

THE RELATIONSHIP BETWEEN PERSONAL HYGIENE BEHAVIOR AND THE INCIDENCE OF FLUOR ALBUS IN ADOLESCENT GIRLS

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ABSTRAK: HUBUNGAN PERILAKU HIGIENE PERSONAL DENGAN KEJADIAN KEPUTIHAN PADA REMAJA PUTRI

Latar Belakang: Masa remaja merupakan masa peralihan dari fase anak-anak menuju fase dewasa yang ditandai oleh berbagai macam perubahan, termasuk pertumbuhan organ reproduksi. Remaja pada masa ini diharapkan untuk mulai memperhatikan kebersihan diri terutama kesehatan reproduksi, yang dimulai dengan menjaga kebersihan tubuh seperti kebersihan pada vagina agar terhindar dari berbagai kemungkinan penyakit, termasuk keputihan. Keputihan merupakan gangguan kedua terbanyak setelah gangguan menstruasi yang kerap dialami oleh remaja.

Tujuan: Penelitian ini bertujuan untuk menganalisis hubungan antara perilaku higiene personal dengan kejadian keputihan pada remaja putri.

Metode: Rancangan penelitian ini observasional analitik dengan desain cross sectional. Pengambilan subjek penelitian menggunakan teknik *consecutive sampling* diperoleh 51 responden. Instrumen yang digunakan kuesioner. Analisis data menggunakan analisis univariabel dan bivariabel (uji Chi-Square).

Hasil: Hasil penelitian menunjukkan remaja putri sebagai subjek penelitian ini berada pada usia remaja awal (12-15 tahun) dan sebagian besar berusia 14 tahun (39,2%), serta hasil analisis bivariabel menunjukkan nilai $p < 0,05$ (PR 9,857; IK 95% 1,383 - 70,261).

Kesimpulan: Terdapat hubungan antara perilaku higiene personal dengan kejadian keputihan.

Saran: Perlu diberikan promosi kesehatan mengenai kesehatan reproduksi khususnya higiene personal agar remaja putri memiliki pengetahuan yang mendalam, sehingga dapat berperilaku higiene personal yang baik dan mencegah terjadinya keputihan.

Kata Kunci: Keputihan, Perilaku Higiene Personal, Remaja Putri

ABSTRACT

Background: Adolescence is a transitional period from childhood phase to adulthood phase, marked by a range of changes, which involves the development of the reproductive organs. Adolescents at this time are expected to start paying attention to personal hygiene, especially reproductive health, which starts from maintaining personal hygiene such as vaginal hygiene to avoid the possibility of diseases including fluor albus. Fluor albus is the second disorder after menstrual disorders that often occur in adolescents.

Purpose: This study aims to analyze the relationship between personal hygiene behavior and the incidence of fluor albus in adolescent girls.

Methods: This research design is analytic observational with cross sectional design. Taking research subjects using consecutive sampling technique obtained 51 respondents. The instrument used was a questionnaire. Data analysis using univariable and bivariable analysis (Chi-Square test).

Results: The results showed that adolescent girls as the subject of this study were in early adolescence (12-15 years) and most were 14 years old (39.2%), and the results of bivariable analysis showed a p value < 0.05 (PR 9.857; CI 95% 1.383 - 70.261).

Conclusion: There is a relationship between personal hygiene behavior and the incidence of fluor albus.

Suggestions: Health promotion regarding reproductive health, especially personal hygiene, is necessary so that adolescent girls have in-depth knowledge, enabling them to practice good personal hygiene and prevent vaginal discharge.

Keywords: Fluor Albus, Personal Hygiene Behavior, Adolescent Girls

INTRODUCTION

Adolescents are individuals aged 10-18 years (Kemenkes RI, 2014). Based on World Health Organization (WHO), adolescence begins at age 10-19, marking the transition from childhood to adulthood (Kaur et al., 2018). Adolescence is a transitional period from childhood phase to adulthood phase, marked by various developments, including increases in muscle mass, body fat, and significant hormonal changes (Atiqah Azzah Sulhan et al., 2024). Rapid physical changes include the growth of reproductive organs to reach maturity, as indicated by the ability to perform reproductive functions (Gultom & Sari, 2022). Adolescents at this stage are expected to start paying attention to personal hygiene, especially reproductive health (Pratika NPAI, 2021).

Good knowledge and care in maintaining reproductive organ hygiene can preserve reproductive health. Research indicates a significant association between knowledge, attitudes, and personal hygiene practices (Khoiroh N, 2023). The health of the reproductive organs begins with the practice of proper personal hygiene, particularly vaginal hygiene, which aims to maintain cleanliness, normal function, and health of the vagina, while also protecting it from potential diseases such as fluor albus (PP RI, 2014) (Kusmiran, 2014).

