

Research Paper



A study to assess the prevalence of leucorrhoea and its associated risk factors among the women attending obg opd at selected hospitals vijayapur

Dr. Shwetha Javali^{1*}, Shivaleela Kavadi², Shivani Patil³, Shashidhar Talli⁴,
Shivananda Chalawadi⁵

^{1*}Associate Professor Dept of OBG Nursing BLDEA's Shri B M Patil Institute of Nursing Sciences, Vijayapur, India.

^{2,3,4,5}4th Year BSc Nursing, BLDEA's Shri B M Patil Institute of Nursing Sciences, Vijayapur, India.

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ABSTRACT

Leucorrhea, often referred to as white vaginal discharge, is a prevalent condition affecting women worldwide. Although commonly part of normal physiological processes, an unusual discharge—appearing white, yellowish, or clear—may suggest underlying issues such as infections, hormonal disturbances, or inadequate personal hygiene. This study was conducted to determine the prevalence of leucorrhea and to identify related risk factors including hygiene practices, sexual behaviour, hormonal changes, and infections. A cross-sectional descriptive research design was employed, involving 100 women aged 18 to 50 years who visited the gynaecology outpatient department. Participants were selected through a convenient sampling technique. Data collection was done using a structured questionnaire that gathered information on demographics, menstrual and obstetric history, personal hygiene, and symptoms associated with leucorrhea. Results indicated that 30.0% of the participants experienced leucorrhea. Statistically significant associations were found between the condition and variables such as gravida, place of delivery, and use of contraceptives ($p < 0.0001$, chi-square test). The study underscores a notable prevalence of leucorrhea among women attending gynaecological clinics and stresses the importance of health education, improved hygiene, and preventive strategies to promote better reproductive health outcomes.

Corresponding Author:

Dr. Shwetha Javali

Associate Professor Dept of OBG Nursing BLDEA's Shri B M Patil Institute of Nursing Sciences, Vijayapur, India.

Email: hitnalshwetha@gmail.com

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1. INTRODUCTION

Women's reproductive health plays a pivotal role in determining their overall physical and emotional well-being. Among the various health issues faced, leucorrhoea—characterized by abnormal vaginal discharge—remains common, especially in low- and middle-income regions. Despite its frequent occurrence, it is often not reported due to societal stigma, cultural taboos, and limited accessibility to reproductive healthcare services [1]. Particularly in rural communities, symptoms of abnormal discharge are frequently dismissed or misunderstood, with many women attributing them to bodily heat or exhaustion rather than recognizing them as possible indicators of infection [2].

Leucorrhoea is broadly classified into two categories physiological and pathological. The physiological form is typically non-threatening and related to hormonal changes that occur during ovulation, pregnancy, or sexual stimulation. It is generally odorless and not associated with discomfort. In contrast, pathological leucorrhoea arises from infections such as bacterial vaginosis, candidiasis, or trichomoniasis and is often accompanied by symptoms like itching, painful urination, pelvic cramps, or lower back pain [3]. If left unmanaged, such infections can lead to more serious complications, including pelvic inflammatory disease (PID), infertility, and adverse effects on pregnancy outcomes [4].

The estimated prevalence of leucorrhoea among reproductive-age women in developing nations ranges from 20% to 30%, with variation across different geographic and socioeconomic settings [5]. In countries like India, women's reluctance to seek timely care is influenced by gender-based expectations, lack of privacy, and insufficient awareness, thereby complicating the diagnosis and treatment of reproductive tract infections (RTIs) [6]. The lack of open communication about reproductive health concerns leads to under diagnosis and increases suffering among affected women.

A number of contributing factors have been identified in the occurrence of leucorrhoea. These include inadequate menstrual hygiene practices, the use of non-breathable or unclean undergarments, humid climate conditions, poor genital hygiene, and excessive use of antibiotics, anemia, malnutrition, and immune-suppressive states [7]. Among these, environmental concerns such as unclean surroundings and lack of safe water sources are major contributors to vaginal infections [8].

