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Factors Associated with Adolescent Girls' Knowledge of Fluor Albus at Taman Harapan 1 SHS, Bekasi City, in 2016

Pansilia, Rifa'at Hanifa Muslimah
Sekolah Tinggi Ilmu Kesehatan Prima, Indonesia
pansiliamuluss@gmail.com

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Abstract

Introduction: *Fluor albus (vaginal discharge) affects approximately 50% of the female population across almost all age groups. In Indonesia, over 75% of women experience fluor albus at least once in their lifetime. This high prevalence is associated with the country's humid climate, which facilitates the growth of pathogenic fungi and bacteria.* ***Objective:*** *To identify the factors associated with adolescent girls' knowledge regarding fluor albus.* ***Method:*** *This study employed a descriptive-analytic design with a cross-sectional approach.* ***Results and Discussion:*** *Of the respondents, 122 adolescent girls (61.0%) demonstrated low knowledge of fluor albus, while 78 (39.0%) showed a high level of knowledge. Bivariate analysis revealed that personal hygiene (p = 0.003), sources of information (p = 0.005), and environmental factors (p = 0.001) were significantly associated with knowledge levels regarding fluor albus. These three variables were identified as significant factors influencing adolescent girls' knowledge. The findings suggest that improving adolescent knowledge requires: (1) enhancement of personal hygiene practices, (2) increased access to accurate and reliable information through various media, and (3) supportive family and social environments.* ***Conclusion:*** *Health education interventions targeting adolescents should adopt a holistic approach, encompassing improvements in personal hygiene, facilitation of access to health information, and the creation of supportive environments.*

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Introduction

Adolescent reproductive health refers to a state of well-being related to the genital system and reproductive functions specific to adolescents (Anwar, Rosdiana, Dhirah, & Marniati, 2020); (Pradnyandari, Surya, & Aryana, 2019). Reproductive health remains a serious and enduring public health issue (Andriani, Simbolon, & Riastuti, 2022). The Indonesian government supports the implementation of counseling services, considering them part of reproductive rights and an essential component of accessible reproductive health services, particularly for adolescents (Ilmiawati & Kuntoro, 2016)

Reproductive health among adolescents must be given significant attention, as adolescent girls are particularly vulnerable to various reproductive tract infections such as vaginitis, gonorrhea, syphilis, chlamydia, and others (Nurlaeli, 2020); (Rima Wirenviona, Riris, & ST, 2020). Many of these infections present with symptoms of vaginal discharge (fluor albus), which has long been a prevalent health concern among women in Indonesia. Despite being considered a minor condition, fluor albus is often persistent and challenging to cure (Febria, 2020)

Fluor albus is a common gynecological condition among women of reproductive age, with approximately 5 to 10 million clinical visits reported annually worldwide (Shalma et al., 2020); (Hanipah & Nirmalasari, 2021); (Chirenje et al., 2018). It is characterized by excessive, non-bloody vaginal discharge, which may be caused by pathological or non-pathological conditions (Sukamto, Yahya, Handayani, Argentina, & Liberty, 2018)

According to the World Health Organization (WHO, 2018), about 75% of women globally experience vaginal discharge at least once in their lives, and recurrence is common. Research indicates a high prevalence of fluor albus among adolescents, estimated at 45%. In Indonesia, all women are likely to experience fluor albus due to the country's tropical climate. This condition is also frequently observed among unmarried or adolescent females, placing them at higher risk (Melina & Ringringringulu, 2021)

Factors influencing the occurrence of fluor albus include both infectious and non-infectious causes. Infectious causes typically involve fungi, bacteria, parasites, or viruses. Non-infectious causes are often related to poor knowledge and personal hygiene, such as improper genital care, wearing tight jeans, infrequent changing of underwear, and the use of non-absorbent clothing materials (Pradnyandari et al., 2019)

Not all adolescents have access to accurate or sufficient information. Many lack understanding or face challenges in interpreting available information, placing them at increased risk (Citrawati, Nay, & Lestari, 2019). Several factors influence adolescent knowledge levels, including age, education, and environment. Education, in particular, is a key determinant of knowledge acquisition, as adolescence is a developmental stage characterized by a strong curiosity and cognitive transition toward adult-level reasoning (Pradnyandari et al., 2019)

Reproductive health during adolescence is a critical phase marking the transition toward maturity. Therefore, adolescent reproductive organs should be maintained with proper care. Based on this background, the researcher considers it important to further explore adolescent girls' knowledge of fluor albus.

