



THE CHARACTERISTICS OF RISK FACTORS ASSOCIATED WITH LEUKORRHEA IN FEMALE STUDENTS

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Abstract

Background : The importance of reproductive health awareness for women, as women are vulnerable to infectious diseases. One of the reproductive health problems is leukorrhea, which is the discharge of genital fluid that is not blood but is often ignored. In fact, leukorrhea can be fatal if left untreated. According to WHO, around 90% of Indonesian women are at risk of developing leukorrhea. This is due to the tropical climate in Indonesia, which supports the growth of fungi, one of the causes of leukorrhea. **Method**: This study used an observational analytic approach with a cross-sectional research design. The sample size was 131 female students, who were selected by total sampling. The independent variables in this study were age, BMI, stress level, vulva hygiene knowledge, and vulva hygiene behavior. Data analysis was performed using Chi-square, Mann-Whitney, and logistic regression tests **Result**: The results showed that the most common age was 20 years (23.7%), 76 people (58%) had a normal BMI, and 61 people (46.6%) had been living in the boarding school for 1 year. Most of the female students experienced moderate stress (46 people, 35.11%), 114 (87.02%) had good vulva hygiene behavior, 94 (71.75%) had good vulva hygiene knowledge, and 109 (83.20%) had leukorrhea. The Mann-Whitney test results showed a relationship between the incidence of leukorrhea and age ($p = 0.001$), the Chi-square test results showed a relationship between the incidence of leukorrhea and stress level ($p = <0.001$), BMI ($p = 0.344$), vulva hygiene knowledge ($p = 0.088$), and vulva hygiene behavior ($p = 1.000$). **Conclusion**: Age and stress level were associated with the incidence of leukorrhea, and stress level was the most associated factor with the incidence of leukorrhea in female students at the Pondok Pesantren Mahasiswa Khoirul Huda Surabaya, Indonesia.

Keywords : leukorrhea, age, BMI, stress levels, vulva hygiene knowledge, vulva hygiene behavior.





INTRODUCTION

Maintaining reproductive organs is important as an effort to maintain the quality of human survival. Reproductive health is not only a condition that is free from disease or disability, but how a person can have the ability to reproduce. Reproductive health should be a concern for all people, especially women, because women are very vulnerable to infectious diseases. One of the reproductive health problems that is often experienced by most women is leukorrhea. Leukorrhea is a discharge from the genitals that is not blood. Leukorrhea is a complaint that will continue to disturb the comfort of the female reproductive organs and does not recognize age. Discomfort due to itching and odor caused by leukorrhea can interfere with daily life, reduce self-confidence and attract social interaction. This can lead to psychosocial problems that cause stress. In addition to impacting stress levels, normal leukorrhea that continues to be ignored and considered mild can become fatal if treated late, namely becoming abnormal/pathological leukorrhea (Mulyanti, 2022).

Leukorrhea can be normal physiologic or pathologic. Under normal circumstances, the discharge from the cervix and vagina is accompanied by the presence of bacteria or normal flora. Normal leukorrhea usually occurs before and after a woman's menstruation. Whereas pathological leukorrhea if not treated properly can lead to infertility, pregnancy outside the uterus and is an early symptom of cervical cancer which can lead to death (Mulyanti, 2022).

In Indonesia, about 90% of women have the potential to experience leukorrhea, this is due to the tropical climate, so that fungal growth is easy to develop and results in many cases of leukorrhea. The incidence of leukorrhea in Indonesia continues to increase every year to reach 70%. Research conducted by Wulaningtyas, D., & Widyawati, S. (2018) shows that factors associated with vaginal discharge are not only the level of knowledge and behavior, but can be influenced by age, marital status and also a history of sexually transmitted infections. Wardani's research (2022) showed that 79.5% of 950 women of childbearing age experienced vaginal discharge, and ages 20-35 years had the highest prevalence of vaginal discharge.

Other factors besides BMI, such as hormones, personal hygiene, and certain medical conditions, can also play a role in the occurrence of vaginal discharge (Wardani, 2022). As initial data at Pondok Pesantren Mahasiswa Khoirul Huda Surabaya, 12 out of 23 female students (52.12%) experienced leukorrhea and the cause was unknown. Based on the above background, the researcher is very interested in conducting research on the Characteristics of Risk Factors Associated with the Incidence of Leukorrhea in Female Students of Khoirul Huda Surabaya Islamic Boarding School.