Socioeconomic challenges like poverty, low literacy levels, early marriages, and multiple childbirths also exacerbate the problem. Women from disadvantaged backgrounds are often deprived of sanitary products and menstrual hygiene education, which leads to prolonged use of unhygienic materials during menstruation and a higher risk of infection [9]. When untreated, leucorrhoea can negatively impact both physical and mental health, manifesting as persistent fatigue, strain in marital relationships, emotional instability, and even social withdrawal in severe cases [10].

The psychological impact of chronic vaginal discharge is equally concerning. Many women experience feelings of embarrassment, anxiety, and diminished self-worth. These emotional challenges can affect intimate relationships and may even lead to depression, particularly in chronic or recurring cases [11]. Deep-rooted cultural taboos around reproductive issues further hinder open discussions and prevent timely medical intervention [12].

Beyond individual and behavioral factors, systemic and environmental barriers also play a role. These include overcrowded health facilities, inadequate infrastructure, and a shortage of trained female health professionals in rural areas [13]. As a result, many women rely on traditional healing practices or home-based remedies due to limited access or lack of trust in formal healthcare systems, delaying appropriate care [14].

In this context, the present study is driven by the need to assess the prevalence and associated risk factors of leucorrhoea in a specific location—namely, Vijayapur district in Karnataka—where region-

specific research is limited. Such localized investigations are vital to understanding the socio-cultural and environmental determinants of reproductive health and can serve as a foundation for designing targeted community interventions and formulating informed health policies [15].

By evaluating the burden of leucorrhoea and identifying its contributing factors, this study aims to enhance reproductive health services and guide educational initiatives to bridge knowledge gaps among women. This is particularly relevant in outpatient gynecology settings, where women often seek care only after experiencing symptoms for extended periods [16].

The present study is designed to investigate how commonly leucorrhoea occurs among women and to examine the factors that contribute to its development. By pinpointing the major influences linked to this condition, the research aims to offer valuable information that can support the creation of effective prevention strategies, enhance public awareness, and promote timely medical care. The outcomes of this study are expected to aid in the development of community-focused health initiatives, customized educational efforts, and evidence-based clinical practices for the effective management of leucorrhoea.

Significance of Study

This study holds significant importance as it provides valuable insights into the prevalence and associated risk factors of leucorrhoea among women attending gynaecology outpatient departments in Vijayapur. By identifying the socio-demographic, menstrual, hygiene-related, and obstetric variables linked to the condition, this research highlights critical areas where health interventions are urgently needed.

2. RELATED WORK

Das and Sharma conducted a study on the prevalence of leucorrhoea in rural women and found that 35% of women experienced abnormal vaginal discharge. The study revealed significant associations with poor menstrual hygiene, early marriage, frequent childbirth, and limited access to health facilities. It highlighted that many women did not perceive leucorrhoea as a medical issue and often relied on home remedies. The researchers emphasized the critical role of health education programs and improved hygiene awareness in reducing the prevalence of leucorrhoea in rural communities [17].

Agarwal and Gupta their comprehensive review categorized the etiological factors of leucorrhoea, identifying bacterial vaginosis, candidiasis, and trichomoniasis as primary infectious causes. They also acknowledged non-infectious causes like hormonal imbalance and poor genital hygiene. The authors stressed that accurate diagnosis and differentiation among types of infections are essential for effective treatment. Additionally, they called for enhanced public health awareness to reduce stigma and promote early medical consultation for vaginal discharge [18].

Choudhary and Meena this hospital-based study in an urban setting found that higher literacy levels and access to sanitary napkins significantly lowered the risk of leucorrhoea. Women who had knowledge of menstrual hygiene and those who practiced regular perineal cleaning were less likely to report vaginal infections. The study suggested that education and availability of menstrual products serve as protective factors, and called for increased public health initiatives in urban slums where sanitation remains poor [19].

Bhatia and Cleland in their South Indian study, Bhatia and Cleland found that gynecological symptoms like leucorrhoea are often normalized and left untreated. Many women viewed it as a routine part of life rather than a medical condition. The authors observed that social stigma and embarrassment discouraged women from seeking care, especially in conservative and low-income communities. They recommended community outreach programs and female health workers to create a more open and supportive environment for discussing reproductive health [20].

study explored the relationship between WASH (Water, Sanitation, and Hygiene) access and reproductive tract infections, including leucorrhoea. It found that open defecation, lack of private toilets, and use of unclean water for genital washing were strongly linked to higher infection rates. The authors

concluded that improvements in basic sanitation, clean water availability, and education on personal hygiene are crucial to reducing leucorrhoea and other RTIs in women [21].

