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The relationship of knowledge, attitudes, and personal hygiene practices of external genital organs to the incidence of leucorrhoea in students of the faculty of medicine, Indonesian christian university class of 2019

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Abstract

Leucorrhoea (leukorrhea, flour Albus, vaginal discharge) is excessive discharge from the vagina other than menstrual blood and is not caused by neoplasms or systemic disease. Leucorrhoea is a reproductive health problem experienced by almost 75% of women globally, at least once in their lives. Lack of knowledge, attitudes and behaviour in vaginal care is believed to affect pathological vaginal discharge. This study aims to determine the relationship of knowledge, attitudes, and personal hygiene practices of external genital organs to the incidence of pathological vaginal discharge in female students of the Medical Education Study Program at the Faculty of Medicine, Indonesian Christian University. This study uses a correlational analytic research design, in which the samples of this study were all female students of the Medical Education Study Program at the Faculty of Medicine, Indonesian Christian University in 2019. From 98 respondents, a significant factor influencing pathological vaginal discharge was knowledge (p = 0,000), attitude (p = 0,000) and behavior (p = 0,000) according to multivariate results of knowledge, attitudes, and vaginal care are factors that influence the incidence of pathological vaginal discharge.

Keywords: leucorrhoea, knowledge, attitude, practice, personal hygiene

Introduction

Disorders of the reproductive system of adolescent girls often appear, especially in developing countries, including Indonesia, so they need serious attention. According to the 2011 National Population and Family Planning Agency (BKKBN), 75% of women worldwide have experienced vaginal discharge, while 25% of European women have experienced vaginal discharge. In Indonesia, 75% of women have experienced vaginal discharge at least once in their life, and 45% of them can experience vaginal discharge twice or more [1]. According to the 2012 Indonesian Demographic and Health Survey (IDHS) data, it shows that about 18% of women aged 15-49 years have experienced vaginal discharge, the highest prevalence of vaginal discharge occurs in unmarried women as much as 21%, and vaginal discharge occurs in women who have not graduated from high school as much as 11%. [2]. Based on statistical data from the province of Aceh in 2011, the number of adolescent girls was 2.9 million people aged 15-24 years, 45% of whom had experienced vaginal discharge [3]. Research in East Java in 2013 showed that from the number of women as many as 37.4 million people, 75% of them were teenagers who experienced vaginal discharge [4]. Cases of vaginal discharge in Kendari City, Southeast Sulawesi, in 2012 reached 54 cases with a prevalence of 49.6 per 1,000,000 female population [5].

Excessive discharge from the vagina other than menstrual blood and is not caused by neoplasm, or systemic disease is called vaginal discharge (leukorrhea, flour Albus, vaginal discharge). Vaginal discharge can be physiological (standard) or pathological (abnormal)^6. Physiological discharge is a clear to whitish discharge, odourless and does not cause complaints. Pathological vaginal discharge is a yellowish/greenish/greyish discharge, has a fishy odour, is abundant and causes complaints such as itching, redness (erythema), oedema, burning sensation in the genital area, pain during sexual intercourse (dyspareunia). or pain when urinating (dysuria) [6, 7].

Vaginal discharge is often underestimated by women, is considered not to require severe treatment. Vaginal discharge can be an indication of a disease. Infertility, endometritis, salpingitis are some of the effects of delayed or not treated vaginal discharge [8].

Data from the Indonesian Youth Reproductive Health Survey in 2010 stated that women aged 15-24 years had a higher risk of vaginal discharge than other age groups. It can be concluded that adolescent girls have a higher risk of experiencing vaginal discharge [9]. Inadequate access to information regarding procedures for maintaining the health of the genital organs is a trigger factor for the increasing incidence of vaginal discharge in adolescents. Therefore, researchers are interested in knowing the level of knowledge, attitudes and practices of genital organ hygiene in students of the Faculty of Medicine, Indonesian Christian University, batch 2019 and their relationship to the incidence of vaginal discharge. The formulation of the problem answered in this study was "is there a relationship between knowledge, attitudes and practices of genital organ hygiene on the incidence of vaginal discharge in students of the Faculty of Medicine, Indonesian Christian University Class of 2019?". With the aim of research to determine the relationship between knowledge, attitudes and practices in maintaining the cleanliness of the genital organs with the incidence of pathological vaginal discharge in students of the Faculty of Medicine, Indonesian Christian University 2019 batch.