METHOD

This study used observational analytic research with a cross sectional approach. In this study, data collection was carried out. The population used in this study were female students of Pondok Pesantren Khoirul Huda Surabaya in 2023. The variables studied were age, BMI, stress level, vulva hygiene knowledge and vulva hygiene behavior. The sample used in this study were 131 female students of the khoirul huda Surabaya student boarding school in 2023 who had met the inclusion and exclusion criteria set by the researcher. The sample size has been taken according to calculations that are adjusted to the variables to be studied. The inclusion criteria in this study were already menstruating, had received a study on thaharah and were willing to be respondents. The exclusion criteria in this study were female students who were receiving antibiotic therapy, for example sulfonamides, ampicillin, cephalosporin, chloramphenicol, tetracycline, and rifampicin. The sample size in the study was all female students. The sampling technique in this study was total sampling. Data collection related to risk factors associated with the incidence of leukorrhea was carried out at the time of observation. This research was conducted from October 2022 - January 2024. Data collection was carried out in August 2023. Data analysis was performed using Chi-square, Mann-Whitney, and logistic regression tests.



RESULT AND DISCUSSION

Table 1 Frequency Distribution of General Data Characteristics

No	Type Characteristics	Amount (%)
1	Age (years)	
	17	1 (0.8)
	18	9 (6.9)
	19	30 (22.9)
	20	31 (23.7)
	21	24 (18.3)
	22	20 (15.3)
	23	12 (9.2)
	24	3 (2,3)
	25	1 (0.8)
2	BMI (Body Mass Index)	
	Thin	36 (27.5)
	Normal	76 (58.0)
	Fat	16 (12.2)
	Obesity	3 (2,3)
3	Long time Live in the Cottage Islamic Boarding School (year)	
	1	61 (46.6)
	2	34 (26.0)
	3	28 (21.4)

Based on Table distribution general data frequency subject study in accordance with age , BMI and duration live in the cottage boarding school . Range age youngest female students namely 17 years old and the oldest 25 years old . Age the most is 20 years old (23.7%). BMI status of the subject study part normal size , that is as many as 76 people (58.0%). Lowest BMI is 14.86 kg/m² and the highest BMI value is 28.19 kg/m² . Average BMI whole is 20.7 kg/m² . Most of the female students (46.6%) have located live in the cottage boarding school during One year .

Table 1 Frequency Distribution of Specific Data Characteristics

No	Type Characteristics	Amount (%)
1	Stress Level	
	Normal	43 (32.82)
	Stress Light	18 (13.74)
	Stress Currently	46 (35.11)
	Stress Heavy	15 (11.45)
	Stress Very Heavy	9 (6.87)
2	Behavior <i>Vulva hygiene</i>	
	Good	114 (87.02 %)
	Bad	17 (12.97 %)
3	Knowledge <i>Vulva hygiene</i>	
	Good	94 (71.75 %)
	Bad	37 (28.24 %)

Based on Table 2 distribution frequency of the specific data being studied covers stress levels , behavior *vulva hygiene* and knowledge *vulva hygiene* . the data show that 46 (35.11%) of 131 female students experiencing moderate stress currently . Most of the female students (71.75%) who behaved Good to *vulva hygiene* own also good knowledge about *vulva hygiene* , ie as many as 114 (87.02%) female students .

Table 2 Identification of Leukorrhea Incidents by Age

Incident Leukorrhea	Frequency (n)	Median (Min – max)	p value
Leukorrhea	109	20.00 (17 – 25)	0.001
No Leukorrhea	22	20.00 (18 – 24)	
Amount	131		

Based on the data obtained in table 5.3, it is known that of the 109 female students who experienced it leukorrhea , value the middle that is 20 years old . On research This is the age that is experienced leukorrhea that is between aged 17 – 25 years . The results of *the Mann-Whitney Test* were used obtained mark *p* is 0.001 ($p < 0.05$). This matter show exists meaningful relationship _ between age with incident leukorrhea to female students Cottage Boarding school Student Khoirul Huda Surabaya in 2023.

Table 3 Identification of Leukorrhea Incidents by Body Mass Index

Type Characteristics	Leukorrhea		No Leukorrhea		p value
	F	%	f	%	
Thin	29	26.60	7	31.81	0.344
Normal	62	56.88	14	63.64	
Fat	18	16.51	1	4.54	
Amount	109	100	22	100	

Based on table 4 above obtained results that female students who experience it leukorrhea part big own index mass a body that is classified as normal, namely as many as 62 people (56.88%). The results of the *Chi-Square* statistical test were used obtained mark *p* is 0.344 ($p > 0.05$). This matter show No exists meaningful relationship _ between index mass body with incident leukorrhea in female students Cottage Boarding school Student Khoirul Huda Surabaya in 2023.