Singh and Arora their review focused on the national burden of RTIs and reported that nearly 40% of women attending PHCs (Primary Health Centres) complained of leucorrhoea. The study identified key risk factors such as poor menstrual hygiene, frequent vaginal douching, lack of awareness, and inadequate reproductive health services. The authors advocated for routine RTI screening in public health programs and educational modules on menstrual health in schools and communities [22].

Rani and Mehta studied the impact of menstrual hygiene on adolescent girls revealed that those who used cloth instead of sanitary pads were nearly three times more likely to develop leucorrhoea and related RTIs. Girls from lower socioeconomic backgrounds and those lacking privacy to manage menstruation were at higher risk. The findings emphasize the importance of menstrual hygiene education, especially in school settings, and suggest that providing free or subsidized sanitary products can substantially improve adolescent reproductive health [23].

Jain and Patel in their hospital-based observational study, Jain and Patel identified several personal hygiene-related factors contributing to leucorrhoea. These included reuse of unwashed or damp undergarments, sharing toilets without cleaning, and improper washing of the genital area. They concluded that simple behavioral changes, such as daily washing with clean water, proper drying of clothes, and toilet sanitation, could significantly reduce the incidence of vaginal infections in women [24].

Verma and Gupta conducted a case-control study on the impact of leucorrhoea on women's quality of life and affected women reported fatigue, lower self-esteem, social withdrawal, and interference with daily and sexual life. The study highlighted that leucorrhoea is not only a physical condition but also has psychosocial consequences. The authors recommended integrating mental health and counselling services into reproductive health care to support affected women holistically [25].

Sharma and Yadav assessed awareness levels among rural women about reproductive health and symptoms of leucorrhoea. It found that more than half of the participants were unaware that vaginal discharge could indicate infection. Due to cultural taboos and misinformation, many delayed seeking medical help, often until symptoms became severe. The authors advocated for regular community health education sessions and training of frontline health workers to improve early detection and intervention [26].

Sanitation practices play a pivotal role in influencing reproductive health, especially in developing regions. Pandey and Gaur established a strong correlation between poor sanitation facilities, such as lack of access to clean toilets and inadequate waste disposal, with increased prevalence of reproductive tract infections (RTIs), including leucorrhoea. Women who were exposed to contaminated environments or relied on open defecation were significantly more susceptible to gynecological infections [27].

In addition to sanitation, community-level health education has been shown to be effective in reducing misconceptions and improving health-seeking behavior. Patel and Shah emphasized that targeted reproductive health education programs improved awareness regarding vaginal hygiene and significantly reduced the incidence of leucorrhoea among women attending rural clinics. Their findings underline the importance of structured awareness initiatives at the grassroots level [28].

Cultural beliefs and socio-demographic barriers also influence how women perceive and respond to symptoms of leucorrhoea. Baral and Upadhyay, in a study conducted in Nepal, reported that many women normalized chronic vaginal discharge as a natural part of aging or motherhood and thus delayed seeking medical care. Their work also found that lower literacy and income levels were directly associated with poor genital hygiene practices [29].

George and Joseph explored community perceptions of vaginal discharge among women in South India and found that many women were reluctant to discuss their symptoms due to feelings of shame or fear of social judgment. This stigma contributes to underreporting and delayed treatment of leucorrhoea, which in turn increases the risk of complications such as infertility or chronic pelvic pain [30].

Thakur and Bansal examined the clinical profile of reproductive-age women with leucorrhoea and highlighted that the majority of cases presented with not only vaginal discharge but also

accompanying symptoms such as itching, lower abdominal pain, and backache. Their study emphasized the need for clinical screening of symptomatic women in outpatient departments to ensure early diagnosis and management [31].

