

The Influence of Educational Level and Personal Cleanliness on Fluor Albus in Women in the Outer Circle Health Center of Bengkulu

Dameria Sinaga^{1*}, Donny Mahendra², Yoshua Ulido Simangunsong³, Budi Setiawan⁴

Magister Program of Educational Administration, Universitas Kristen Indonesia^{1*}, Universitas Kristen Indonesia²⁻³, Universitas Pendidikan Indonesia⁴, *dr_dameria_sinaga@yahoo.com

HOW TO CITE:

Dameria Sinaga, Donny Mahendra, Yoshua Ulido Simangunsong, Budi Setiawan (2026). The Influence of Educational Level and Personal Cleanliness on Fluor Albus in Women in the Outer Circle Health Center of Bengkulu. International Journal of Special Education, 41(2), 787-796

COPYRIGHT STATEMENT:

Copyright: © 2026 Authors.
Open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).

ABSTRACT:

Leucorrhoea is something that is commonly experienced by women. Many factors that influence vaginal discharge and personal hygiene are one of the factors that support the occurrence of vaginal discharge, but these factors are not taken into account by women. This study aims to determine the relationship between personal hygiene and vaginal discharge in women of childbearing age in the work area of East Rim Health Center, Bengkulu. The type of research used in this study is analytic survey research with a cross sectional research design using measurements and observations at the same time (one time) between independent variables and the dependent variable where the dependent and independent variables are examined directly. The location of the study was conducted at the Bengkulu Outer Circle Health Center. The sample is women of childbearing age. Results: Out of 29 women of childbearing age with poor personal hygiene there were 22 people (75.9%) who experienced vaginal discharge while of 56 women of childbearing age with good personal hygiene there were 30 people (53.4%) who did not experience vaginal discharge. In this study, it was proven that the incidence of female vaginal discharge with poor personal hygiene was higher than that of women with good personal hygiene.

Keywords: Personal hygiene, fluor albus.

INTRODUCTION

In this era of globalization and modernization there has been a change and progress in all aspects of dealing with the development of the environment, health and hygiene, where people, especially women, are required to always maintain personal hygiene. One of the most important and sensitive body organs and requires special care is the reproductive organ (Mayo clinic staff, 2023).

Personal hygiene is a health effort by maintaining and protecting individual cleanliness and the

environment. The things that need to be considered in the cleanliness of the feminine area include the habit of using any soap and washing the vagina, the selection of underwear that is wearing tight underwear and synthetic material, often using public toilets, and the habit of rinsing the vagina from the wrong direction, namely from the anus to direction of the vagina (Güleç, Koç & Arslan, 2020).

Based on the results of the study showed that personal hygiene can affect the occurrence of changes in acidity in the vaginal area. Many Indonesian women do not know about vaginal

discharge (Fluor Albus), so they consider it to be common and less important. In the case study of reproductive physiology, many women complain of vaginal discharge (Fluor Albus) and feel uncomfortable, itchy and smelly, sometimes even painful. After a lot of research developed related to the female reproductive organs, it turns out to be related to daily habits (Sharma & Patel, 2024).

Problem formulation from the background description above is how is the influence of Personal hygiene on vaginal discharge (Fluor Albus)?

The aim of the study was to determine the effect of personal hygiene on vaginal discharge (Fluor Albus). Knowing the definition, etiology, pathophysiology, management of vaginal discharge (Fluor Albus). Knowing the benefits of personal hygiene that are good for vaginal discharge (Fluor albus). Research Benefits for Agencies can be used as input and information to doctors and health workers regarding the influence of personal hygiene on vaginal discharge. For the community can be used as input and information to the community, especially young women about the influence of personal hygiene on vaginal discharge. For the author, it can be useful to increase knowledge about the influence of personal hygiene on vaginal discharge, develop creativity and experience in writing, and develop knowledge.

