

KNOWLEDGE, ATTITUDE, AND PERSONAL HYGIENE BEHAVIORS WITH PATHOLOGICAL LEUKORRHEA IN ADOLESCENT GIRLS AT SMK 'AISYIYAH PALEMBANG

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ABSTRACT

Leukorrhea (Vaginal discharge) is one of the reproductive health problems that adolescent girls face. According to research, 75% of women worldwide have experienced leukorrhea. Leukorrhea, alternatively referred to as fluor albus, is a symptom of the female reproductive organs disease that can result in severe complications if left untreated. It is believed that a low level of knowledge, negative attitudes, and bad personal hygiene habits contribute to pathological leukorrhea. The purpose of this study was to examine the effect of knowledge, attitudes, and personal hygiene behaviour on pathological leukorrhea in adolescent girls attending the Vocational High School (SMK) 'Aisyiyah Palembang in 2020. This study used an analytical cross-sectional design and a simple random sampling method with 92 respondents. The results indicated a statistical significance between pathological leukorrhea and knowledge (p-value 0.004), attitude (p-value 0.001), and personal hygiene behaviour (p-value 0.001). Multivariate analysis revealed that the bad personal hygiene behaviour variable (p-value 0.018) was the most determinant associated with pathological leukorrhea (PR = 3.305, 95 per cent confidence interval [CI]:1.232-8.868). This study concludes that persistently bad personal hygiene practices may increase the risk of pathological leukorrhea in adolescent girls. Suggestions for young women to reduce their reliance on pantyliners, wear sweat-absorbing underwear, and avoid tight underwear.

Keywords: *adolescent girl's, pathological leukorrhea, personal hygiene.*

ABSTRAK

Salah satu permasalahan kesehatan reproduksi pada remaja putri yaitu keputihan (*leukorrhea, vaginal discharge*). Berdasarkan data dari penelitian menunjukkan 75% perempuan di dunia pasti pernah mengalami keputihan. Keputihan juga dikenal sebagai fluor albus, adalah gejala penyakit organ reproduksi perempuan, yang jika tidak segera ditangani akan menimbulkan masalah serius. Tingkat pengetahuan yang rendah, sikap negatif, dan perilaku kebersihan pribadi yang buruk diyakini bisa berpengaruh pada kejadian keputihan patologis. Tujuan dilakukannya studi ini adalah untuk menganalisis hubungan antara pengetahuan, sikap, serta sikap perilaku kebersihan pribadi terhadap kejadian keputihan patologis pada remaja putri di Sekolah Menengah Kejuruan (SMK) 'Aisyiyah Palembang Tahun 2020. Penelitian ini menggunakan desain *cross sectional* dengan total 92 responden, memakai metode *simple random sampling*. Hasil riset menunjukkan adanya hubungan yang bermakna antara pengetahuan (p-value 0.004), sikap (p-value 0.001), serta perilaku kebersihan pribadi (p-value 0.001) terhadap keputihan patologis. Dari hasil analisis multivariat menunjukkan bahwa variabel perilaku kebersihan pribadi yang buruk (p-value 0.018) merupakan variabel paling dominan yang berhubungan dengan keputihan patologis (PR = 3.305, 95% CI:1.232-8.868). Kesimpulan penelitian ini adalah perilaku kebersihan pribadi yang buruk dan terjadi secara terus menerus dapat meningkatkan risiko terjadinya keputihan patologis pada remaja putri. Saran untuk remaja putri agar mengurangi penggunaan *pantyliner*, menggunakan celana dalam yang dapat menyerap keringat, dan menghindari pemakaian celana dalam yang ketat.

Kata Kunci: remaja putri, keputihan patologis, kebersihan pribadi.