Objectives of the Study

The present study is based on the following research objectives:

1. To determine the prevalence of leucorrhea among the women attending Gynaec OPD
2. To determine the association between personal and menstrual history with the prevalence of leucorrhea
3. To determine the association between obstetric characteristics and prevalence of leucorrhea
4. To determine the association of prevalence of leucorrhea among the women with selected socio-demographic variables.

3. METHODOLOGY

Study Design: A cross-sectional descriptive study

Study Population: Women aged 18–50 years attending OPD

Sampling Method: Convenient sampling

Sample Size: 100 women will be selected for the study

Inclusion Criteria

1. Women between the ages of 18-50 years.
2. Women who are willing to participate and provide consent.

Exclusion Criteria

1. Pregnant women.
2. Women with known underlying medical conditions such as diabetes or immunocompromised states.
3. Women who are currently undergoing antibiotic treatment.

Variables Under the Study

1. **Dependent Variable:** Prevalence of Leucorrhea
2. **Independent Variables:** Risk Factors

Data Collection Tool

A structured questionnaire, including demographic information and questions related to personal hygiene, Menstrual History, obstetric characteristics and Symptoms of Leucorrhoea.

Data Collection Procedure

The process of data collection commenced with thorough preparation, which involved securing ethical clearance, designing a structured questionnaire, and selecting the gynecology outpatient department as the research setting. Participants were chosen according to defined inclusion and exclusion criteria, using a convenient sampling approach. Informed consent was obtained from each participant prior to data collection. Information was gathered using a structured questionnaire that captured details related to socio-demographics, menstrual patterns, hygiene behaviors, obstetric background, and symptoms associated with leucorrhoea. After data collection, the prevalence rate of leucorrhoea was computed, and statistical analyses, including the Chi-square test, were employed to explore associations between leucorrhoea and selected independent variables. The findings were then analyzed and interpreted to identify significant patterns. The study concluded with recommendations focusing on enhancing reproductive hygiene awareness, improving sanitary conditions, and promoting menstrual health education.

4. RESULTS AND DISCUSSION

The study revealed that 30.0% of women attending the gynecology outpatient department were affected by leucorrhoea. A notable correlation was observed between hygiene-related behaviors and the condition. Specifically, women practicing open-air defecation (60.0%) and those using cloth instead of sanitary products for menstrual management (80.0%) were more frequently affected. Obstetric factors also contributed, with higher parity and home-based deliveries linked to increased cases of leucorrhoea. Among socio-demographic variables, factors such as low income, lack of formal education, rural residency, and living in nuclear families demonstrated significant associations, whereas employment status did not show any meaningful connection.

Common complaints reported by women with leucorrhoea included gastrointestinal discomfort (33.3%), leg cramps (26.7%), general weakness (16.7%), lower back pain (13.3%), and abdominal discomfort (10.0%). These results emphasize the urgent need to promote better menstrual hygiene practices, improve access to sanitation, and raise awareness about reproductive health to help reduce the incidence of leucorrhoea.