Table 4 Identification of Leukorrhea Incidents by Stress Level

Type Characteristics	Leukorrhea		No Leukorrhea		p value
	F	%	f	%	
Normal	27	24.77	16	72.72	< 0.001
Stress Light	13	11.92	5	22.73	
Stress Currently	45	41.28	1	4.54	
Stress Heavy	15	5.5	0	0	
Stress Very Heavy	9	8.25	0	0	
Amount	109	100	22	100	

Based on table 5 above obtained results that 24 out of 109 female students experience stress heavy and stressful very heavy , all of it experience leukorrhea . Statistical test results The *Chi-Square* used is obtained mark $p < 0.05$. So from this data can concluded that exists meaningful relationship _ between level stress with incident leukorrhea in female students Cottage Boarding school Student Khoirul Huda Surabaya in 2023. Increasingly tall stress level , then opportunity happen leukorrhea the more big .

Table 5 Identification of Leukorrhea Events Using *Vulva Hygiene Knowledge*

Type Characteristics	Leukorrhea		No Leukorrhea		p value
	f	%	f	%	
Knowledge <i>Vulva hygiene</i> Good	82	75.22	12	54.54	0.088
Knowledge <i>Vulva hygiene</i> Bad	27	24.88	10	45.46	
Amount	109	100	22	100	

Based on table 6 above obtained results that 82 (75.22%) of 109 female students experienced it leukorrhea own knowledge good *vulva hygiene* . Statistical test results *Chi-Square* is used obtained mark p is 0.088 ($p > 0.05$). This matter show that No There is meaningful relationship _ between knowledge *vulva hygiene* with incident leukorrhea in female students Cottage Boarding school Student Khoirul Huda Surabaya in 2023. So , more and more Good knowledge *vulva hygiene* , then opportunity leukorrhea the more big .

Table 6 Identification of Leukorrhea Events with *Vulva Hygiene Behavior*

Type Characteristics	Leukorrhea		No Leukorrhea		p value
	f	%	f	%	
Behavior <i>Vulva hygiene</i> Good	95	87.15	19	86.36	1,000
Behavior <i>Vulva hygiene</i> Bad	14	12.85	3	13.64	
Amount	109	100	22	100	

Based on table 7 is obtained results that 95 (83.3%) of 109 female students experienced it leukorrhea own good attitude _ to *vulva hygiene* . Statistical test results *Chi-Square* is used obtained mark *p* is 1.000 ($p > 0.05$). Based on the data above can concluded that No There is meaningful relationship _ between behavior *vulva hygiene* with incident leukorrhea in female students Cottage Boarding school Student Khoirul Huda Surabaya in 2023.

Table 7 Results of analysis of factors most related to the incidence of leukorrhea

	B	Sig.	Exp (B)	95 % CI for EXP(B)	
				Lower	Upper
Stress Level	3,590	0.001	36,225	4,694	279,583
Constant	0.644	0.017	1,905		

Analysis results regression logistics obtained mark coefficient determination (R^2) of 0.339, *p* This means stress levels can explain incident leukorrhea the remaining 33.9% (66.1%) was influenced by other factors. So that can concluded that stress level is the most influential factor to incident leukorrhea in female students at Pondok Boarding school Student Khoirul Hudan Surabaya 2023. For _ know big opportunity stress level towards incident leukorrhea done calculation as following :

Table 8 Opportunities for Stress Levels on Leukorrhea

Stress	Y	e^{-y}	P	%
0	0.644	0.525	0.655	65.5 %
1	0.644	0.014	0.986	98.6%

Information :

0: normal until stress light

1: stress currently to the point of being very stressed heavy



Based on table 9 can concluded that female students who experience moderate stress to the point of being very stressed heavy own 98.6% chance of happening leukorrhea . Research result showing majority female students (109 of 131 female students , namely 83.20%) experienced leukorrhea , then although in normal condition or mild stress still own opportunity happen leukorrhea amounting to 65.5%.