Literature Review

The anatomy of the female reproductive organs consists of the vulva and vagina. On the vulva, on the outside, there is the labium mayus which is a fold of skin covered with hair on the surface, protruding, extending from the mons pubis and will unite anteriorly and posteriorly. The union in the posterior part is called the posterior commissure, while the union in the anterior is called the clitoris prepuce and the clitoris frenulum, which is inferior to the clitoris. If 1.5 cm below the clitoris, the external urethral orifice will be found. Therefore the vulva can be said to be the mouth of the urogenital system.

Furthermore, the labium minus the deeper part is a minor skin fold [10, 11, 12]. In contrast, the vagina is a channel that connects the external genitalia with the internal genitalia. This channel can narrow and widen because it consists of fascia (connective tissue) muscles whose level of elasticity decreases with age [10, 11]. The vaginal epithelium consists of squamous epithelium, where this layer consists of several layers of squamous epithelium that is hornless and has no glands [10, 11, 12].

The discharge of secretions or fluid from the vagina outside the menstrual period (not in blood) is called vaginal discharge (flour albous/leucorrhea). Vaginal discharge is not a disease in itself but a manifestation of other diseases. The leading cause of vaginal discharge should be sought by anamnesis, physical examination and investigations [13]. Vaginal discharge is classified into two types: a) physiological vaginal discharge - in the form of clear, odourless and non-itchy fluid and can be found in the number of epithelial cells that are more than leukocytes' presence of microorganisms which are normal flora [14]. This liquid has a pH that ranges from 3.5-4.5, is acidic to inhibit the growth of other microorganisms that have the potential as vaginal discharge [13, 20]; and b) pathological vaginal discharge - coloured exudate fluid, containing many leukocytes, unpleasant odour, accompanied by itching and redness [13].

Newborns can cause physiological vaginal discharge. It occurs due to the hormone estrogen influence from the placenta on the uterus and vagina of the fetus. The fetus has been exposed to the stimulating effects of estrogen, progesterone and gonadotropins during the intrauterine period. Besides newborns, physiological vaginal discharge influenced by the estrogen hormone around menarche. This vaginal discharge can disappear by itself; c) Every adult woman who experiences sexual arousal, this relates to the readiness of the vagina to receive penetration during intercourse; d) The period before ovulation due to the production of the cervical glands; and e) Pregnancy that causes the increased blood supply to the vaginal and cervical region, as well as thickening and softening of the vaginal mucous membrane [13, 14, 15].

Pathological vaginal discharge can be caused by: a) Fungal infection - Candida albicans is the fungus that most often triggers vaginal discharge in women in Indonesia [13]. The discharge caused by this fungus is white like milk, thick in consistency with a not too pungent odour and an unbearable itching sensation that will cause scratching activities [12, 15]. Several factors that can trigger Candida sp fungal infections are long-term use of antibiotics or corticosteroids, pregnancy, hormonal contraception, diabetes mellitus, decreased immunity due to chronic disease, always wearing tight underwear and materials that are difficult to absorb sweat to create a comfortable atmosphere [13] and bacterial infection. The bacteria that most often causes vaginal discharge is Gonococcus sp. and Gardnerella sp. Vaginal discharge caused by Gardnerella vaginalis is grey in colour, watery in consistency, accompanied by foam and a fishy odour. Amino acids produced by bacteria cause the grey colour and fishy smell converted into amine compounds [12, 16].