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Introduction

Women frequently face a variety of reproductive health issues, one of which is leukorrhea. Leukorrhea is a term used to describe non-bloody discharge from a woman's genitalia, which can be physiological or pathological.¹ Pathological leukorrhea or excessive and continuous pathological vaginal discharge can transmit the infection to the internal genitalia, particularly the oviduct, causing organ damage and infertility. Ectopic pregnancy, or pregnancy outside the womb, can also occur.² According to the World Health Organization (WHO), 75% of women experience vaginal discharge at least once in their lifetime, with 45% experiencing it more than twice.³ In Indonesia, approximately 90% of women can experience Flour Albus, Leucorrhoea, with adolescent girls aged 15 - 24 years accounting for 31.8 per cent.⁴

Leukorrhea, also known as Fluor albus, is discharged from the vaginal canal that is unnatural, smells or does not smell, and is accompanied by local itching that is the most commonly reported urogenital organ system to complain.^{5,6} The condition is one of the most common issues encountered in gynaecological practice.⁷ It is crucial during adolescents aged 14 - 18 years because this period is the initial period of reproductive development and the maturation of reproduction, and increased genetic sensitivity to bacteria and germs.⁸

Adolescence is when the reproductive organs begin to operate and go through a period of development and maturation.⁹ According to the International Centre for Biotechnology Information (2013), adolescent girls aged 15 - 24 years account for 31.8 per cent of leukorrhea signs and symptoms.¹⁰ Adolescents are more likely to experience vaginal discharge as a result of this. As a result, adolescent girls' knowledge, attitudes, and personal hygiene behaviour are critical.¹¹ Leukorrhea, often known as vaginal discharge, is a common condition among young women.¹² Adolescents' understanding of reproductive health issues serves as a guideline for healthy behaviour. However, young women do not have access to all of the right and necessary knowledge about reproductive health.¹³

It is critical to be aware of the causes of less common vaginal discharge.¹⁴ Although some infections are asymptomatic, complications can arise if conditions are not properly treated as soon as possible.⁶ Study in a developing country has revealed that morbidity and chronic disease are being experienced on a more personal level by women due to various factors such as gender inequality, healthcare disparities, a lack of women's autonomy. In addition, a lack of adequate infrastructure and a lack of focused counselling services.¹⁵ Adolescent girls should be taught self-care during vaginal discharge so that young women can avoid infectious diseases caused by poor hygiene during vaginal discharge.¹⁶ If untreated, it will lead to serious reproductive health issues.¹⁶ The need of the hour is increased awareness and sensitisation to the problem to take a proper and

complete course of medications rather than reverting to traditional disease control methods.¹⁴ Leukorrhea has a high incidence rate and is affected by various factors, including hormones and infection. Female leukorrhea can be physiological, but when other symptoms accompany it, it is pathological.⁶ This case is also known as pathological vaginal discharge.

An initial survey of adolescent girls at Vocational High School (SMK) 'Aisyiyah Palembang found that seven out of ten students (70%) did not understand pathological leukorrhea. Besides, sixty per cent of young women could not differentiate between pathological and physiological leukorrhea, and seven of them stated that they had not received information from the school. Thirty per cent claimed to have discovered somewhat greenish-yellow fluids coming from the vaginal organs. In comparison, forty per cent of young women claimed to have discovered thick white secretions originating from the vaginal organs. Thus, two out of every ten young women interviewed had a basic understanding of using pantyliners. However, seven of them are still unaware of the harmful influence on pathological leukorrhea. The purpose of this study was to examine the effect of knowledge, attitudes, and personal hygiene behaviour on pathological leukorrhea in adolescent girls attending the Vocational High School (SMK) 'Aisyiyah

Method

The study used a cross-sectional analytic design. Knowledge, attitude, and personal hygiene behaviour are the independent variables, while pathological leukorrhea in adolescent girls is the dependent variable. The population studies were all adolescent girls at SMK 'Aisyiyah Palembang who have menstruated. Furthermore, the sample was adolescent girls in grades X, XI, and XII at SMK 'Aisyiyah Palembang. They were willing to participate in this research and had menstruated met the inclusion criteria. Simple random sampling (SRS) in grades X, XI, and XII were used in this study to ensure that all elements of the research sample have an equal chance of being chosen as a sample. The first step is to create a sampling frame consisting of a list of young women from SMK 'Aisyiyah Palembang assigned a serial number and randomly selecting as many samples as needed. Then, the information is gathered through a questionnaire that the respondents fill out.