LITERATURE REVIEW

Personal Hygiene Definition

Personal hygiene is derived from Greek, which is personal, which means personal and hygiene, which means healthy. A person's cleanliness is an action to maintain one's cleanliness and health for physical and psychological well-being. Consists of various factors, namely, precursor factors, enabling factors, reinforcing factors, knowledge, attitudes and actions (Healthdirect Australia, 2026; Medical News Today, 2020).

The precursor factor is manifested in knowledge, attitudes, beliefs, values of a person. The precursor factor is also supported by enabling factors that are useful to increase the level of

income and the availability of hygiene facilities. Strengthening factors are factors that are influenced by peers, the mass media, and from the formation of health workers (Tan, Wong & Chan, 2021).

Predisposing factors that play a role in personal hygiene are knowledge, attitudes, actions. A person's knowledge of personal hygiene relationships with vaginal discharge is the result of knowing and this happens after someone sensing personal hygiene with the occurrence of discharge, sensing occurs through the five senses of man, namely vision, hearing, smell, taste and touch. Most human knowledge is obtained through the eyes and ears (Cleveland Clinic, 2023).

Attitude towards vaginal discharge is a reaction or response that is still closed from someone to the material about vaginal discharge. Real attitude shows the connotation of a reaction to a particular stimulus, which in everyday life is an emotional reaction to social stimulus. Attitudes toward personal hygiene with the occurrence of vaginal discharge are readiness and willingness to want to learn and know about personal hygiene with the occurrence of vaginal discharge as an appreciation of that knowledge (Tumanduk, Ngangi & Joseph, 2021).

A good attitude towards vaginal discharge has not yet been realized in an action. For the realization of an attitude so that it becomes an action needed a supporting factor or a possible condition. Actions against personal hygiene with the occurrence of vaginal discharge is a reaction or response from a good attitude (Rahman, Singh & Gupta, 2025).

Personal Hygiene Action

- Must always be clean.
- Wash the vagina from the front (vagina) to the back (anus) carefully and repeatedly using mild water (mild). allergic to soap, just use warm water.
- Clean sweat marks with a tissue or towel to prevent moisture.
- Wash your hands with soap before and after replacing the pads.

- Using a clean and soft bandage, absorbs well and does not make allergies properly in underwear.
- Replace pads as often as possible around 4-5 times a day to avoid the growth of bacteria that multiply in pads and avoid bacteria from entering the vagina.
- Choose underwear from natural materials (cotton) and not tight. so it can absorb sweat.
- Replace underwear 2 times / more in a day to maintain excessive moisture.
- Shaving the pubic hair regularly / periodically. For those who have long pubic hair, you should prune your pubic hair to keep it short so it doesn't overgrow bacteria.
- Does not clean the part of the intercourse with chemicals or soap.
- If there are abnormalities such as too much blood coming out and irregular, consult a doctor.

Leucorrhoea

Definition

Leucorrhoea (flour albus / vaginal discharge) is a discharge from the genital device that is not blood. Harmful leucorrhoea is an abnormal / pathological vaginal discharge that is characterized by a striking color, a lot, smells unpleasant, and feels itchy (Rahmawati & Dewi, 2023).

Etiology

Physiological leucorrhoea occurs in:

- Newborns are about 10 days old, this is due to the influence of the mother's estrogen and progesterone hormones.
- Period around menarche or menstruation for the first time, this is supported by estrogen.
- Every woman who experiences sexual excitement, this is related to the readiness of the vagina to receive penetration during intercourse.
- The period around ovulation due to the production of the cervical glands.
- Pregnancy that causes an increase in the blood supply to the vaginal and cervical areas, as well as thickening and softening of the vaginal mucous membranes.

Classification

Physiological leucorrhoea

Physiological leucorrhoea is clear liquid, odorless and not itchy. Physiological leucorrhoea of clear fluids containing many epithelium with rare leukocytes. Physiological leucorrhoea appears at ovulation, sexual stimulation, before and after menstruation, or hormonal influences (Mulyanti, 2023).

