

The Relationship Between Vaginal Acidity (Ph) Level And The Incidence Of Leucorrhoea In Women Of Reproductive Age In The Coastal Area Of Bengkulu City

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ABSTRACT

Women of reproductive age (15-49 years) frequently experience leucorrhoea, influenced by various factors, including vaginal acidity (pH). This study aimed to investigate the relationship between vaginal pH levels and the incidence of leucorrhoea in women of reproductive age couples in the coastal areas of Bengkulu City. A quantitative survey method was employed, with 128 respondents selected using purposive sampling. Data were analyzed using the Chi-Square test. The results showed a significant correlation between vaginal pH and leucorrhoea category ($p\text{-value} = 0.000 < 0.05$). Most respondents had normal vaginal pH and experienced physiological leucorrhoea.

Keywords: Leucorrhoea, Vaginal pH, Women of Reproductive Age

1. INTRODUCTION

Based on the 2021 profile of the Bengkulu City Health Office, Bengkulu City, as the provincial capital, is geographically located on the western coast of Sumatra Island, directly facing the Indian Ocean at coordinates 30° 45' - 30° 59' South Latitude and 102° 14' - 102° 22' East Longitude (Saputri, 2020). As a coastal region, this area is influenced by maritime conditions such as tides and winds, creating a hot climate. The hot weather in this region can cause excessive sweating in women, which promotes the growth of bacteria or fungi. One common infection in women caused by the fungus *Candida albicans* is vaginal candidiasis, also known as leucorrhoea (Arif, 2020). Leucorrhoea is a frequent health issue among women, with nearly all women experiencing it at least once in their lifetime.

Reproductive health is a critical aspect of overall health. As expressed by Margaret Sanger, "No woman can call herself free who does not control her own body." Maintaining reproductive health involves not only physical well-being but also mental and social well-being. One crucial aspect of reproductive health maintenance is personal hygiene, particularly in preventing sexually transmitted infections and diseases affecting the reproductive organs (Salamah, 2020).

Leucorrhoea can be categorized into two types: physiological and pathological. Physiological leucorrhoea occurs under normal conditions, such as part of the female reproductive cycle. The discharge is usually clear, moderate, odorless, and non-itchy. On the other hand, pathological leucorrhoea is characterized by increased discharge, yellowish or greenish color, a fishy odor, and often causes itching (Dewi, 2021). According to the World Health Organization (WHO), 75% of women will experience leucorrhoea at least once in their lives, and 45% may experience it more than twice (WHO, 2019).

Several factors influence leucorrhoea in women of reproductive age, including age, number of children, contraceptive history, knowledge level, personal hygiene habits, wearing tight clothing, and stress. Another important factor is vaginal acidity (pH)

(Casafranca, 2018). A study by Choirul (2022) showed that women who used monthly injectable contraceptives were more likely to experience leucorrhoea than those using three-month injectables, with significant findings indicating a relationship between hormonal contraceptive use and leucorrhoea. Moreover, research by Nanur (2020) highlighted the importance of knowledge levels in the incidence of leucorrhoea, where respondents with lower knowledge levels were more prone to the condition.

Another contributing factor to pathological leucorrhoea is the habit of wearing tight clothing. A study by Karo (2021) found that 75.9% of women who wore tight clothing experienced pathological leucorrhoea. Similarly, Judha's (2019) research demonstrated a correlation between stress levels and leucorrhoea incidence, showing that women with mild to moderate stress were more likely to suffer from pathological leucorrhoea.

Pangestuning (2022), using Spearman's statistical test, revealed a significant relationship between personal hygiene habits and leucorrhoea. Body hygiene, especially of the genital organs, is crucial because changes in vaginal pH can disrupt the balance of normal flora, such as *Lactobacillus vaginalis*, which helps maintain vaginal acidity. Mudayatiningsih (2018) noted that using alkaline soaps can reduce the population of normal flora, altering vaginal pH levels and eventually triggering leucorrhoea.

According to 2021 data from the Bengkulu City Health Office, there were 5,919 women of reproductive age in the coastal area of Bengkulu City. Of this number, 2,461 women were recorded at the Penurunan Health Center, 797 at the Kuala Lempuing Health Center, and 2,661 at the Pasar Ikan Health Center. Considering the scope of this issue, research on the relationship between vaginal acidity (pH) levels and the incidence of leucorrhoea among women of reproductive age in the coastal area of Bengkulu City is necessary. This research is expected to contribute to better prevention and management of leucorrhoea.