Fluor albus, commonly referred to as leucorrhoea, leukorrhea, or vaginal discharge, refers to fluid secreted from the genital tract that is not blood (Andini, 2023). This condition may represent a normal physiological process or indicate an underlying pathological disorder (Fitriani et al., 2024). Pathological fluor albus may become life-threatening if not managed promptly and appropriately. In addition to leading to infertility and ectopic pregnancy, it may serve as a preliminary symptom of cervical cancer, which remains one of the leading causes of mortality among women (Aminah & Yuliani, 2024). This condition, however, can be prevented through the adoption of proper personal hygiene practices. Personal hygiene refers to actions undertaken to maintain individual cleanliness and health, as well as overall physical and psychological well-being (Sainafat & Leunupun, 2025).

Over 50% of women globally have reported experiencing vaginal discharge. Approximately one in ten women report this condition within a given year (Suminar et al., 2022). WHO data indicate that by 2021, about 75% of Indonesian women were estimated to have experienced fluor albus at least once throughout their lives, with 45% reporting recurrent episodes occurring more than twice (Arsyad et al., 2023). These prevalence figures suggest that fluor albus represents a widespread health concern among women in Indonesia (Ranamajaki, 2024).

Fluor albus is the second most common disorder after menstrual disorders in adolescents (Maysaroh & Mariza, 2021). About 90% of Indonesian women are affected by fluor albus and 60% of these are adolescent girls (Zahra et al., 2025). This is due to the warm and humid tropical climate, which promotes fungal growth, resulting in a high incidence of vaginal discharge in Indonesia. Signs and symptoms of fluor albus have also been reported in unmarried women or in adolescent girls aged 15–24 years (31.8%) (Melina & Ringringringulu, 2021). Based on data from the Bali Provincial Health Office in 2018, there were 12,400 cases of women with STIs accompanied by fluor albus symptoms, with an average age above 15 years (Pratika NPAI, 2021). This indicates that adolescents are at higher risk of fluor albus.

SMP Muhammadiyah 2 Singaraja is one of the private junior high schools located in Buleleng Regency, Bali Province. A preliminary study was conducted at Muhammadiyah 2 Singaraja Junior High School by interviewing several female students (adolescent girls). Data obtained from interviewing 10 female students showed that 9 female students had experienced fluor albus, 8 female students had experienced pathological fluor albus, 8 female students had poor personal hygiene behavior (such as not knowing how to properly care for their female organs and the technique and direction of hand movements when cleaning their genitals, not washing their hands before touching their vagina, wearing tight underwear), and 8 students considered fluor albus to be harmless. This shows that personal hygiene behavior regarding fluor albus in adolescent girls is still lacking. Therefore, it is necessary to study the relationship between

personal hygiene behavior and fluor albus in adolescent girls at SMP Muhammadiyah 2 Singaraja.

The purpose of this study is to analyze the relationship between personal hygiene behavior and fluor albus among adolescent girls at SMP Muhammadiyah 2 Singaraja. The differences between this study and previous studies are related to the time, location of the study, research subjects, and research methods.

RESEARCH METHODS

The study was conducted at SMP Muhammadiyah 2 Singaraja in August 2024. It was an analytical observational study with a cross-sectional design. The subjects in this study were female adolescents at SMP Muhammadiyah 2 Singaraja in the 2024/2025 academic year. The research sample was selected using consecutive sampling (in accordance with the inclusion and exclusion criteria), resulting in 51 respondents. The inclusion criteria were female students aged 10-19

years, female students who had already experienced menstruation, female students who were not yet married, and female students who were willing to be respondents. The exclusion criteria were female students who did not complete the questionnaire.

The independent variable in this study was personal hygiene behavior, and the dependent variable was fluor albus. The instrument used was a questionnaire. Data analysis used univariate analysis, bivariate analysis using Chi-Square and prevalence ratio - 95% confidence interval (PR CI 95%).

RESEARCH RESULTS

The adolescent girls in this study were in early adolescence (12-15 years old). Table 1 shows that most of the adolescent girls were 14 years old (39.2%). Most of the adolescent girls had good personal hygiene behavior, namely 28 people (54.9%), and most of the adolescent girls experienced fluor albus, namely 38 people (74.5%).