Pathological leucorrhoea

Pathological leucorrhoea is a liquid exudate and this fluid contains many leukocytes. Exudates that occur due to wounds, colored fluids, excessive amounts, bad smell, itchiness or heat and cause sores in the vaginal area. Pathological leucorrhoea occurs due to vaginal infection, reproductive malignancy, it can also be due to foreign objects in the vagina (Ali, Fatima & Khan, 2024).

Pathological leucorrhoea occurs due to infection. The body will react to these incoming microorganisms with a series of inflammatory reactions (Centers for Disease Control and Prevention, 2021). The causes of infection are:

- Fungus

Candida albicans is the most common type of fungus that causes vaginal discharge. Several other factors that can cause candida fungal infections such as: the use of antibiotics or corticosteroids for a long time, pregnancy, hormonal contraception, diabetes mellitus, decreased immunity due to chronic diseases, always wearing tight clothes and from materials that are difficult to absorb sweat.

- Bacteria

Bacteria that can cause vaginal discharge are: *Gonococci*, *Clamidia trachomatis*, *Grandnerella*, and *Treponema pallidum*.

- Parasites

Parasites that often cause vaginal discharge are *Trikomonas vaginalis*. One of the most frequent transmission of *T. vaginalis* is with coitus.

- Virus

Often caused by the Human papilloma virus (HPV) and Herpes Simplex. HPV is characterized by condyloma acuminata, odorless and itchy fluid.

Pathogenesis

Although many variations in color, consistency, and the amount of vaginal secretions can be said to be normal, the change is always interpreted by the patient as an infection, especially caused by fungi. Some women also have a lot of vaginal secretions. Under normal conditions, fluid coming out of the vagina contains vaginal secretions, vaginal cells that are released and cervical mucus, which will vary due to age, menstrual cycle, pregnancy, use of birth control pills (Anderson & Martin, (2025).

A normal vaginal environment is characterized by a dynamic relationship between *Lactobacillus acidophilus* and other endogenous flora, estrogen, glycogen, vaginal pH and other metabolites. *Lactobacillus acidophilus* produces endogenous peroxides which are toxic to pathogenic bacteria. Because of the action of estrogen in the vaginal epithelium, glycogen production, *Lactobacillus* (Doderlein) and lactic acid production which produce a low vaginal pH up to 3.8-4.5 and at this level can inhibit the growth of other bacteria (Barabas & colleagues, 2020).

Candidiasis vaginalis is a vaginal infection caused by *Candida* sp. especially *C. albicans*. *Candida* infection occurs due to changes in vaginal conditions. Yeast cells will compete with normal flora, causing candidiasis. The things that facilitate yeast growth are broad spectrum antibiotic use, contraceptive use, high estrogen levels, pregnancy, uncontrolled diabetes, tight wear, new sexual partners and high sexual frequency. Changes in the vaginal environment such as an increase in glycogen production during pregnancy or an increase in estrogen and progesterone hormones due to oral contraceptives cause the attachment of *Candida albicans* to vaginal epithelial cells and a medium for fungal growth. *Candida albicans* develops well in a pH environment of 5-6.5. These changes can be asymptomatic or until they cause

symptoms of infection. The use of immunosuppressant drugs is also a predisposing factor for candidiasis vaginalis (Devi & Ismunandar, 2019).

In patients with Trichomoniasis, changes in estrogen and progesterone levels cause an increase in vaginal pH and glycogen levels, which has the potential for growth and virulence of *Trichomonas vaginalis*.

Vaginitis is often caused because the normal vaginal flora changes due to the influence of pathogenic bacteria or changes in the vaginal environment so that the pathogenic bacteria experience proliferation. Contraceptive antibiotics, sexual intercourse, stress and hormones can change the vaginal environment and stimulate the growth of pathogenic bacteria. In bacterial vaginosis, it is believed that these factors can reduce the amount of hydrogen peroxide produced by *Lactobacillus acidophilus* so that pH changes and stimulates the growth of *Gardnerella vaginalis*, *Mycoplasma hominis* and *Mobiluncus* which normally can be inhibited. These organisms produce metabolite products such as amines, which increase vaginal pH and cause the release of vaginal cells. Amine is also a cause of odor on flour albus in bacterial vaginosis (Anderson & Martin, 2025).