Meanwhile, Neisseria gonorrhoea infection has atypical manifestations, usually in vaginal discharge with a yellow colour which is pus. Therefore laboratory tests need to be used to confirm the diagnosis [13]; c) parasitic infection - The parasite that often causes vaginal discharge is Trichomonas vaginalis [17]. The discharge caused by this parasite has a very thick consistency with a colour that varies from yellow to green, accompanied by foam and a rancid odour [15, 16]. Itching is not found in cases of vaginal discharge caused by this parasite, but the vagina will feel painful when pressed.

This parasite lives and thrives in an alkaline environment (pH 5.0-7.5) so that this parasite cannot live in an acidic vagina (pH 3.5-4.5) [16, 18]; d) Viruses - Often caused by Human Papilloma Virus (HPV) and Herpes simplex. HPV is characterized by condyloma acuminate, odourless discharge and no itching [16, 18]; e) Foreign body - Condoms left behind or pessaries for patients with hernia or uterine prolapse can stimulate excessive vaginal secretions. In addition, it can also be caused by the remaining pads or cotton that is left behind [13]. f) Benign neoplasms - Vaginal discharge caused by inflammation that occurs due to the growth of benign tumours into the lumen [13]; g) Cancer - Symptoms of vaginal discharge that arise are a lot of fluid, foul-smelling, and there are blood spots that are not fresh. Blood that comes out is caused by tumours that enter the lumen of the genital tract, grow rapidly and abnormally, and are easily damaged, causing decay and bleeding. Usually, blood comes out after sex or after vaginal spraying / douching. This abnormal discharge is accompanied by a feeling of discomfort in the lower abdomen, menstrual disturbances occur, frequent fever, and the body becomes thinner, paler and lethargic, weak and unfit [13, 17]; and h) Menopause - In menopausal women, the hormone estrogen has decreased so that the vaginal lining thins / becomes dry, causing itching which triggers sores and then infection. However, vaginal discharge may also appear mixed with blood (senile vaginitis [17].

Factors Affecting leucorrhoea, namely a) Anatomical deformities of the genital organs [14]; b) Immunity [13]; c) Infections which include fungal, bacterial, parasitic and viral infections as previously described; and d) Non-infection consisting of a foreign body, a moist vaginal area, and a vaginal area that was not drained after washing with running water [17, 19], and poor personal hygiene practices [18, 19]. Disturbances in the balance of normal flora (including Gardnerella vaginalis and Lactobacillus sp) or changes in pH from acid to alkaline will trigger colonization of other organisms. This condition can cause abnormalities in bacterial vaginosis, vaginitis and cervicitis so that pathological vaginal discharge appears. There is an overgrowth of the Gardnerella vaginalis bacteria in bacterial vaginosis due to changes in vaginal pH. Vaginitis can be caused by the protozoan Trichomonas vaginalis or the fungus Candida albicans. Cervicitis can be caused by the bacterium Neisseria gonorrhoea [16]. Lactobacillus sp. is the dominant normal flora in the vagina that plays a role in the

vaginal defence mechanism. It is done by producing lactic acid resulting from converting glycogen in the vaginal epithelium released to maintain the acidity of the vaginal pH and producing hydrogen peroxide, which plays a role in suppressing the growth of other microorganisms in the vagina [20]. If there is a disturbance in the average flora balance caused by several factors, the population of Lactobacillus sp., which is dominantly replaced by various other pathogenic microorganisms, will trigger an inflammatory reaction in the vaginal area. The body's immune system will help the function of Lactobacillus sp by releasing leukocytes, and then there will be vaginal discharge [21].

The impression in the human mind obtained from the use of the five senses is called knowledge. It is different from belief (beliefs), superstition (superstition), and misinformation [22]. Knowledge plays a vital role in shaping one's actions (overt behaviour). It can be concluded that knowledge-based behaviour brings better results than behaviour that is not based on knowledge [23]. Therefore, knowledge about vaginal discharge plays an essential role in maintaining the health of female genital organs and preventing the occurrence of vaginal discharge, especially in teenagers. There are six levels of knowledge included in the cognitive domain: to know, recall, comprehend, apply, analyze, synthesize, and evaluate [23].