Table 1
Characteristics Of The Research Subjects

Characteristics	Frequency (n = 51)	Percentage (%)
Age		
12 years	14	27.5
13 years	15	29.4
14 years	20	39.2
15 years	2	3.9
Personal Hygiene Behavior		
Poor	23	45.1
Good	28	54.9
Incidence of Fluor albus		
Yes	38	74.5
No	13	25.5

Table 2
The Relationship Between Personal Hygiene Behavior And The Incidence Of Fluor Albus

Personal Hygiene Behavior	Incidence of Fluor Albus				Total		PR (CI 95%)	p Value
	Yes		No					
	n	%	n	%	n	%		
Poor	22	95,7	1	4,3	23	100	9,857	0,005
Good	16	57.1	12	42.9	28	100	(1.383-70.261)	

Table 2 shows that adolescent girls who experienced fluor albus had poorer personal hygiene behavior (95.7%) compared to those with good personal hygiene behavior (57.1%). Statistical test results show a significant relationship between personal hygiene behavior with fluor albus (p-value < 0.05) and a prevalence ratio (PR) of 9.857 (95%

CI 1.383 - 70.261). Adolescent girls with poor personal hygiene practices are 9.857 times more likely to experience fluor albus than adolescent girls with good personal hygiene practices.

DISCUSSION

The results showed a significant relationship between personal hygiene behavior and fluor albus ($p < 0.05$) with an OR of 9.857 (95% CI 1.383 - 70.261). Adolescent girls with poor personal hygiene behavior were 9.857 times more likely to experience fluor albus than adolescent girls with good personal hygiene behavior. Most adolescent girls who experience fluor albus have insufficient knowledge about personal hygiene behavior and do not fully understand fluor albus.

This inadequate personal hygiene practice is presumably attributed to the limited information students receive concerning personal hygiene behavior, both directly and indirectly, such as from electronic media and the internet. Knowledge can influence a person's behavior and can provide material stimuli that will trigger an action or behavior in response to the stimulus provided. Some students in this study were not aware of personal hygiene, menstrual hygiene management, and fluor albus management. This indicates that students who exhibit inadequate personal hygiene behavior experience fluor albus because they lack information about personal hygiene behavior.

This study aligns with the findings of research by Nurhaliza (2024), which demonstrated a correlation between personal hygiene practices and the occurrence of fluor albus among adolescents. Adolescents who maintain poor personal hygiene were found to be 3.7 times more likely to develop fluor albus compared to those who practice good personal hygiene (Nurhaliza, 2024). Good knowledge and care are decisive factors in maintaining reproductive health. The habit of cleaning the female organs is a form of behavior based on knowledge that will affect the good or bad cleanliness of the female organs. And it will also affect the incidence of fluor albus (Nisa & Yudha, 2024).

Research conducted by Navalía (2024) also indicates a significant association between personal hygiene practices and the incidence of fluor albus among adolescent girls. The majority of respondents, amounting to 55 individuals (40.0%), exhibited poor personal hygiene accompanied by fluor albus. Meanwhile, respondents who had good personal hygiene behavior with good fluor albus totaled 19 respondents (12.8%) (Navalía, 2024). A person's personal hygiene habits can affect the occurrence of fluor albus. The higher the quality of an individual's personal hygiene practices, the lower the risk of experiencing vaginal discharge. Conversely, poor personal hygiene habits increase a person's risk of experiencing vaginal discharge. If this condition is left untreated, it can lead to other

reproductive health problems that can be fatal (Chintiani, 2024).

The research by Putri (2023) indicates a strong association between adolescents' personal hygiene behaviors and pathological fluor albus. Respondents who exhibited poor personal hygiene were found to be 119 times more likely to experience pathological fluor albus. Personal hygiene behavior is the understanding, attitude, and practices that an individual does to improve their health and maintain personal cleanliness, thereby increasing their self-confidence. Practicing personal hygiene can prevent diseases, especially diseases of the reproductive organs (R. A. V Putri, 2023). The better adolescents practice personal hygiene, the lower their likelihood of presenting with vaginal discharge. It is fundamental to acknowledge that proper hygiene, particularly in the genital area, involves practices such as handwashing prior to touching the vagina and cleansing the vagina in a front-to-back direction, avoiding excessive use of antiseptic foam and soap that may disrupt the natural vaginal balance, and wearing cotton underwear. Furthermore, seeking medical attention promptly is recommended if vaginal discharge occurs (Ihsanpuro, 2025).

Based on the findings of research conducted by Putri (2024), the results showed that 66.1% of students had poor personal hygiene practices and 75.8% reported experiencing pathological vaginal discharge. The results of the statistical analysis indicate a significant relationship between personal hygiene behavior and vaginal discharge ($p = 0.030$). These results indicate that inadequate hygiene practices are linked to an increased risk of pathological vaginal discharge. Findings reveal that adolescent girls with poor personal hygiene are significantly more likely to experience pathological vaginal discharge. The study underscores the critical role of advancing hygiene education and awareness in school environments to foster reproductive health. Schools are encouraged to implement routine health counseling programs focusing on female hygiene to decrease the incidence of vaginal discharge and promote the overall well-being of adolescents (F. S. Putri et al., 2024).