Method

This study employed a descriptive-analytic design, which is used to identify the relationship between two variables. The approach utilized was a cross-sectional design, meaning that the relationship between variables was assessed at a single point in time among a specific group of subjects. In this design, each participant was measured and observed only once during the same time period.

Result and Discussion

1. Result

The results of this study are presented in the form of frequency distribution tables for univariate analysis and in the form of cross-tables for bivariate analysis results.

Univariate Analysis

Table 1

Frequency Distribution of Adolescent Girls Based on Knowledge

Knowledge	Frequency	Percentage (%)
Low	122	61.0
High	78	39.0
Total	**200**	**100**

From the table above, it is known that the most knowledge of young women in young women with low knowledge is 122 young women (61.0%), and the high level of knowledge is 78 young women (39.0%).

Table 2

Frequency Distribution of Adolescent Girls Based on Personal

Personal Hygiene	Frequency	Percentage (%)
Bad	154	77.0
Good	46	23.0
Total	**200**	**100**

From the table above, it is known that the most personal hygiene among young women in adolescent girls with poor personal hygiene was 154 young women (77.0%), and personal hygiene was good for 46 young women (23.0%).

Table 3

Frequency Distribution of Young Women Based on Information Sources

Information Source	Frequency	Percentage (%)
Media	144	72.0
Non media	56	28.0
Total	**200**	**100**

From the table above, it is known that the most sources of information for young women who get information from the media are 144 young women (72.0%), and as many as 56 young women (28.0%) who get information sources from non-media.

Table 4

Frequency Distribution of Young Women by Environment

Environmental	Frequency	Percentage (%)
Bad	162	81.0
Good	38	19.0
Total	**200**	**100**

From the table above, it is known that the environment of young women with a bad environment is 162 young women (81.0%), and a good environment is 38 young women (19.0%).

Bivariate Analysis

Table 5

The Relationship between Personal Hygiene and Adolescent Women's Knowledge about Fluor Albus

Variable	Knowledge about fluor albus						OR (95%CI)	P-value
	Low		High		Total			
	F	%	F	%	F	%		
Personal Hygiene								
Bad	103	66.9	51	33.1	154	100	2.870 (1.460-5.643)	0.003
Good	19	41.3	27	58.7	46	100		
Total	**122**	**61.0**	**78**	**39.0**	**200**	**100**		

Based on the table above, it can be seen that adolescent girls have low knowledge of fluoride albus more in personal hygiene is not good at 66.9%, and those who have high knowledge are more in young women whose personal hygiene is not good at 33.1%. The results of the statistical test using *Chi Square* obtained a *P-Value* = 0.003 at an alpha of 0.05 which means that there is a significant relationship between personal hygiene and adolescent girls' knowledge. From the results of the analysis, an OR value = 2.870 was also obtained, meaning that young women with poor personal hygiene had a 2.870 times lower chance of having knowledge about flour albus than young women with good personal hygiene.

Table 6

The Relationship of Information Sources with Adolescent Women's Knowledge about Fluor Albus

Variable	Knowledge about fluor albus						OR (95%CI)	P-value
	Low		High		Total			
	F	%	F	%	F	%		
Information Source								
Media	97	67.4	47	32.6	144	100	2.559 (1.361-4.813)	0.005
Non media	25	44.6	31	55.4	56	100		
Total	**122**	**61.0**	**78**	**39.0**	**200**	**100**		

Based on the table above, it can be seen that the low knowledge of adolescent girls about fluoride albus is more in adolescent girls who get information from the media by 67.4%, and those who are highly knowledgeable are more in young women who get information sources from the media as much as 32.6%. The results of the statistical test using *Chi Square* obtained a *P-Value* = 0.005 at an alpha of 0.05 which means that there is a significant relationship between the source of information and the knowledge of adolescent girls. From the results of the analysis, an OR value = 2.559 was also obtained, meaning that young women who received information sources from the media had a 2.559 times lower chance of having knowledge about flour albus compared to young women who received information sources from non-media.