Defined as a state of mind and soul prepared to respond to an organised object through experience, it can directly or indirectly influence practice or action [22, 24]. Attitude is not in the form of action but is a readiness to create action to react to objects in the surrounding environment. It can be concluded, and attitude is a closed reaction, not an open reaction or behaviour. Similar to knowledge, attitudes have levels to receive, respond, value, and be responsible [22]. Experience and understanding are needed to facilitate the realization of a practice. In addition, supporting factors such as approval and support from the surrounding environment also play a role in facilitating the realization of a practice. The levels of practice include perception, guide response, mechanism, and adaptation. Personal genital hygiene is a treatment that includes genital hygiene that is carried out independently by oneself [25].

It is concluded that the practice of personal hygiene of the genitalia is an effort to maintain genital hygiene, which is carried out independently, based on the knowledge and understanding possessed by the individual. It is essential to apply it as early as possible because of its close relationship with knowledge and understanding. As previously discussed, mistakes in this matter are a predisposing factor for irritation and infection of the genital organs, including vaginal discharge. The genital hygiene practices that need to be applied to prevent vaginal discharge include a) Cleaning the vagina after every urination and defecation with clean running water. Several studies have shown that water stored in public toilet buckets contains 70% of the fungus Candida albicans; b) Perform good and correct vaginal cleaning techniques, namely washing from the front (vagina) to the back (anus). Mistakes often occur in women who experience vaginal discharge. It is essential to correct it because the wrong way of washing can cause bacteria in the anus area to be swept into the vagina; c) Avoiding the use of bath soap to wash the genital organs; d) Dry the area around the vagina with a clean and dry towel or dry tissue before wearing underwear to avoid creating a humid atmosphere. Where following the previous discussion, a humid atmosphere facilitates the occurrence of infection in the genital organs; e) Avoid wearing underwear made of satin or other synthetic materials because they are not able to absorb sweat; f) Change underwear at least two times a day; g) Regularly replace panty liners when using, at least every 2 to 3 hours; h) Choose to use sanitary napkins that are soft, have good absorption and do not contain perfume. Also, regularly change pads at least every 3 to 4 hours; i) Cutting pubic hair before length regularly; j) Do not scratch the vagina, no matter how itchy. Rinsing with warm water to relieve itching or for any reason is also not recommended. Alternatives to relieve itching and discomfort are by compressing the vaginal area with ice water and applying the personal hygiene practices of the genital organs that have been discussed above, and k) Using loose powder to relieve itching or any reason is also not recommended. The vaginal condition, which physiologically tends to be moist, will make the powder coagulate, increasing the humidity of the vaginal area, which will trigger infection.

Research Method

This study uses a correlational analytic research design, which is an activity to collect data to determine the existence of a relationship and the degree of relationship between two or more variables. This research will be conducted at the Faculty of Medicine, Christian University of Indonesia, in June 2020. The population in this study were active students of the Faculty of Medicine, Indonesian Christian University batch 2019. From the total population, the sample of this study was determined by total sampling, where the sample size was taken according to the large population that is equal to 98 samples. The instrument used in this study was a questionnaire sheet. The type of data collected in the form of primary data by filling out a questionnaire by the respondent after previously signing the informed consent and guided by the researcher in the questionnaire. The research will be conducted at the Faculty of Medicine, the Christian University of Indonesia, in one day, and data collection will be carried out immediately after the research is completed. The data that has been collected is then processed using the SPSS for Windows 24.00 version program. The data analysis used in univariate and bivariate data analysis.

Result and Discussion

The following will describe the study results starting from the data description, testing the hypotheses carried out, and discussing the data obtained in the study. This univariate analysis was carried out to see the frequency of each dependent variable and independent variable and to see the distribution of homogeneity of the 99 respondents who were collected data. The following is a discussion of the univariate analysis that has been carried out.