Relationship between Age and Leukorrhea

Age will affect the ability to catch and understand something, so that it will affect a person's knowledge, attitudes and actions. In this study, age is one of the risk factors for leukorrhea, namely in the age range of 17-25 years. This age is the age of adolescents entering productive age, where at that age adolescents are pursuing college education and starting to work (Ministry of Health, 2018). The burden of being a student as well as a santri which causes a lack of balance between activities and unbalanced rest will trigger stress. Stress that occurs will trigger stress hormones that have negative consequences. In some women, the burden of stress that is too heavy will cause vaginal discharge. Some experts argue that vaginal discharge in working women is caused by high levels of stress hormone production. In addition, adolescence is a phase that is widely referred to as a vulnerable period because of the transition of growth and development from child to adult. Adolescents experience changes including physical, sexual, behavioral, cognitive development which will have an emotional impact on the teenager (Cahyono, 2015); (Sakit, 2015).

Adolescents who are experiencing physical and emotional changes are very vulnerable to mental health problems. Human reproductive organs in adolescence undergo maturation, and this phase is often referred to as puberty. During puberty, the body produces hormones that can affect the reproductive organs. The hormonal changes that occur and accompanied by productive activities in adolescents can increase stress, thus affecting vaginal secretions and increasing the occurrence of leukorrhea.

Based on the 2018 Basic Health Research (Riskesdas), more than 19 million people aged more than 15 years experience mental emotional disorders, and more than 12 million people aged more than 15 years experience depression (Aisyaroh,

2010). Therefore, productive age is very vulnerable to leukorrhea. This is in line with research conducted by Kristina (2022) which shows that the age of 16-20 years which is reinforced by health education regarding leukorrhea is related to the incidence of leukorrhea. This is in accordance with a survey conducted by Yulfitria that in the age range of 17-21 years or called late adolescence, including women of childbearing age who are prone to leukorrhea because at this time it is the peak of reproductive organ maturity so that better vaginal hygiene is needed.

The incidence of vaginal discharge is influenced by age, which is caused by changes in the hormonal cycle, in accordance with the theory stating that physiological discharge is more influenced by normal hormonal factors. In the life cycle of women, the production of estrogen hormone begins to manifest at the time of puberty until menopause. In the period of reproductive life, the hormone circulates in the blood so that it reaches a sufficient amount and affects the development and function of several organs. In normal vaginal secretions will be felt to increase with or without complaints in a state of high estrogen in the body (Hyperestrogenism) (Istarofah, 2023).

Relationship between Body Mass Index and Incidence of Leukorrhea

Body Mass Index (BMI) is a simple index of body weight to height used to classify overweight and obesity in adults. BMI is defined as a person's weight in kilograms divided by the square of height in meters (kg/m). BMI is the most commonly used indicator to detect nutritional problems in a person. The classification of BMI is divided into thin, normal, fat and obese. Someone who is obese can affect the incidence of leukorrhea because they usually experience friction in their thigh area and cause wounds, so that the skin around the groin becomes hot and humid (Saputra, 2020). Germs can thrive in the area and vaginal discharge can occur. After the research, most of the female students who experienced leukorrhea (56.88%) had normal BMI. This shows that BMI is not associated with the incidence of leukorrhea.

The results of this study are in line with Aldriana's research (2023), that out of 140 respondents the average BMI was 19.21 with the results of the T test $p = 0,862$, which shows that there is no relationship between BMI and the incidence of



leukorrhea. Obesity has a complex nature, the mechanisms that contribute to the increased incidence of Bacterial Vaginosis in obese women are expected to be multifactorial. Obesity can create a favorable environment for the development of Bacterial Vaginosis through disturbances in hormonal, metabolic and/or immune system function. Diet can also influence the relationship between BMI (Body Mass Index) and Bacterial Vaginosis due to certain dietary patterns. In addition, there is the role of gut microbiota in Bacterial Vaginosis. The gut microbiota has been thought to influence the composition of the vaginal microbiota by serving as a reservoir of bacteria outside the vagina. The high prevalence of menstrual irregularities in obese women can alter the vaginal flora (Saputra, 2020).