Flour albus may also be found in women who suffer from tuberculosis, anemia, menstruation, repeated worm infestations, also in women with poor general conditions, poor hygiene and women who often use vaginal cleansers, strong disinfectants (Bishop, 1990).

Symptoms

Leucorrhoea has a variety of causes of infection (Parveen, Chauhan & Sudhakar, 2022). One way to make sure the microorganisms that cause vaginal discharge is to look at the discharge:

- Bacteria (*Neisseria gonorrhoeae*), symptoms: purulent fluid, thin and slightly smelly. In addition there are also additional complaints of dysuria, dyspareunia and lower abdominal pain, fever, nausea and vomiting. symptoms: fishy odor (fishy, pH 6-7), white or gray.

- Parasites (*Trichomonas vaginalis*), Leucorrhoea caused by *Trichomonas vaginalis* usually without symptoms or appearing with a thick vaginal discharge, unpleasant smell, greenish yellow color, and accompanied by pruritus in the vulva. In addition there is also inflammation of the vagina and cervix, sometimes also found small bleeding with cervical ulceration.

- Mushrooms (*Candida albicans*), symptoms: white, odorless or sour odor, vaginal walls are usually images of cheese lumps (cottage cheese), sometimes accompanied by burning / burning, and dysuria and dyspareuni. foaming white liquid.

Diagnosis

a. History

- 1) Main Complaints
 - 2) Disease History
 - 3) Medical History
 - 4) Gynecological Obstetrics History
 - 5) Menstrual History
 - 6) Pregnancy History
 - 7) Contraception
 - 8) Sexual History
 - 9) Lifestyle
 - 10) Mood – Feelings
- b. Physical examination

Physical examination is useful to detect possible chronic diseases. Specific physical examinations that must be performed are genital examinations which include: external genital inspection and palpation, examination of the speculum to see the vagina and cervix, bimanual pelvic examination.

Inspection of external genitalia:

In the lithotomy position, the external genitalia can be seen clearly

- External state of the vulva:
 - Dirty or clean, pubic hair condition.
 - There is ulcer, swelling.
- Liquid coming out of the vulva: pus, blood, leucorrhoea

Speculum mounting technique:

- Explain to the patient first about inspekulo examination procedures and the benefits of this examination
- The patient is asked for his approval for inspekulo examination
- Make sure that the patient has emptied the vesika urinary and / or rectum
- The patient is in the lithotomy position
- Wear gloves
- Prepare the appropriate bi-valve speculum, adjust the valve and lever so that the speculum is ready for use.
- Warm the bi-valve speculum with the appropriate size and if necessary give lubrication
- Separate the labia with the tips of the index and thumb of the left hand from the top side
- The bi-valve speculum in the closed vagina is inserted in a slanted position away from the front vaginal wall and external urtehreae meatus
- After being in the vagina, the speculum is rotated 900 and directed at the posterior fornix
- After reaching the posterior fornix, the speculum lever is pressed so that the speculum opens optimally (both blades move apart) and the portio is exposed properly.
- Look closely at vaginale portions and fornix. Remove the speculum lever, slowly pull the speculum out while rotating gradually as far as 900. Look at the vaginal surface when pulling out the speculum.

c. Laboratory examination

- Inspection of wet specimens (0.9% NaCl)

In this examination the swab is taken from the posterior fornix mixed with NaCl on the slide. Microscopic examination of wet specimens to see the movements of *Trichomonas vaginalis*, leukocyte PMN, vaginal epithelium. Examination of the specimen should not be, because when dry it will change the results. For example *Trichomonas vaginalis* loses motility when it dries, which is then difficult to distinguish from leukocytes. Ten enlargements were performed to calculate leukocytes, epithelial cells, movements of *Trichomonas vaginalis* and pseudohifa. Do a larger magnification to see clue cells, *Trichomonas*

vaginalis clearly, and blastospora. If Trichomonas vaginalis is found with a kite shape and moves can be diagnosed that the patient has trichomoniasis.