To be more objective, the researcher gathered the data himself; when the students completed the questionnaire, the researcher would guide the respondents in explaining each question. Validity and reliability tests have been performed on the questionnaire. To test the hypothesis, the sample size in this study was calculated using the two-proportion difference formula. When the type I error (α) is 0.05, $Z = 1.96$; when the type II error (β) is 0.20, $Z = 0.84$. The participants in this study were chosen from the largest sample, which included 42 people. The sample must be multiplied by two in this study because it uses the formula for the hypothesis test for difference in two population proportions, resulting in 84 samples. An additional 10% sample is taken from the sample size calculation in the current study to reduce the possibility of dropouts. As a result, there are a total of

92 samples. The information gathered. The study received "Ethical Approval" (No:360/UN9.1.10/KKE/2020) from the Health Research Ethics Committee Faculty of Public Health Sriwijaya University; participation was voluntary, and there was no financial incentive.

Results

The data was then analysed using univariate analysis. In addition, the bivariate analysis explains the association between each variable, such as knowledge, attitude, and personal hygiene behaviour. Furthermore, the multivariate analysis seeks to determine the dominant variables that affect pathological leukorrhea. This section demonstrates univariate, bivariate, and multivariate analysis, as shown in tables 1, 2, and 3 below.

Table 1: Respondents Frequency Distribution Based on Respondent Characteristics

Variable	Frequency	Percentage (%)
Age (years old)		
14 -15	39	42.4
16 - 17	53	57.6
Grades		
X	37	40.2
XI	45	48.9
XII	10	10.9
Leukorrhea		
Pathological	48	52.2
Physiological	44	47.8
Knowledge		
Low	51	55.4
High	41	44.6
Attitude		
Negative	49	53.3
Positive	43	46.7
Personal hygiene behaviour		
Bad	53	57.6
Good	39	42.4

Table 1 showed the characteristics of respondents. The proportion of respondents aged 16-17 years old was (57.6%) is higher than those aged 14-15 years old (42.4%). In addition, the proportion of respondents with grades XI (48.9%) is higher than those with grades XII (10.9%) in adolescent girls at SMK 'Aisyiyah Palembang. Furthermore, based on table 1, it is known that the proportion of leukorrhea (pathological) is 52.2%, which is greater than the proportion of leukorrhea (physiological). In addition, 55.4% of participants have a low level of knowledge. Then as many as 53.3% of adolescent girls have a negative attitude; furthermore, as many as 57.6% of adolescent girls have bad personal hygiene behaviour out of a total of 92 respondents. We conclude that the proportion of a low level of knowledge, negative attitude and bad personal hygiene behaviour of respondents is higher than that of each variable.

Table 2: Bivariate analysis of factors associated with leukorrhea

Variables	Leukorrhea				Total	p-value	PR (95%CI)
	Pathological		Physiological				
	n	%	n	%			
Knowledge							
Low	34	66.7	17	33.3	51	100	0.004 3.857 (1.617 - 9.200)
High	14	34.1	27	65.9	41	100	
Attitude							
Negative	34	69.4	15	30.6	49	100	0.001 4.695 (1.946 - 11.330)
Positive	14	32.6	29	67.4	43	100	
Personal hygiene behaviour							
Bad	36	67.9	17	32.1	53	100	0.001 4.765 (1.953 - 11.622)
Good	12	30.8	27	69.2	39	100	

In addition, table 2 showed that 66.7 per cent of young women had a low level of knowledge and experienced pathological leukorrhea; meanwhile, 34.1 per cent of young women with a high level of and experiencing pathological leukorrhea from 92 respondents. The chi-square test showed revealed a significant association between knowledge on pathological leukorrhea in adolescent girls. In addition, 69.4 per cent of adolescent girls had a negative attitude and had pathological leukorrhea. The chi-square test showed a significant association between attitude variables and pathological leukorrhea in adolescent girls. Furthermore, the results of the bivariate test showed that 67.9 per cent of adolescent girls had bad personal hygiene behaviour and had pathological leukorrhea. While the adolescent girls with good personal hygiene behaviour and experiencing pathological leukorrhea were 30.8 per cent. The chi-square test revealed a statistical significance between personal hygiene behaviour variables and pathological leukorrhea in adolescent females.