Table 1: Distribution of Respondents by Age

Age	Frequency	%	Valid Percent	Cumulative Percent
17	3	3.1	3.1	3.1
18	33	33.7	33.7	36.7
19	62	63.3	63.3	100.0
Total	98	100.0	100.0	

The results of the data distribution, the highest number of respondents was at the age of 19 years (63.3%)

Knowledge Factor - An assessment of the extent to which the respondent knows about personal hygiene of the external genitalia and vaginal discharge. Among them include the characteristics of vaginal discharge, significantly abnormal, how to prevent it, and the influence of cleanliness on the incidence of vaginal discharge. The distribution of respondents according to the level of knowledge about personal hygiene of the external genitalia and vaginal discharge is grouped in the table below:

Table 2: Distribution of Respondents Based on Knowledge of Personal Hygiene of External Genital Organs and Vaginal discharge in Students of the Faculty of Medicine, Indonesian Christian University Class of 2019

No	Knowledge	Frequency	%	Valid Percent	Cumulative Percent
1	Good	49	50.0	50.0	50.0
2	bad	49	50.0	50.0	100.0
	Total	98	100.0	100.0	

Based on the results of this study, it was found that the number of respondents with good knowledge was 50%, and respondents with poor knowledge were 50%.

Table 3: Distribution of Respondents Based on Attitudes to Maintain Personal Hygiene of External Genital Organs in Students of the Faculty of Medicine, Indonesian Christian University Class of 2019

No	Attitude	Frequency	%	Valid Percent	Cumulative Percent
1	Good	70	71.4	71.4	71.4
2	bad	28	28.6	28.6	100.0
	Total	98	100.0	100.0	

Based on the results of this study, it was found that the number of respondents with good External Genital Organ Personal Hygiene attitudes was 71.4%, and the number of respondents with poor External Genital Organ Personal Hygiene attitudes was 28.6%.

Table 4: Distribution of Respondents Based on Personal Hygiene Practices of External Genital Organs on Students of the Faculty of Medicine, Indonesian Christian University Class of 2019

No	Practice	Frequency	%	Valid Percent	Cumulative Percent
1	Good	41	41.8	41.8	41.8
2	bad	57	58.2	58.2	100.0
	Total	**98**	**100.0**	**100.0**	

Based on this study, it was found that the number of respondents with good External Genital Organ Personal Hygiene practices was 41.8%, and the number of respondents with poor External Genital Organ Personal Hygiene practices was 58.2%.

Vaginal discharge - The incidence of vaginal discharge seen in the analysis of this data is the occurrence of physiological vaginal discharge (average) and the incidence of pathological vaginal discharge (abnormal).

Table 5: Distribution of vaginal discharge among students of the Faculty of Medicine, Indonesian Christian University Class of 2019

No	Vaginal Discharge	Frequency	%	Valid Percent	Cumulative Percent
1	Normal	49	50.0	50.0	50.0
2	Abnormal	49	50.0	50.0	100.0
	Total	98	100.0	100.0	

Based on this study, the number of respondents who experienced physiological vaginal discharge (average) was 50.0%, and the number of respondents who experienced pathological vaginal discharge (abnormal) was 50.0%.

Bivariate analysis was carried out to determine several variables related to the incidence of vaginal discharge in students of the Faculty of Medicine, Indonesian Christian University Class 2019, between the independent and dependent variables.

Table 6: Distribution of Data Based on the Relationship of Personal Hygiene Knowledge of External Genital Organs with the Incidence of Leucorrhoea in Students of the Faculty of Medicine, Indonesian Christian University Class of 2019

Knowledge	Vaginal Discharge				Total	
	Normal		Abnormal			
	N	%	N	%	N	%
Good	39	79,6	10	20,4	49	100
bad	10	20,4	39	79,6	49	100
Total	49	50,0	49	50,0	98	100