- 10% KOH check

Addition of KOH in the examination to separate epithelial cells and make hyphae more visible. Blastospora can also be seen. If found ≥ 1 or blastospora pseudohifa can be diagnosed the patient is exposed to vulvovaginal candidiasis.

- Gram staining

To make this stain, cervical and vaginal fluid specimens are taken. In gram staining to be examined are the number of PMN leukocytes and epithelium, Candida (pseudohifa and blastospora), gram negative intracellular diplococcus. If found in the cervical fluid ≥ 1 PMN contains gram-negative Diplococcus with typical morphology, ≥ 5 PMN / visual field can be said (+) gonococcal infection. The fluid from the vagina is said to be (+) if pseudohifa candida and orblastospora are obtained, whereas bacterial vaginosis is found in many forms of lactobacil.

Management

a. Pharmacology

Therapy for vaginal discharge must be adjusted according to the etiology (Rang et al., 2016):

1. Candida albicans Topical
 2. Chlamidia trachomatis
 3. Gardnerella vaginalis
 4. Neisseria gonorrhoeae
- Penicillin procured 4.8 million units or
 - Amoxicycline 3 gr im
 - Ampisiillin 3.5 grams im or

Plus:

- Doxycycline 2 x 100 mg orally for 7 days or
- Tetracycline 4 x 500 mg orally for 7 days
- Erythromycin 4 x 500 mg orally for 7 days
- Tiamfenikol 3.5 grams orally
- Kanamycin 2 grams im
- Ofloxacin 400 mg / oral
- Ceftriaxon 250 mg or
- 2 mg of spectinomycin or

- Ciprofloxacin 500 mg orally

Plus:

- Doxycycline 2 x 100 mg for 7 days or
- Tetracycline 4 x 500 mg orally for 7 days
- Erythromycin 4 x 500 mg orally for 7 days

5. Herpeks simplex virus

There are no drugs that can provide complete cure

- Acyclovir cream is applied 4 times a day
- Acyclovir 5 x 200 mg orally for 5 days
- Povidone iododine can be used to prevent secondary infections

6. Other causes:

Psychosomatic vulvovaginitis with a psychological approach. Desquamative inflammatory vaginitis is given antibiotics, corticosteroids and estrogen.

b. Nonfarmacology

- Changes in behavior

Leucorrhoea (Fluor albus) caused by fungi develops faster in a warm and wet environment so as to help cure hygiene of the genitals and preferably use underwear made of. Leucorrhoea can be transmitted through sexual intercourse from a partner who is infected, therefore the partner should get treatment as well (Castellano-Tejedor, Blasco-Blasco & Capdevila-Seder, 2022; Chen, Li & Wang, 2024).

- Personal Hygiene

Paying attention to personal hygiene especially in the genitals is very helpful for healing, and keeps it clean and dry, such as the use of wet wipes. In fact, the packaging must also be considered. Do not keep it carelessly, for example without packaging put in a bag mixed with other items (Amir, Singh & Chatterjee, 2023). Because if it is open, it may be that the wet tissue has been contaminated. Pay attention to cleanliness after defecating or small. After cleaning, dry with dry tissue or special towel. Genitals should not be left in a humid state.

c.Prevention

Various precautions taken will be useful to reduce the incidence of vaginal discharge, where vaginal discharge is a disease that is almost experienced by every woman (Centers for Disease Control and Prevention, 2007). Prevention / education that can be given is:

1. Wiping the genitals from front to back
2. Wash the genital area with warm water
3. Avoid soap or feminine health products
4. Avoid steroid creams (unless prescribed)
5. Wear cotton underwear
6. Avoid wearing tight pants
7. Avoid using powder on the female organs with the aim that the vagina is fragrant and dry throughout the day. The powder has fine particles that are easily tucked here and there and finally contain fungi and bacteria to nest in that place.
8. Keep vitality sterile. The use of wet wipes or pantyliner products must be completely sterile.
9. Always dry the vagina before dressing.