2. METHODS

This study employed an analytical observational design with a quantitative approach, aiming to identify the relationship between vaginal acidity (pH) levels and the incidence of leucorrhoea in women of reproductive age in the coastal area of Bengkulu City. The sample consisted of 128 respondents selected using purposive sampling from three health centers: Penurunan, Kuala Lempuing, and Pasar Ikan. The sample size was determined using the Slovin formula with a 15% significance level. Data were collected through questionnaires and vaginal pH measurements using the Dipstick Test.

Data analysis was conducted univariately and bivariately using the Chi-Square test to determine the relationship between vaginal pH and leucorrhoea. Data processing included stages of editing, coding, entry, and cleaning. The research was conducted in April 2023 at the service areas of the three health centers in Bengkulu City. The study received ethical approval from the Research Ethics Committee under approval number KEPK.BKL/152/04/2023, and all respondents provided informed consent prior to participation.

3. RESULTS

Table 1. Frequency Distribution of Vaginal Acidity (pH) Levels in Women of Reproductive Age in the Coastal Area of Bengkulu City

Vaginal pH	Frequency	Percentage
Normal	110	85,9 %
Acidic	5	3,9 %
Alkaline	13	10,2 %
Total	128	100%

This study involved 128 women of reproductive age in the coastal area of Bengkulu City. Based on the measurement of vaginal acidity (pH) levels, the majority of respondents had normal vaginal pH, with 110 respondents (85.9%), while 5 respondents

(3.9%) had acidic vaginal pH, and 13 respondents (10.2%) had alkaline vaginal pH.

Table 2. Frequency Distribution of Leucorrhoea Incidence in Women of Reproductive Age in the Coastal Area of Bengkulu City

Leucorrhoea	Frequency	Percentage
Physiological	110	85,9 %
Pathological	18	14,06 %
Total	128	100%

The distribution of leucorrhoea incidence shows that 110 respondents (85.9%) experienced physiological (normal) leucorrhoea, while 18 respondents (14.06%) experienced pathological (abnormal) leucorrhoea.

Table 3. The Relationship Between Vaginal Acidity (pH) and Leucorrhoea in Women of Reproductive Age in the Coastal Area of Bengkulu City

	Category				Total		p-value
	Normal		Abnormal		F	%	
Normal	110	100%	0	0%	110	85,9%	0.000
Acidic	0	0%	5	3,9%	5	3,9%	
Alkaline	0	0%	13	10,2%	13	10,2%	
Total	110	85,9%	18	14,06%	128	100%	

Bivariate analysis using the Chi-Square test showed a significant relationship between vaginal pH levels and the incidence of leucorrhoea ($p\text{-value} = 0.000$). Among the 110 respondents with normal vaginal pH, all experienced physiological leucorrhoea. In contrast, respondents with acidic (3.9%) and alkaline vaginal pH (10.2%) experienced pathological leucorrhoea.

4. DISCUSSION

The study results indicate that the majority of reproductive-age women in the coastal area of Bengkulu City had normal vaginal pH levels (85.9%) and experienced physiological leucorrhoea. Only 14.06% of respondents experienced pathological leucorrhoea, which was associated with abnormal vaginal pH levels, either acidic (3.9%) or alkaline (10.2%). Bivariate analysis confirmed a significant relationship between vaginal pH levels and the incidence of leucorrhoea ($p\text{-value} = 0.000$).

These findings suggest that normal vaginal pH tends to maintain the balance of the normal vaginal flora, which plays a crucial role in preventing pathological leucorrhoea.

Physiological and pathological leucorrhoea are caused by different factors. Physiological leucorrhoea generally occurs as part of the normal reproductive cycle, while pathological leucorrhoea is often triggered by bacterial, fungal, or parasitic infections (Dewi, 2021). The impact of pathological leucorrhoea can lead to serious conditions such as vulvitis, vaginitis, or pelvic inflammatory disease (Monalisa, 2018).

This study supports the findings of Puspariny (2021), which showed that women with normal vaginal pH were less likely to experience abnormal leucorrhoea. Another study by Mudayatiningsih (2018) highlighted the importance of maintaining pH balance through the use of appropriate cleansing products, as alkaline soaps can disrupt normal flora and increase the risk of infection. Inappropriate use of cleansing products, as outlined by Trisetyaningsih (2019), can also disrupt vaginal pH balance, thereby increasing the risk of infection and pathological leucorrhoea.

5. CONCLUSION

The majority of women of reproductive age in the coastal area of Bengkulu City experienced physiological leucorrhoea with normal vaginal pH. There is a significant relationship between vaginal acidity (pH) levels and the incidence of leucorrhoea. It is recommended that women of reproductive age pay closer attention to personal hygiene and maintain vaginal pH balance to prevent pathological leucorrhoea.

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