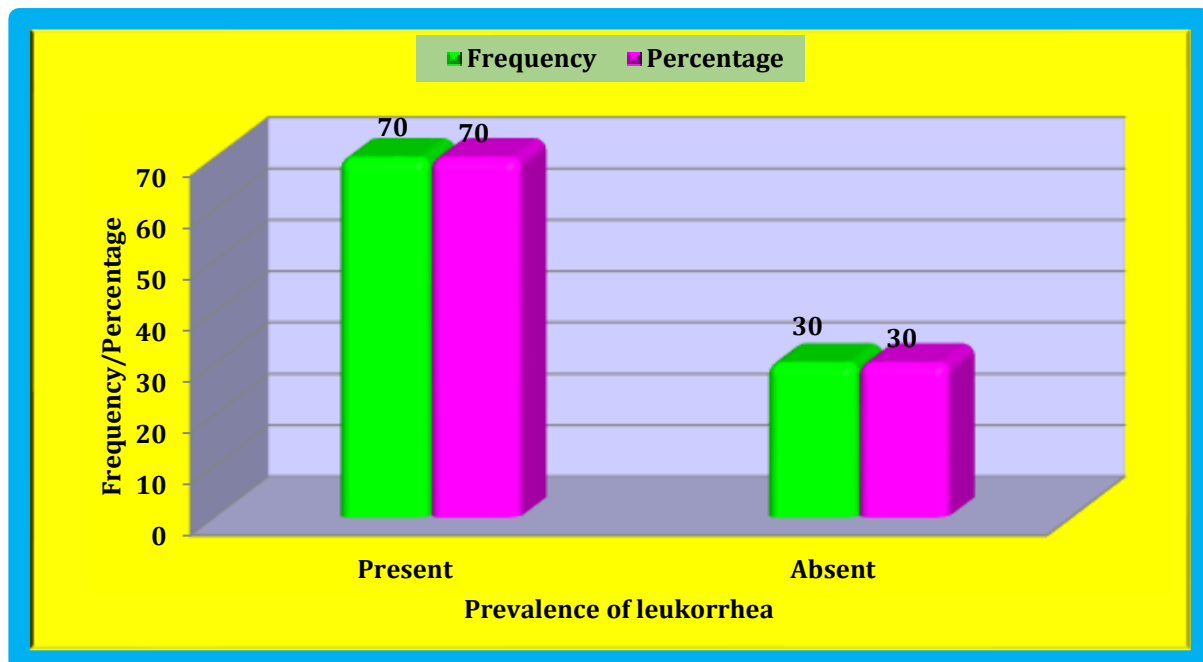


Figure 1. Prevalence of Leucorrhoea among the Women Attending Gynaec OPD

From Figure 1, it was observed that out of 100 women attending the gynecology OPD, 30 reported complaints of vaginal discharge. Thus, the prevalence of vaginal discharge in this study was found to be 30.0%.

Table 1. Frequency and Percentage Distribution of Women Attending Gynaec OPD According to their Types of Toilet

S. No	Classification	Leucorrhoea				Chi-Square	P-Value
		Present		Absent			
		N	%	N	%		
Toilet type	Open air defecation	18	60.0	10	14.3	21.7	<0.0001 (S)
	Commode	12	40.0	60	85.7		
Total		30	100.0	70	100.0		

Table 1 indicates that among the 30 women experiencing leucorrhea, the majority (18, 60.0%) practiced open-air defecation. In contrast, among the 70 women without leucorrhea, the majority (60, 85.7%) used a commode.

This analysis suggests a strong association between toilet type and the prevalence of leucorrhea, with a chi-square value of 21.7 and a p-value of less than 0.0001."