Table 7
The Relationship of the Environment to Young Women's Knowledge of Fluor Albus

Variable	Knowledge about fluor albus						OR (95%CI)	P-value
	Low		High		Total			
	F	%	F	%	F	%		
Environmental								
Bad	108	66.7	54	33.3	162	100	2.559 (1.361-4.813)	0.005
Good	14	36.8	24	63.2	38	100		
Total	**122**	**61.0**	**78**	**39.0**	**200**	**100**		

Based on the table above, it can be seen that adolescent girls have low knowledge of fluoride albus more in a negative environment by 66.7%, and those who have high knowledge are more in young women with a bad environment by 33.3%. The results of the statistical test using *Chi Square* obtained a *P-Value* result = 0.001 at alpha 0.05 which means that there is a significant relationship between the environment and the knowledge of adolescent girls. From the results of the analysis, an OR value = 3.429 was also obtained, meaning that young women with a bad environment had a 3.429 times lower chance of having knowledge about flour albus than young women with a good environment.

2. Discussion

Adolescent Girls' Knowledge of Fluor Albus

A study conducted at Taman Harapan 1 Senior High School, Bekasi City, in 2016 found that 122 adolescent girls (61.0%) had a low level of knowledge about fluor albus, while 78 (39.0%) had a high level of knowledge.

Fluor albus is defined as any genital discharge that is not blood. It is not a disease in itself but a symptom or manifestation of various gynecological conditions (Manuaba, 2014). A study by Rohmaniah (2013) at SMAN 1 Klapanunggal, Bogor Regency, also found a significant relationship between knowledge and awareness of fluor albus. Among 58 adolescent girls surveyed, 36.2% had high knowledge, while 63.7% had low knowledge.

Personal Hygiene

Among adolescents with poor personal hygiene, 66.9% had low knowledge of fluor albus, while 33.1% had high knowledge. The Chi-Square statistical test yielded a **p-value of 0.003** ($\alpha = 0.05$), indicating a statistically significant relationship between personal hygiene and knowledge levels.

Personal hygiene originates from the Greek words *personal* (individual) and *hygiene* (health). It refers to individual practices that promote physical and psychological well-being (Tarwoto & Wartono, 2004). This result aligns with Permatasari's (2012) findings, which also demonstrated a significant association ($p = 0.000$) between personal hygiene and knowledge of fluor albus among female students at SMA Negeri 9 Semarang.

Sources of Information

In this study, 144 adolescent girls (72.0%) obtained information from media sources, while 56 (28.0%) received it from non-media sources. Among those exposed to media sources, 67.4% had low knowledge and 32.6% had high knowledge. The Chi-Square test showed a **p-value of 0.005** ($\alpha = 0.05$), indicating a significant association between source of information and knowledge level.

Muslihatun (2011) also found a significant relationship between information sources and adolescent girls' knowledge of fluor albus, highlighting the role of rapid technological development in shaping adolescent understanding. This aligns with the theory that increased exposure to information enhances knowledge acquisition (Notoadmodjo, 2010).

Environmental Factors

Most respondents (81.0%) lived in less supportive environments, while only 19.0% were in supportive environments. Among those from unsupportive environments, 66.7% had low knowledge, and 33.3% had high knowledge. The Chi-Square test yielded a **p-value of 0.001** with an **Odds Ratio (OR) = 3.429**, indicating that adolescent girls in unsupportive environments were 3.429 times more likely to have poor knowledge about fluor albus than those in supportive settings.

These findings are consistent with research by Azizah (2015), which identified a significant correlation between environmental factors and knowledge levels among female students at SMK Muhammadiyah Kudus. The environment includes all external influences on individuals and their behavior, and it affects both inherited traits and social development. It consists of three categories: social (human), physical (object), and geographical environment, all of which interact to shape human behavior (Chandra, 2012).

Conclusion

The study found that the majority of adolescent girls (61.0%) at Taman Harapan 1 Senior High School had a low level of knowledge about fluor albus, while only 39.0% had a high level. Bivariate analysis revealed that personal hygiene ($p = 0.003$), source of information ($p = 0.005$), and environment ($p = 0.001$) were significantly associated with knowledge levels.

The key influencing factors—personal hygiene, information access, and environmental support—are interrelated and suggest that improving adolescent girls' knowledge about fluor albus requires, promotion of proper hygiene habits, better access to accurate, credible health information from various media sources, supportive family and social environments.

Educational interventions for adolescent reproductive health should take a holistic approach, integrating hygiene promotion, information dissemination, and supportive environmental conditions.

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