Table 3 : Multivariate analysis with Multiple Logistic Regression

Variable	P-Value	PR	95% CI
Knowledge	0.021	3.082	1.188-7.966
Attitude	0.045	2.719	1.023-7.228
Personal hygiene behaviour	0.018	3.305	1.232-8.868

Table 3 showed that all variables, namely knowledge, attitudes, and behaviour, have a p-value of 0.05. The variables have an association with pathological leukorrhea. Furthermore, the table results show that the most determinant variable influence on pathological leukorrhea in adolescent girls is the personal hygiene behaviour variable. The prevalence ratio (PR) value indicates that adolescent girls who engage in bad personal hygiene behaviour have 3.305 times higher pathological leukorrhea than adolescent girls who engage in good personal hygiene behaviour. With a confidence interval of 1,232-8,868, researchers believe that bad personal hygiene

behaviour is a risk factor for pathological leukorrhea in adolescent girls in 95 per cent of the general population.

Discussion

Bivariate analysis revealed that up to 66.7 per cent of adolescent females had a low level of knowledge and suffered from pathological leukorrhea. Meanwhile, 34.1 per cent of adolescent girls possessed good knowledge and were afflicted with pathological leukorrhea. The chi-square test revealed a significant association between knowledge and pathological leukorrhea in adolescent girls at SMK 'Aisyiyah Palembang.

A study of adolescent females conducted by Khedr et al. (2018) in Egypt discovered that 156 of them (53.4 per cent) had pathological leukorrhea. This research found a significant association between knowledge and pathological leukorrhea, with a 1.61-fold increase in risk (p-value =0.015 PR= 1.616 CI 95% = 1.112-2.348).¹⁷ It is supported by Adawiyah's (2017) research on adolescent girls at South Tangerang High School found a significant association between young women's knowledge and pathological leukorrhea (p-value 0.001).¹⁸ Research conducted in adolescent girls at SMK 'Aisyiyah Palembang shows that the lack of information distinguishes pathological and physiological leukorrhea. Even while lacking knowledge about personal cleanliness, concerning pathological leukorrhea particularly, might cause diseases such as cervical cancer¹⁹, respondents feel that leukorrhea is always a natural event that happens to every woman. Therefore, young ladies should learn more about personal hygiene, particularly leukorrhea, and seek accurate information.

According to bivariate analysis, 69.4 per cent of adolescent females had a negative attitude and pathological leukorrhea. Additionally, 32.6 per cent of adolescent females exhibited a positive attitude and had pathological leukorrhea. The current study establishes a significant association between attitude and pathological leukorrhea in adolescent girls at SMK 'Aisyiyah Palembang.

Fitriani (2017) identified a significant association between adolescent girls' hygiene attitude variable and pathological leukorrhea in a study done on teenage girls at high school (SMA) Klaten (p-value 0.000).²⁰ Purnama (2016) found a significant association between teenage girls' cleanliness attitude characteristics and pathological leukorrhea in a study done at Islamic senior high school (MTS) Bantul in teenage females, with a p-value of 0.046. The construction of a behaviour change is dependent on a person's expectations, perceptions, and attitudes.²¹ According to the study's findings on adolescent girls, the dominating attitude, namely the attitude toward using antiseptic fluids for the vagina²², might increase the risk of leukorrhea. Antiseptic substances and scents have the potential to harm vaginal flora.²³ The number of appealing commercials and misleading information acquired or accessed from a television and social media leading respondents to believe that leukorrhea is a common occurrence for all women.²⁴ The respondent's attitude is influenced by their lack of willingness to learn about personal hygiene.²⁵ Leukorrhea can

lead to cervical cancer, infertility, and pregnancy outside the uterus if not appropriately treated.²⁶ Young women should learn more about personal cleanliness, particularly the usage of feminine antiseptic fluids and the impact of utilising these fluids to prevent leukorrhea.