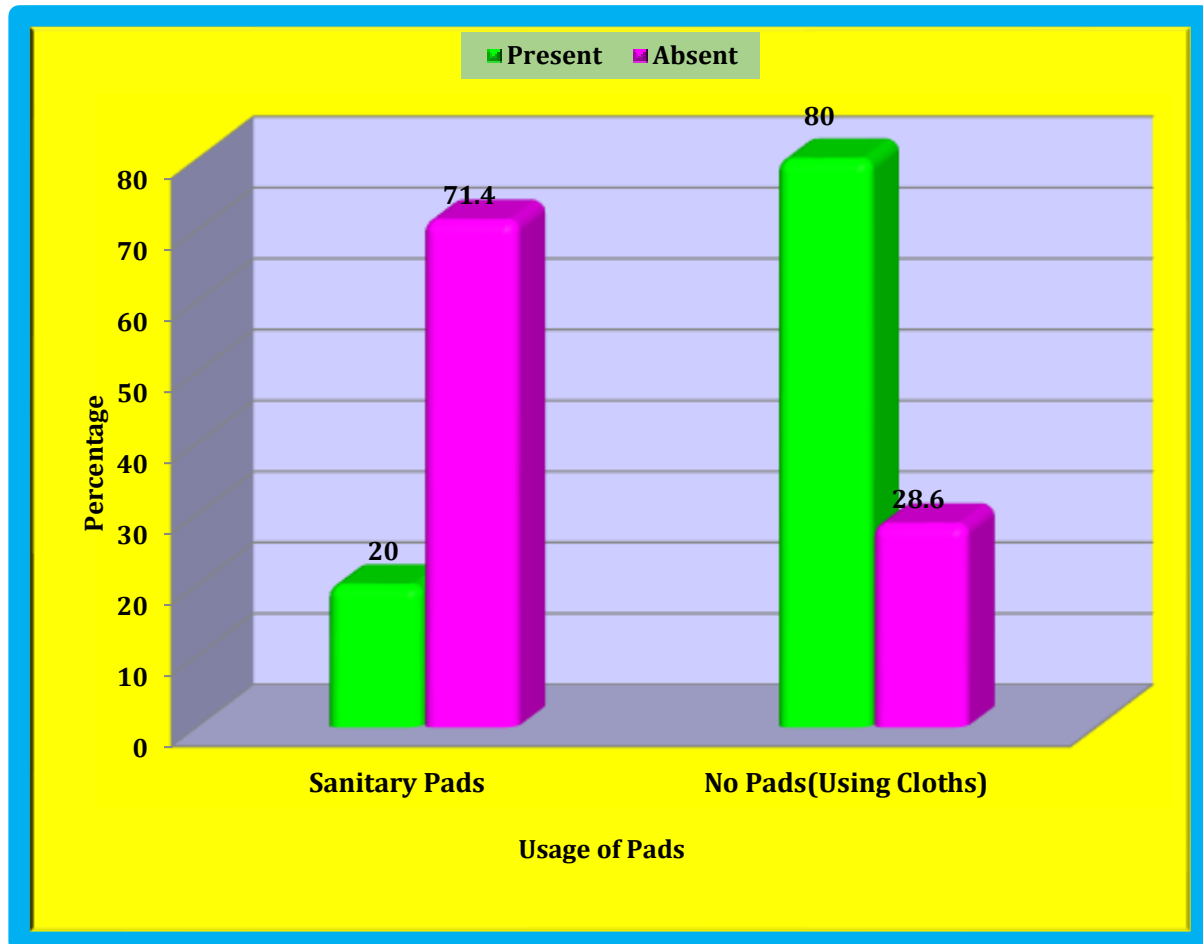


Figure 2. Percentage Distribution of Women Attending Gynecological OPD According to Their Usage of Pads

Figure 2 indicate that among the 30 women experiencing leucorrhea, the majority (24, 80.0%) used cloth for menstrual hygiene. In contrast, among the 70 women without leucorrhea, the majority (50, 71.4%) used sanitary pads. This analysis highlights a significant association between menstrual hygiene practices and the prevalence of leucorrhea, with a chi-square value of 21.7 and a p-value of less than 0.0001.

Table 2. Frequency and Percentage Distribution of Women Attending Gynecological OPD According to their Obstetric Characteristics

S. No	Obstetric Characteristics	Classification	Present		Absent		Chi-Square (P-Value)
			N	%	N	%	
1	Gravida	Nullipara	05	16.7	30	42.8	8.96 (0.02) S
		One	08	26.7	20	28.6	
		Two	07	23.3	10	14.3	
		Three	10	33.3	10	14.3	
2	Place of delivery	Home	22	73.3	15	21.4	24.2 (<0.0001) S

		Hospital	08	26.7	55	78.6	
3	Contraception	Nil	12	40.0	20	28.6	4.70 (0.09) NS
		Temporary	08	26.7	35	50.0	
		Permanent	10	33.3	15	21.4	

Table 2 indicates that among the 30 women with leucorrhea, the majority (8, 26.7%) had one child, 22 (73.3%) had home deliveries, and 12 (40.0%) did not use contraception. In contrast, among the 70 women without leucorrhea, the majority (30, 42.8%) were nulliparous, 55 (78.6%) had home deliveries, and 35 (50.0%) used temporary contraception. This analysis suggests a significant association between leucorrhea prevalence and factors such as gravida, place of delivery, and contraception use, with a chi-square p-value of less than 0.0001."