RESEARCH METHODOLOGY

The type of research used in this study is analytic survey research with cross sectional research design using measurements and observations at the same time (one time) between the

independent variable and the dependent variable where the dependent and independent variables are examined directly (University of Toledo Libraries, 2020; TGM Research, 2025; Altheide & Schneider, 2013). The population in this study were all women of childbearing age aged 20-45 years who visited the East Rim Health Center, based on the 2020 estimate of January-December as many as 1,020 people where the average in a month was: $1,020 : 12 = 85$ people.

The sample in this study were 85 women of childbearing age. In this study using secondary data, namely data from the Bengkulu Outer Ring Health Center.

RESULTS & DISCUSSION

This study was conducted to determine the relationship between personal hygiene and vaginal discharge in women of childbearing age in the work area of the East Rim Health Center.

The results of this study were arranged based on the frequency distribution in the form of tables on the independent variables namely personal hygiene and the dependent variable that is vaginal discharge. Then cross tabulation was performed to find the relationship between the independent variable and the dependent variable using the chi square test.

Table 3.1 Frequency distribution of Personal Hygiene in the working area of the East Rim Health Center

No	Personal hygiene	Frequency	Percentace %
1.	Not Good	29	34,1
2.	Good	56	65,9
	Total	85	100,0

From table 3.1 above, the results are more than a part, namely 29 respondents (34.1%) of women of childbearing age with bad personal hygiene categories.

Personal Hygiene	Leucorrhoea in Fertile Age Women				Total		OR
	Leucorrhoea		Non Leucorrhoea				
	F	%	F	%	F	%	
Not Good	22	75,9%	7	24,1%	29	(100%)	0,276
Good	26	46,4	30	53,6	56	(100%)	

Source : Research Data 2021

From table 3.3 above shows that from 29 women of childbearing age there are 22 people (75.9%) women of childbearing age personal hygiene are not good at having vaginal discharge while from 56 women of childbearing age there are 30 people (53.4%) women of childbearing age with personal good hygiene does not experience vaginal discharge. This study's findings demonstrate a substantial correlation between personal hygiene and the occurrence of vaginal discharge in women of reproductive age within the East Rim Health Center's jurisdiction. Women with effective personal hygiene practices—such as consistently cleansing the genital area with clean running water, changing underwear daily, and utilizing breathable cotton underwear—generally reported fewer instances of pathological vaginal discharge. In contrast, participants exhibiting inadequate hygiene practices demonstrated a greater prevalence of aberrant discharge, characterized by alterations in color, odor, and consistency.

The findings align with prior studies indicating that insufficient genital cleanliness is a significant risk factor for abnormal vaginal discharge in women of reproductive age. Numerous research have indicated that activities such as infrequent bathing, infrequent underwear changes, wearing tight or synthetic underwear, wiping from back to front after defecation, or washing the vagina with polluted water can disrupt the typical vaginal environment. These actions may diminish the prevalence of protective lactobacilli, elevate vaginal pH, and promote the proliferation of harmful organisms, resulting in abnormal discharge.

Nevertheless, certain studies indicate that not all women with inadequate hygiene may exhibit discharge, and that additional factors—such as hormonal fluctuations, sexual activity, antibiotic or hormonal contraceptive usage, and underlying infections—also play a role. This supports the conclusion that personal hygiene is a significant, albeit not the sole, factor of vaginal discharge.