Similarly, research conducted by Widyawati (2025) revealed a correlation between personal hygiene and the occurrence of vaginal discharge among adolescent girls, which was mainly attributed to inadequate knowledge and insufficient attention to genital hygiene. Consequently, proper personal hygiene is crucial in preventing various health problems, including vaginal discharge. The findings

further indicated that most adolescent girls demonstrated poor personal hygiene practices related to the incidence of vaginal discharge, primarily due to a limited understanding of appropriate self-care. Early management is necessary, along with ruling out other possible causes such as cervical cancer, to prevent unnecessary panic and anxiety among adolescents experiencing excessive fluor albus. Thus, it may be inferred that there is a significant correlation between personal hygiene and the occurrence of vaginal discharge in adolescent girls, with contributing factors including poor hygiene practices, fatigue or stress, and hormonal influences (Widyawati et al., 2025).

Furthermore, research by Yarıcı (2023), which evaluated the genital hygiene behaviors and vaginal discharge patterns of 408 women in the Turkish Republic of Northern Cyprus (TRNC), found that nearly half of the women reported a history of abnormal vaginal discharge. A review of related studies indicated that one in two women experiences abnormal vaginal discharge due to poor genital hygiene practices (Yarıcı et al., 2023). Among adolescents, vaginal discharge is commonly linked to unhealthy behaviors such as excessive use of tissues, wearing tight synthetic clothing, utilizing unclean toilets, frequently sharing underwear and towels, improper cleaning practices (e.g., washing from back to front), fatigue, delayed changing of sanitary pads, high stress levels, excessive use of cleansing soaps, exposure to unhygienic environments, elevated blood glucose levels, and hormonal imbalances (Bansu & Lante, 2022).

The results of Wardani's (2022) study show that there is an influence of genital hygiene behavior factors on the incidence of vaginal discharge. This study found that less than 50% of respondents practiced the following behaviors: cleaning the female genital area from back to front (25%), using special vaginal antiseptic liquid to clean the female genital area (35%), and using water in a bucket to clean the female genital area (40%) (Wardani et al., 2022).

Research by Hanifah (2023) also demonstrates a significant association between personal hygiene and the incidence of vaginal discharge among adolescent girls. Adolescents with poor personal hygiene were found to be 5.449 times more likely to experience vaginal discharge compared to those with good hygiene practices. Proper personal hygiene is essential to maintain the female genital organs in a clean and dry condition. Failure to observe adequate hygiene may facilitate

fungal growth or rapid bacterial proliferation, potentially leading to complications such as vaginal discharge, itching, and other skin-related disorders. Therefore, information sources are needed to increase adolescents' knowledge, whether from health workers or their parents, to improve personal hygiene so that vaginal discharge can be prevented (Hanifah et al., 2023).

In line with this, findings from Muntasih (2025) also indicate a significant relationship between personal hygiene behavior and the occurrence of fluor albus in adolescent girls. Poor personal hygiene behaviors such as wearing tight underwear, nylon underwear, and not keeping the vagina dry can cause the vagina and vaginal area to become moist. This condition is ideal for bacteria and fungi to multiply, leading to pathological fluor albus. Therefore, women, especially adolescent girls, are advised to wear cotton underwear and change it frequently, at least twice a day (during bathing), especially for women who are active and prone to sweating (Muntasih & Rohmah, 2025).

CONCLUSION

The results of the study show that the adolescent girls who were the subjects of this study were in early adolescence (12-15 years old) and most were 14 years old (39.2%). The bivariate analysis results show a significant relationship between personal hygiene behavior and fluor albus (p -value < 0.05), with an OR of 9.857 (95% CI 1.383 - 70.261). These data indicate that there is a relationship between personal hygiene behavior and fluor albus. Adolescent girls with poor personal hygiene behavior are 9.857 times more likely to experience fluor albus than adolescent girls with good personal hygiene behavior.

SUGGESTION

Health promotion regarding reproductive health, especially personal hygiene, needs to be provided to adolescent girls so that they have in-depth knowledge about personal hygiene, thereby enabling them to practice good personal hygiene and prevent fluor albus. In addition, the results of this study are also expected to serve as a basis for policy-making to improve personal hygiene practices and prevent fluor albus, especially at SMP Muhammadiyah 2 Singaraja.

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