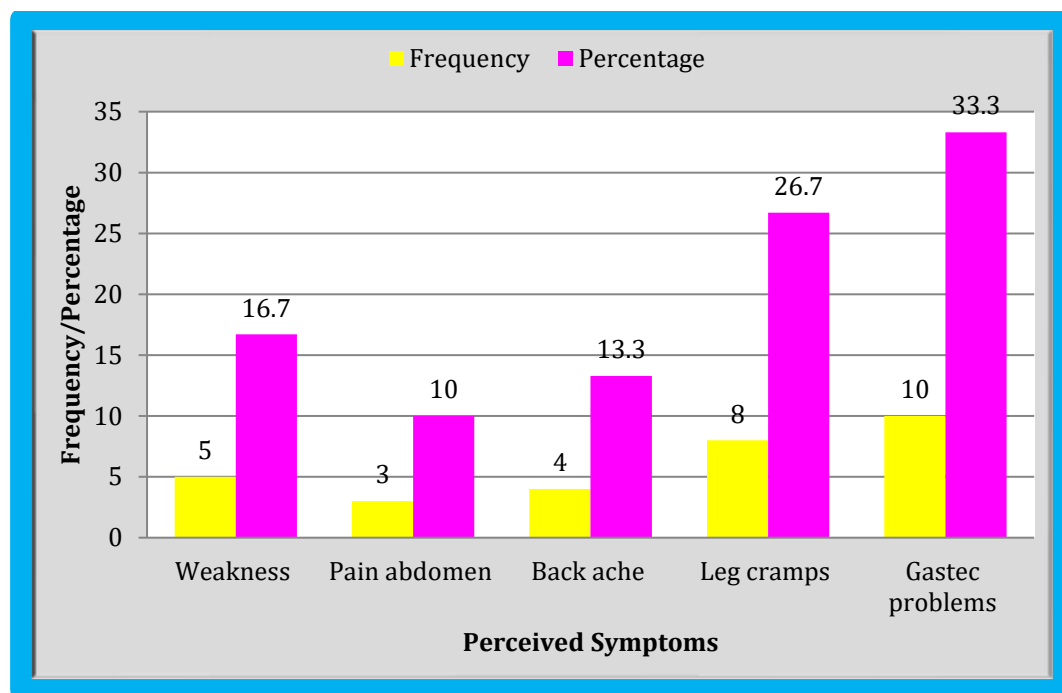


Figure 3. Frequency and Percentage Distribution of Perceived Symptoms Associated with Vaginal Discharge

Figure 3 indicate that among the 30 women with leucorrhea, the most commonly reported associated condition was gastric problems (10, 33.3%), followed by leg cramps (8, 26.7%). Additionally, 5 (16.7%) experienced weakness, 4 (13.3%) reported backache, and 3 (10.0%) had abdominal pain.

Table 3. Association between the Prevalence of Leucorrhea among the Women with their Selected Socio-Demographic Variables.

Age	Leucorrhoea				Chi-Square	DF	P-Value
	Present		Absent				
	Frequency	%	Frequency	%			
Early Teen	08	26.6	20	28.5	0.03	1	0.84
Late Teen	22	73.4	50	71.4			NS
Economic status							
Low	17	56.7	18	25.7	8.84	1	0.002
High	13	43.3	52	74.3			(S)
Literacy							
Illiterate	14	46.7	09	12.8			<0.0001

SSLC	10	33.3	21	30.0	16.8	2	(S)
PUC	06	20.0	40	57.1			
Place of living							
Rural	12	40.0	10	14.3	19.4	2	<0.0001 (S)
Urban	05	16.7	45	64.3			
Semi-Urban	13	43.3	15	21.4			
Occupational status							
Housewife	17	56.7	42	60.0	2.79	2	0.24 (NS)
Private	07	23.3	22	31.4			
Employee	06	20.0	06	8.6			
Types of family							
Nuclear	18	60.0	20	28.6	8.90	2	0.01 (S)
Joint	06	20.0	22	31.4			
Extended	06	20.0	28	40.0			

Table 3 revealed a significant association between the prevalence of leucorrhea and selected demographic variables, including age, economic status, literacy, place of residence, and type of family, with a chi-square p-value of less than 0.05. However, no significant association was found between leucorrhea prevalence and occupational status.