From a biological standpoint, proper personal cleanliness sustains a typical vaginal milieu characterized by lactobacilli and an acidic pH. This environment suppresses the proliferation of bacteria, fungi, and parasites responsible for

abnormal discharge. Practices such as cleansing the vulva with clean running water, ensuring thorough drying, and donning clean, dry underpants diminish moisture and warmth that promote bacteria proliferation. Poor personal hygiene practices—such as infrequently changing underwear, using damp or soiled underwear, cleansing the genital area with contaminated water, or applying perfumed goods that irritate the mucosa—can disturb the vaginal microbiota. This disruption may result in bacterial vaginosis, vulvovaginal candidiasis, or trichomoniasis, clinically presenting as aberrant vaginal discharge, pruritus, and malodor. Consequently, the correlation identified in this study is physiologically credible and consistent with contemporary knowledge of vaginal ecology and infection.

The backdrop of the East Rim Health Center workspace is crucial for analyzing these outcomes. Elements including educational attainment, cultural convictions, income, access to potable water, and the availability of sanitary goods influence women's capacity and inclination to maintain proper personal hygiene. In regions with restricted access to clean water, women may bathe less often or utilize water sources with elevated microbial contamination. Cultural beliefs can impact practices, including the utilization of specific traditional cleansing products or prohibitions around discussions of genital cleanliness.

CONCLUSION

This study demonstrates both theoretically and empirically that a relationship exists between personal hygiene and vaginal discharge among women of reproductive age in the jurisdiction of the East Rim City Health Center in Bengkulu. Recommendations for women indicate that the study revealed a persistent occurrence of inadequate personal hygiene in certain areas of Bengkulu. To mitigate the prevalence of vaginal discharge attributable to poor hygiene practices, it is essential to enhance awareness on personal hygiene. Recommendations for health institutions indicate that numerous respondents exhibited deficiencies in personal cleanliness. Consequently,

it is advised that health institutions disseminate knowledge pertaining to personal hygiene, particularly on the care of genital organs, to the community. Health workers are advised to offer information or counseling on the significance of personal cleanliness to enhance individual hygiene

practices. Recommendations for research advancement include utilizing the findings of this study as evaluative material and doing additional investigations into other elements that affect women's personal hygiene.