Bivariate analysis revealed that 67.9 per cent of adolescent girls had bad personal hygiene and pathological leukorrhea. Additionally, 32.6 per cent of adolescent girls had good personal hygiene and had pathological leukorrhea. The current study demonstrates a significant association between personal hygiene and pathological leukorrhea in adolescent girls at SMK 'Aisyiyah Palembang.

This research aligns with Rahmah's 2017 study of adolescent females in Islamic senior high school (MA) Enrekang, which discovered a connection between teenage girls' hygiene behaviour and pathological leukorrhea (p-value 0.000).²⁷ In a 2017 study on young women conducted by Adawiyah at SMA Tangerang Selatan, it was discovered that there was a strong association between young women's behavioural characteristics and the frequency of pathological leukorrhea (p-value 0.007). Furthermore, according to research conducted on adolescent girls at SMK 'Aisyiyah Palembang, the use of pantyliners and female cleaning fluid in adolescent girls is the dominating behaviour that can raise the risk of leukorrhea.

The formation of fungi around the wet feminine area might cause illness if pantyliners are not used properly.²⁸ It will be quite easy to cultivate these bacteria and fungus such that they can produce leukorrhea. The fragrance of pantyliners comes from chemicals that can cause allergies to the skin around the vagina, so it's best to avoid using them all the time.²⁹ If they must use pantyliners, keep in mind that they should be changed every four hours. They should thoroughly wash their hands with soap and running water before using pantyliners and underwear to avoid bacteria and virus transfer.³⁰

Furthermore, the final multivariate analysis model, which utilised multiple logistic regression, revealed that knowledge, attitudes, and personal hygiene behaviour significantly influenced pathological leukorrhea. Again, personal hygiene behaviour is an essential factor associated with pathological leukorrhea, which other variables have adjusted. The prevalence ratio (PR) for the behavioural variable is 3.305, which means that young women who lack personal hygiene behaviour are 3.305 times more likely to develop pathological leukorrhea than young women who engage in good behaviour. Researchers estimate that 95 per cent of adolescent girls with lack personal hygiene behaviour and pathological leukorrhea in the general population had a risk of pathological leukorrhea ranging from 1.232 to 8.868 times higher than girls with good behaviour. This study's findings are similar to those of Ilankoon et al. (2017), who discovered a significant association between personal hygiene behaviour and pathological leukorrhea in Sri Lankan women aged 15 to 19.³¹

Furthermore, this research supports Ashari's 2018 study of adolescent females at Pontianak Islamic Boarding School and Wirapraja's 2017 study of female adolescents aged 10 to 21 in Jember; it is well known that personal hygiene is the essential factor in determining pathological leukorrhea.³² Pathological leukorrhea will become more common as a result of bad behaviour. In adolescent girls, reducing pantyliners, wearing sweat-wicking underwear, and avoiding wearing too-tight pants can help prevent pathological leukorrhea.^{33,34}

Conclusion

Pathological leukorrhea was 52.2 per cent for pathological leukorrhea and 47.8% for physiological leukorrhea in female adolescents at SMK 'Aisyiyah Palembang. This study revealed that knowledge, attitudes, and personal hygiene behaviour are significantly associated with pathological leukorrhea. Furthermore, the final multivariate analysis model using multiple logistic regression revealed that the personal hygiene behaviour variable has the most determinant impact on pathological leukorrhea.

A significant association between self-care during vaginal discharge should be taught to adolescents so that young women can avoid infectious diseases caused by poor hygiene during vaginal discharge. As a result, the recommendation in this article is to use fewer pantyliners and change them every 3 to 4 hours. In addition, women should avoid using perfumes or antiseptics and should use fragrance-free pantyliners. They were also working to improve personal hygiene to prevent future negative consequences.

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Conflict of Interest

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