty liners." This respondent's statement shows that the respondent uses panty liners with a minimum time of at least or less than 4 hours. Vaginal discharge is fluid that comes out of the vagina excessively in the form of white, yellow, or greenish mucus as a result of abnormalities in the reproductive system.

## DISCUSSION

It can be revealed that wearing panty liners for an extended period can increase the risk of vaginal discharge in adolescent girls. It is recommended that the use of panty liners be limited and changed regularly to prevent vaginal discharge and maintain the health of the intimate organs. This respondent's statement shows that the respondent uses panty liners with a minimum time of at least or less than 4 hours. Vaginal discharge is fluid that comes out of the vagina excessively in the form of white, yellow, or greenish mucus as a result of abnormalities in the reproductive system. Excessive and prolonged use of panty liners can create a humid environment in the feminine area, increasing the risk of developing microorganisms such as bacteria and fungi (A. A. M. Llanos et al, 2023). This damp condition is one of the main factors that can trigger vaginal discharge in adolescent girls, especially for those who have the habit of wearing panty liners for more than 8 hours per day (M. W. Bos et.al 2024). Teenage girls who used panty liners for longer durations (more than 8 hours per day) reported a higher incidence of vaginal discharge compared to those who changed panty liners regularly or limited their use. Too long duration of panty liner use allows sweat, bacteria, and fluid residue to accumulate in the intimate area, which can lead to irritation and mild infections that trigger vaginal discharge. This indicates that hygiene and personal care behaviors have a significant impact on the reproductive health of adolescent girls (Thatcher et.al.2024; T. Ford. et.al 2023).

The role of hygiene in vaginal discharge prevention, including how to clean the feminine area and change panty liners regularly, is an essential factor that can help reduce the risk of vaginal discharge (A. Head et.al 2024). Young women must understand the importance of keeping the feminine area clean, especially regarding panty liners. For example, choosing a panty liner without perfume or added chemicals can help prevent irritation to sensitive skin (K. Patel et.al.2023). Changing the panty liner every 4-6 hours, or sooner if it feels damp, is recommended to maintain a balance of microorganisms in the area and avoid environments that favour the growth of bacteria and fungi (U. Andriolo et al 2024). Education about the correct use of panty liners needs to be provided to young women so that they understand the impact of excessive use (K. Roxanne Rahnejat and B. F. Narice. 2023). Young women often use panty liners for comfort or hygiene reasons during the menstrual period, but without realizing it, improper use can cause side effects such as vaginal discharge. Therefore, it is essential to teach young women to avoid wearing panty liners too long and choose materials that suit their needs (C. Cano-Trujillo et.al 2023).

Using panty liners for a long time can create a moist and warm environment in the genital area. This condition is an ideal medium for the growth of microorganisms, such as bacteria and fungi, which can cause pathological vaginal discharge (J. Zhang et al 2023). A

panty liner that is not changed regularly will accumulate fluids such as sweat and vaginal secretions, increasing the risk of infection. The use of panty liners for more than 6 hours per day increases the risk of bacterial vaginosis in women of childbearing age (A. Chabowska *et.al* 2023). Chemicals and fragrances in panty liners can irritate the vaginal mucosa, trigger allergic reactions, and disrupt the average balance of the vagina's flora. Wearing panty liners for an extended period can increase the risk of vaginal discharge in adolescent girls (A. Thomasen *et.al* 2023). Panty liners should be limited and replaced periodically to prevent excess moisture and the growth of microorganisms. Education about good hygiene practices and selecting safe products are essential to maintain the health of the intimate organs (A. Calderón-Villarreal. 2024). Using panty liners for a long time can create a humid environment in the genital area (C. A. Downs *et al.*2022). A moist and warm atmosphere is an ideal condition for the growth of microorganisms, such as bacteria and fungi, which can cause abnormal vaginal discharge (M. Delavari Heravi,2024).

### **Reproductive Health Implications**

The results of this study have important implications for the reproductive health of adolescent girls, especially in the aspect of vaginal discharge prevention. Repeated or chronic vaginal discharge can have an impact on the comfort and confidence of teenage girls and has the potential to cause health complications if not treated properly. Therefore, awareness of the importance of regularly changing panty liners and maintaining the cleanliness of the intimate area must be instilled from an early age to form healthy behaviors in maintaining reproductive health.

## **CONCLUSION**

They are emphasizing that wearing panty liners for an extended period can increase the risk of vaginal discharge in adolescent girls. Based on these results, it is recommended that the use of panty liners be limited and changed periodically every 4-6 hours to prevent vaginal discharge and maintain the health of the intimate organs. In addition, education about the cleanliness of the feminine area and the correct use of panty liners must be improved so that young women better understand the importance of maintaining microbiota balance in their intimate areas.

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## **CONFLICTS OF INTEREST**

The authors declare that there are no conflicts of interest related to this study. This research was conducted independently, without any financial or commercial relationships that could be construed as a potential conflict of interest.

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