Relationship between Stress Level and Leukorrhea Incidence

Stress is a feeling that can generally be felt when under pressure, feeling overwhelmed, or having difficulty dealing with a situation. Stress within certain limits can be positive and motivating to achieve a goal. However, excessive stress that is difficult to control can have a negative impact on mood, physical and mental health, and relationships with others. Stressful conditions, both physical stress and psychological stress, will affect the work of hormones contained in the female body, one of which can lead to an increase in the hormone estrogen (Dewi, 2023). This increase in estrogen will cause leukorrhea in women. Stress can also cause a decrease in glucocorticoid and catecholamine production and will affect the performance of the hypothalamus gland which causes immunity to decrease. When immunity decreases, it can make bacteria in the vagina easier to develop rapidly and also suppress the growth of normal vaginal flora which will cause pathological vaginal discharge.

Based on table 5 which describes the results of measuring stress levels with the occurrence of leukorrhea in female students, it can be concluded that female students who experience mild stress to moderate stress have leukorrhea and some are not leukorrhea. However, all santri who experienced severe stress and very severe stress, all experienced leukorrhea. This shows a significant relationship between the level of stress and the incidence of leukorrhea in female students. The higher the stress level, the greater the possibility of leukorrhea.

The results of this study are in line with the results of Judha's research (2019) which states that there is a relationship between stress levels and the incidence of physiological vaginal discharge. This statement is also supported by the research of Hanifah et.al (2023) that there is a significant relationship between stress levels and leukorrhea. In this study, the respondents were students who lived in boarding schools. As students who live in boarding schools, daily activities are more than students who live in boarding houses, because students who live in boarding schools must participate in various activities at the pesantren, which will reduce rest time and reduce time to do college assignments.

Moreover, students are required in academics, such as exams or quizzes, semester assignments, final assignments and others. This condition can be a stressor for students who live in boarding schools, both in terms of time management, health, and also lectures. All obstacles that must be faced by students can put pressure, as a result they are at risk of experiencing stress symptoms. In an Islamic boarding school environment that requires adaptation and facing academic and social challenges, the support system and personality of adolescents play an important role in reducing stress levels and improving their well-being. Emotional, social, and support support in dealing with change will have a positive impact on the level of stress experienced by adolescent santri and santriwati in Pondok Pesantren (Andani, 2018); (Rahmawaty, 2022).

According to research by Izza et.al (2023), stress coping that can be done is using two forms of coping, namely emotion-focused coping and problem-focused coping. In the emotion-focused coping section, efforts to divert stress use reading the Qur'an, reading Sufism books, listening to murottal, and sholawat which is more of a spiritual approach to informants. While in problem-focused coping used in the form of tahajud prayers and prayers, as well as seeking solutions or advice by telling stories to ustadzah at the cottage, as an effort to seek help to relieve the stress experienced by informants, another stress resolution is to keep their time as well as possible and not waste time such as reducing scrolling tiktok, not hanging out, and other useless things to keep time and make it easier for informants to manage time well.



Relationship between knowledge of vulvar hygiene and the incidence of leucorrhea

Knowledge about vulva hygiene can influence vulva hygiene behavior. Early teaching to adolescent girls about maintaining intimate organ hygiene is very important. Through adequate teaching, adolescent girls will have adequate knowledge. Other studies have shown that with adequate knowledge about vulvar hygiene, a woman is less likely to experience abnormal leukorrhea (Yulianti, 2021). In addition, knowledge can also be a motivating factor. Aini comes from within an adolescent who becomes the reason or motivation to perform a behavior. The importance of adolescents knowing about leukorrhea is so that women, especially adolescents, know about vaginal discharge, signs and symptoms of vaginal discharge causes, and can distinguish between physiological and pathological vaginal discharge so that women can prevent, treat and immediately conduct examinations if there are signs and symptoms of abnormal vaginal discharge.

Based on the research results listed in table 5.6, that vulva hygiene knowledge is not related to the incidence. This is not in accordance with research conducted by Nengsih (2022) that there is a relationship between knowledge about vaginal discharge and the incidence of vaginal discharge (p value = 0.000). Strengthening the role of health workers in the school setting is very important to conduct health promotion on reproductive health to provide health education, conduct screening, and maintain healthy behavior of adolescent girls, especially regarding vulva hygiene (Patimah, 2022).

In this study, most respondents had good knowledge. Although adolescent girls have good knowledge about vaginal discharge, they still experience vaginal discharge, possibly due to poor attitudes in maintaining genital hygiene due to lack of understanding in preventing vaginal discharge. Other factors such as motivation also affect the occurrence of vaginal discharge, if the motivation of adolescent girls is good there will be a desire that encourages them to prevent vaginal discharge such as maintaining the cleanliness of their genital organs so that vaginal discharge does not occur. In addition, there are other factors that also affect vaginal discharge, namely diet. As often consuming sweet foods has an effect on experiencing vaginal

discharge, the factor of heavy physical activity, such as exercising, can indeed be one of the triggers for excessive vaginal discharge (Oriza, 2018).