Chi-Square Test P= 0.000

The results of the statistical test (Chi-Square Test) regarding the relationship between knowledge and the incidence of vaginal discharge in this study showed that of the 49 respondents who had good knowledge, there were 39 respondents (79.6%) experiencing physiological vaginal discharge (average) and there were ten respondents (20, 4%) had a pathological (abnormal) vaginal discharge. Meanwhile, from 49 respondents who have insufficient knowledge, there are ten respondents (20.4%) experiencing physiological vaginal discharge (average) and 39 respondents (79.6%) experiencing pathological vaginal discharge (abnormal). P-value: 0.000 (p-Value < 0.05) indicates a significant relationship between the level of knowledge and the incidence of vaginal discharge.

Table 7: Distribution of Data Based on the Relationship of Attitudes to Maintain Personal Hygiene of External Genital Organs with the Incidence of Leucorrhoea in Students of the Faculty of Medicine, Indonesian Christian University Class of 2019

Attitude	Vaginal Discharge				Total	
	Normal		Abnormal			
	N	%	N	%	N	%
Good	46	65.7	24	34,3	70	100
bad	3	10.7	25	89,3	28	100
Total	49	50.0	49	50,0	98	100

Chi-Square Test P= 0.000

The results of the statistical test (Chi-Square Test) regarding the relationship between the attitude of maintaining Personal Hygiene of the External Genital Organ with the incidence of vaginal discharge in this study showed that of the 70 respondents who had a good attitude, there were 46 respondents (65.7%) experiencing physiological vaginal discharge (normal) and there were 24 respondents (34.3%) experienced pathological vaginal discharge (abnormal). Meanwhile, of the 28 respondents who had a bad attitude, there were three respondents (10.7%) experiencing physiological vaginal discharge (normal) and 25 respondents (89.3%) experiencing pathological vaginal discharge (abnormal). P-value : 0.000 (p-Value < 0.05) indicates that there is a significant relationship.

Table 8: Distribution of Data Based on the Relationship of Personal Hygiene Practices of External Genital Organs with the Incidence of Leucorrhoea in Students of the Faculty of Medicine, Indonesian Christian University Class of 2019

Practice	Vaginal Discharge				Total	
	Normal		Abnormal			
	N	%	N	%	N	%
Good	36	87.8	5	12.2	41	100
bad	13	22.8	44	77.2	57	100
Total	49	50.0	49	50.0	98	100

Chi-Square Test P= 0.000

The results of statistical tests (Chi-Square Test) regarding the relationship between Personal Hygiene Practices of External Genital Organs with the incidence of vaginal discharge in this study showed that of 41 respondents who had good practices, there were 36 respondents (87.8%) experiencing physiological vaginal discharge (normal), and there were five respondents (12.1%) experienced pathological vaginal discharge (abnormal). Meanwhile, of the 57 respondents who had bad practices, there were 13 respondents (22.8%) experiencing physiological vaginal discharge (normal) and 44 respondents (77.2%) experiencing pathological vaginal discharge (abnormal). P-value: 0.000 (p-Value < 0.05) indicates that there is a significant relationship.

Table 9: Results of Rank Spearman Correlations.

			Knowledge	Attitude	Practice	Vaginal Discharge
Spearman's rho	Knowledge	Correlation Coefficient	1.000	.497**	.765**	.592**
		Sig. (2-tailed)	.	.000	.000	.000
		N	98	98	98	98
	Attitude	Correlation Coefficient	.497**	1.000	.491**	.497**
		Sig. (2-tailed)	.000	.	.000	.000
		N	98	98	98	98
	Practice	Correlation Coefficient	.765**	.491**	1.000	.641**
		Sig. (2-tailed)	.000	.000	.	.000
		N	98	98	98	98
	Vaginal Discharge	Correlation Coefficient	.592**	.497**	.641**	1.000
		Sig. (2-tailed)	.000	.000	.000	.
		N	98	98	98	98