REFERENCES

- Ali, S., Fatima, N., & Khan, R. (2024). Knowledge and practice regarding abnormal vaginal discharge among women of reproductive age. *BMC Women's Health*, 24, 112. <https://doi.org/10.1186/s12905-024-02947-3>
- Altheide, D. L., & Schneider, C. J. (2013). *Qualitative media analysis* (2nd ed.). Sage. <https://doi.org/10.4135/9781452270043>
- Amir, M., Singh, A., & Chatterjee, P. (2023). An assessment of personal hygiene practices among young adults. *Cureus*, 15(8), e43921. <https://doi.org/10.7759/cureus.43921>
- Anderson, M. R., & Martin, D. H. (2025). Vulvovaginitis: Background, anatomy, pathophysiology and etiology. *Medscape*. <https://emedicine.medscape.com/article/2188931-overview>
- Anderson, M. R., & Martin, D. H. (2025). Vaginitis: Background, pathophysiology, etiology. *Medscape*. <https://emedicine.medscape.com/article/257141-overview>
- Barabas, N., & colleagues. (2020). Reviewing the composition of vaginal microbiota. *Frontiers in Cellular and Infection Microbiology*, 10, Article 315. <https://pmc.ncbi.nlm.nih.gov/articles/PMC7071153/>
- Bishop, G. B. (1990). Vaginal discharge. In H. K. Walker, W. D. Hall, & J. W. Hurst (Eds.), *Clinical methods: The history, physical, and laboratory examinations* (3rd ed.). Butterworths. <https://www.ncbi.nlm.nih.gov/books/NBK281/>
- Castellano-Tejedor, C., Blasco-Blasco, T., & Capdevila-Seder, A. (2022). Non-pharmacological interventions for the management of chronic pain: A narrative review. *Journal of Clinical Medicine*, 11(14), 4102. <https://doi.org/10.3390/jcm11144102>
- Centers for Disease Control and Prevention. (2007). 2007 guideline for isolation precautions: Preventing transmission of infectious agents in healthcare settings. U.S. Department of Health and Human Services.
- Centers for Disease Control and Prevention. (2021). Vulvovaginal infections. In *Sexually transmitted infections treatment guidelines*, 2021. <https://www.cdc.gov/std/treatment-guidelines/vaginal-discharge.html>
- Chen, Z., Li, X., & Wang, Y. (2024). Non-pharmacological interventions for prevention and control of non-communicable diseases. *BMJ*, 387, e076764. <https://www.bmj.com/content/387/bmj-2023-076764>
- Cleveland Clinic. (2023, September 6). Vaginal discharge: Causes, colors & what's normal. <https://my.clevelandclinic.org/health/symptoms/4719-vaginal-discharge>
- Devi, M., & Ismunandar, H. (2019). Kandidiasis vulvovaginal. *Jurnal Medula*, 7(2), 120–128.
- Güleç, D., Koç, Z., & Arslan, S. (2020). Determining the knowledge level and practices of nursing students about personal hygiene and the effectiveness of personal hygiene training. *European Archives of Medical Research*, 36(4), 260–266. <https://doi.org/10.4274/eamr.galenos.2020.28247>
- Healthdirect Australia. (2026, February 4). Personal hygiene. <https://www.healthdirect.gov.au/personal-hygiene>
- Mayo Clinic Staff. (2023). Vaginal health: Understand the basics. Mayo Clinic. <https://www.mayoclinic.org/healthy-lifestyle/womens-health/in-depth/vaginal-health/art-20046545>
- Medical News Today. (2020). Personal hygiene: Benefits, types, and routine. <https://www.medicalnewstoday.com/articles/personal-hygiene>
- Mulyanti, T. (2023). The characteristics of risk factors associated with vaginal discharge in women of reproductive age. *Indonesian Midwifery and Health Sciences Journal*, 7(1), 45–53.

-
- Parveen, H., Chauhan, K., & Sudhakar, M. (2022). A review on leucorrhea. *International Journal of Allied Medical Sciences and Clinical Research*, 10(2), 219–224. <https://ijamscr.com/ijamscr/article/view/1202>
- Rahman, H., Singh, P., & Gupta, R. (2025). Knowledge, attitudes, and practices of primary care physicians regarding vaginal discharge management. *Journal of Women's Health Care*, 14(3), 210–218. <https://pmc.ncbi.nlm.nih.gov/articles/PMC12477555/>
- Rahmawati, L., & Dewi, A. (2023). Effect of health education using audiovisual media on level of knowledge about fluor albus among adolescent girls. *Health Technology Journal*, 1(1), 15–22. <https://journalkhd.com/ojs/index.php/htechj/article/view/15>
- Rang, H. P., Dale, M. M., Ritter, J. M., Flower, R. J., & Henderson, G. (2016). *Rang and Dale's pharmacology* (8th ed.). Elsevier.
- Sharma, S., & Patel, A. (2024). Physiology, female reproduction. In StatPearls. StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK537132/>
- Tan, T. L., Wong, M.L., & Chan, K. S. (2021). Vaginal discharge: Evaluation and management in primary care. *Singapore Medical Journal*, 62(2), 54–60. <https://doi.org/10.11622/smedj.2021011>
- TGM Research. (2025, July 2). Survey data collection: Types, methods, & more. <https://tgmresearch.com/survey-data-collection.html>
- Tumanduk, S. N., Ngangi, C. R., & Joseph, W. (2021). The relationship of knowledge, attitudes, and personal hygiene practices of external genital organs to the incidence of pathological vaginal discharge in female medical students. *Jurnal Kesehatan Reproduksi*, 12(2), 85–93. <http://repository.uki.ac.id/4609/>
- University of Toledo Libraries. (2020). Analytical cross-sectional studies [LibGuide]. University of Toledo. <https://libguides.utoledo.edu/nursingappraisal/crosssectional>