Factors that influence the occurrence of vaginal discharge are hormonal factors, physical and psychological fatigue, and the presence of foreign objects in the reproductive organs. Other precipitating factors are economic status, the use of antiseptics that disturb the pH balance, daily water use, the use of pads or pantyliners and vulva hygiene behavior (Putri, 2021).

Relationship between Vulvar Hygiene Behavior and Leukorrhea Incidence

Reproductive health has a very important role for women, one of which is the behavior of maintaining vaginal hygiene (vulva hygiene). Lack of genital hygiene is one of the causes of leukorrhea. Excessive leukorrhea accompanied by itching is apparently experienced by many adolescent girls and is thought to be the cause because it is related to vulvar hygiene behavior (Pawennei, 2022).

Based on table 7, it shows that vulvar hygiene behavior is not associated with the incidence of leukorrhea. This is not in line with the research of Cahyaningtyas (2019) which states that there is a relationship between several vaginal hygiene behaviors and the incidence of vaginal discharge. Vaginal hygiene behaviors that affect the incidence of leukorrhea are the frequency of changing underwear, the behavior of using alternating underwear, how to wash the vagina after defecating, the use of tissue after washing the vagina, and the frequency of changing pads during menstruation. The behavior of choosing the type of underwear, using vaginal cleansers, and using towels alternately were not associated with the incidence of leukorrhea.

A person in good hygiene behavior requires facilities and infrastructure, such as bathrooms, sufficient and clean water, equipment (such as soap, shampoo, etc.). This requires costs and will affect a person in fulfilling and maintaining good personal hygiene. The existence of facilities and infrastructure in the form of health facilities and other facilities that support vulva hygiene genitalia behavior is also one of the factors that influence hygiene behavior. The existence of various facilities and infrastructure makes it easy for individuals to get things that support vulvar hygiene genitalia behavior, such as wet wipes, clean and comfortable towels,



clean water facilities for cleaning the vagina and so on, the ease of getting these items will make it easier for individuals to carry out good vulvar hygiene genitalia behavior (Vivianti, 2019).

In women with good hygiene behavior, the likely cause of abnormal leukorrhea is infection. However, there are several other factors that can also cause leukorrhea, despite good hygiene behavior. These factors include hormonal changes, medication use, certain diseases, irritation, and foreign bodies.

These factors include hormonal changes, medication use, certain diseases, irritation, and foreign bodies. Based on research published in the *Journal of Obstetrics & Gynecology* (2019) found that hormonal changes, such as those that occur during pregnancy, breastfeeding, or menopause, can cause changes in vaginal fluid. Vaginal discharge during pregnancy is usually more abundant and thicker. Vaginal discharge during breastfeeding is usually more fluid. Vaginal discharge during menopause is usually less and dry. According to the *Journal of Fertility & Sterility* (2020) the use of medications, such as birth control pills, corticosteroid drugs, and antibiotics, can cause changes in vaginal discharge. Certain diseases, such as diabetes, cervical cancer, and HIV infection, can cause vaginal discharge. Vaginal irritation, such as from using inappropriate body wash, can cause vaginal discharge. Foreign objects entering the vagina, such as tampons left behind, can cause vaginal discharge (Nurhidayati, 2020).

CONCLUSION AND SUGGESTION

Based on the results of research conducted on 131 female students of the Khoirul Huda Islamic boarding school in Surabaya in 2023, it was found that 109 (83.20%) female students experienced leukorrhea, and it can be concluded that stress levels are most related to the incidence of leukorrhea. For further researchers, to find out other factors that influence the incidence of leukorrhea in female students, further research needs to be carried out, it is necessary to conduct a clinical examination to determine whether the leukorrhea is physiological/pathological and conduct in-depth interviews regarding stress triggers in female students.

DECLARATION

Conflict of Interest

This study has no conflicts of interest.

Authors' Contribution

All contributors were involved in every stage of the study, from the initial concept to the drafting of the article, so collaborative efforts were required in this study.

Ethical Approval

This research received approval from the ethics committee, confirming it adheres to required ethical guidelines, with ethics number 140/EC/KEPK/FKUA/2023.

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Data Availability

In this part, Data supporting the research findings are available upon request.

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