**. Correlation is significant at the 0.01 level (2-tailed).

Based on the correlation test results, N is the number of samples as much as 98, while the correlation between knowledge of personal hygiene and the incidence of vaginal discharge is shown by the number .592**, which means there is a significant correlation. While the number Sig. (2-tailed) is .000 where <0.05 means that there is a significant relationship between the two variables, and the correlation between maintaining personal hygiene and the incidence of vaginal discharge is indicated by the number .497**, which means that there is a correlation significant. At the same time, the number Sig. (2-tailed) is .000, where <0.05 means that there is a significant relationship between the two variables. Meanwhile, the correlation between personal hygiene practices and the incidence of vaginal discharge is indicated by the number .641**, which means that there is a significant correlation. At the same time, the number Sig. (2-tailed) is .000, where <0.05 means that there is a significant relationship between the two variables.

This study uses an analytical research design with a total sampling method on students of the 2019 Faculty of Medicine, Christian University of Indonesia, where the number of samples is the same as the total population. In this study, 98 respondents were found to determine the relationship between knowledge, attitudes and personal hygiene practices of the external genitalia with the incidence of vaginal discharge. Data collection was done by using a questionnaire. In this study, 49 respondents (50%) experienced physiological (normal) vaginal discharge and 49 (50%) respondents experienced pathological (abnormal) vaginal discharge. The occurrence of this white discharge is seen from when it appears.

Based on the Chi-Square test results (p = 0.000), this study found a significant relationship between knowledge about personal hygiene of the external genitalia and the incidence of vaginal discharge with an increased risk of 15,210 times. It shows that female students with poor personal hygiene knowledge have a risk of 15 times greater than female students with good knowledge. Meanwhile, in female students with good knowledge of personal hygiene, the risk of pathological vaginal discharge is 0.2 times smaller than that of female students with poor knowledge. (p= 0.000 OR= 15.210 RR= 0.256). In a previous study conducted by Sukamto *et al*. in 2018 on female students of the 2015-2018 batch of the Faculty of Medicine, Sriwijaya University, it was stated that there was a significant relationship between the level of knowledge and the incidence of vaginal discharge (p = 0.015) [26].

Meanwhile, another study previously conducted by Rahmah in 2017 on SMA/MA students at PPM Rahmatul Asri Enrekang did not find a significant relationship between knowledge and the incidence of vaginal discharge (p = 0.059) [27]. Knowledge is an essential domain for shaping attitudes and practices. Vaginal discharge can occur in someone who has insufficient knowledge of personal hygiene of the external genitalia. Education level is one of the factors that influence knowledge. The higher a person's education level, the easier it will be to receive and convey it to others. This statement is in line with the research conducted by Maravilla, Philippines, in 2019, which stated that there was a significant relationship between the incidence of vaginal discharge and education level (p = 0.015) [28].

Based on the results of the Chi-Square test (p = 0.000) in this study, there is a relationship between the attitude of maintaining personal hygiene of the external genitalia with the incidence of vaginal discharge with an increased risk of

15.9 times, and this shows that female students with poor personal hygiene attitudes have a risk of 15. nine times greater than female students with good attitudes. Meanwhile, in female students with good personal hygiene attitudes, the risk of pathological vaginal discharge was 0.3 times smaller than female students with poor attitudes (p = 0.000 OR = 15.972 RR = 0.384). Meanwhile, another study conducted by Nurhayati in 2013 on adolescent girls aged 13-17 years in the Pondok Cabe Ilir area did not find a significant relationship between knowledge and the incidence of vaginal discharge (p = 0.806) [29]. Attitude relates to belief in an object based on knowledge and information about the object, such as knowledge and information related to vaginal discharge and its object. Namely pathological vaginal discharge, the affective component relates to cultural values, beliefs, and emotions such as a person's habit of using low pH soap to clean the genital area, component Conative is a person's readiness to behave, readiness in positive and negative forms such as changing underwear at least 2x a day.

In a study conducted by Varghese in India in 2017, of 150 respondents, 80% agreed that maintaining genital organ hygiene can prevent vaginal discharge, 66% agreed that using condoms during intercourse can prevent vaginal discharge, and 59% agreed that avoiding sexual intercourse with people who have sex infected with sexually transmitted diseases can prevent vaginal discharge [30]. The Chi-Square test results (p = 0.000) showed a significant relationship between personal hygiene practices of the external genitalia and the incidence of vaginal discharge with an increased risk of 24 times. It shows that female students with poor personal hygiene practices have a risk 24 times greater than students with a good attitude. Meanwhile, for female students with good personal hygiene practices, the risk of pathological vaginal discharge was 0.1 times less than that for female students with poor practice (p = 0.000 OR = 24,369 RR = 0.158). In a previous study conducted by Rahmah in 2017 on MA students in Enrekang, there were significant results between a person's hygiene practice and the incidence of vaginal discharge (p = 0.000) [27]. The practice of personal genital hygiene is an effort to maintain genital hygiene, which is carried out independently, based on the knowledge and understanding possessed by the individual [23]. It is essential to apply it as early as possible because of its close relationship with knowledge and understanding. As previously discussed, mistakes in this matter are a predisposing factor for irritation and infection of the genital organs, including vaginal discharge. It is in line with a study conducted at Mansoura University, Egypt, in 2017, which found a significant relationship between genital hygiene practices and the incidence of vaginal discharge (p = 0.044). Of 500 respondents, 35.8% cleaned the vagina with their fingers and 34.2 % cleaned using only running water, 69.6% used cotton underwear, and 53.6% changed them regularly, and most of the respondents, 96.2%, cut their pubic hair regularly [31].

From the results of simple correlation analysis (r), the correlation between knowledge and whiteness (r) is 0.592. It shows that there is a relationship between knowledge and whiteness. While the direction of the relationship is positive with a moderate correlation strength, the level of personal hygiene knowledge is in line with the incidence of vaginal discharge. Meanwhile, from the results of simple correlation analysis (r), the correlation between attitudes and whiteness (r) is 0.497. It shows that there is a relationship between attitude and whiteness. At the same time, the direction of the relationship is positive with a moderate correlation strength, which means that personal hygiene attitudes are in line with the incidence of vaginal discharge. The simple correlation analysis (r) results found that the correlation between practice and vaginal discharge (r) was 0.641. It shows that there is a relationship between practice and whiteness. The direction of the relationship is positive with a high correlation strength, which means that personal hygiene practices are in line with the incidence of vaginal discharge.

Conclusion

The following are the conclusions from research on students from the 2019 Faculty of Medicine, Christian University of Indonesia: a) From 98 respondents, it was found that 50% of respondents had good knowledge and 50% bad knowledge, 71.4% good attitudes and 28.6% bad attitudes, good practice 41.8% and bad practice 58.2%; b) From the results of the study, 49 respondents (50%) experienced physiological vaginal discharge (average) and 49 respondents (50%) experienced pathological vaginal discharge (abnormal); c) There is a significant relationship between the level of personal hygiene knowledge of the external genitalia and the incidence of pathological vaginal discharge in class 2019 students of the Faculty of Medicine, Indonesian Christian University (p = 0.000), the direction of the relationship is optimistic with the strength of the correlation being (r = 0.592) which means the level of knowledge personal hygiene in line with the incidence of vaginal discharge; d) There is a significant relationship between the attitude of maintaining personal hygiene of the external genitalia and the incidence of vaginal discharge in students of class 2019 Faculty of Medicine, Christian University of Indonesia (p = 0.000), the direction of the positive relationship with the strength of the correlation is moderate (r = 0.497) which means personal hygiene attitude in line with the occurrence of vaginal discharge; and e) There is a significant relationship between the practice of personal hygiene of the external genitalia with the incidence of vaginal discharge in students of class 2019 Faculty of Medicine, Christian University of Indonesia (p = 0.000), the direction of the relationship is positive with a strong correlation strength (r = 0.641) which means personal hygiene practice in line with the occurrence of whiteness.

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