Discussion

The results of this study highlight a clear connection between the occurrence of leucorrhoea and factors such as inadequate hygiene practices, socioeconomic conditions, and reproductive health indicators. A strong link was observed between open defecation, the use of cloth during menstruation, and increased prevalence of leucorrhoea, underscoring the critical need for better sanitation infrastructure and menstrual hygiene education. Obstetric factors, including higher number of childbirths and home deliveries, indicate the importance of encouraging institutional births and ensuring proper postnatal care. The study also found that low literacy and rural living conditions were significantly associated with leucorrhoea, reinforcing the role of health education in raising awareness about reproductive well-being. These findings are consistent with earlier research, which has shown that poor menstrual hygiene, limited access to sanitation, and a lack of awareness contribute notably to reproductive health problems. To address these issues, comprehensive interventions such as community-based awareness programs, availability of affordable sanitary products, and strengthening of local healthcare services are necessary to lower the incidence of leucorrhoea and enhance reproductive health among women.

5. CONCLUSION

The study found that 30.0% of women attending the gynecology outpatient department were affected by leucorrhoea. Several variables showed significant associations with the condition, including personal hygiene habits, type of sanitation facility, menstrual hygiene practices, number of pregnancies (gravida), place of childbirth, use of contraceptives, and socio-demographic factors such as income level, education, residential area, and family structure. In contrast, employment status did not demonstrate a notable association.

These results underscore the crucial role of hygiene and reproductive health education in preventing leucorrhoea and its potential complications. The increased risk observed among women who used cloth for menstrual hygiene and those who practiced open defecation highlights the urgent need to enhance sanitation infrastructure and promote effective menstrual hygiene practices.

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Author Contributions Statement

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Dr, Shwetha Javali	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	
Shivaleela Kavadi	✓					✓	✓	✓				✓		
Shivani Patil		✓		✓			✓	✓						
Shashidhar Talli	✓		✓								✓			
Shivananda Chalawadi		✓		✓		✓	✓	✓		✓				

C : Conceptualization

M : Methodology

So : Software

Va : Validation

Fo : Formal analysis

I : Investigation

R : Resources

D : Data Curation

O : Writing - Original Draft

E : Writing - Review & Editing

Vi : Visualization

Su : Supervision

P : Project administration

Fu : Funding acquisition

Conflict of Interest

Authors State no conflict of interest.

Informed Consent

Obtained from the study participants.

Ethical Approval

The study was approved by the Institutional Ethical Committee.

Data Availability

The data that support the findings of this study are available from the corresponding author, upon reasonable request. The data are not publicly available due to privacy and confidentiality concerns of the study participants.

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BIOGRAPHIES OF AUTHORS

	Dr. Shwetha Javali  Faculty from BLDEA's Shri B M Patil Institute of Nursing Sciences, Vijayapur. Completed her DGNM (2005) from Nitte Usha Institute of Nursing Sciences, Mangalore, PBBSc Nursing in 2011 from Tulza Bhavani College of Nursing Vijayapur, MSc Nursing OBG in 2014 from BLDEA's Shri B M Patil Institute of Nursing Sciences, Vijayapur and PhD in Nursing in 2022 from JJT University Rajasthan. She holds 4 years of clinical experience and 11 years of teaching experience in different position. She has organized and attended many International & National Conferences, Seminar, Workshop, FDP, and Guest Lecture and also published and presented more than 13 papers in National & International Conferences and Journals. She is a Peer reviewer of 2 International Journal. She is a life time member of Nursing Association of TNAI, SOMI, SFNP. She is presently working as Associate Professor at BLDEA's Shri B M Patil Institute of Nursing Sciences, Vijayapur. She received Global Faculty award from AKS Education Society (2022) and Best Teacher award from Global Interdisciplinary Advance Research (2023), has 1 patent, 1 chapter and 2 book publication in her credit. She is actively associated in the field of Obstetrics and Gynecological Nursing, Research and Nursing Education. Email: hitnalshwetha@gmail.com
	Shivaleela Kavadinatti  Completed BSc Nursing from BLDEA's Shri B M Patil Institute of Nursing Sciences, Vijayapur on 2025. She has attended many International & National Conferences, Seminar, Workshop, FDP, and Guest Lecture. Email: shillusk2002@gmail.com
	Shivani Patil  Completed BSc Nursing from BLDEA's Shri B M Patil Institute of Nursing Sciences, Vijayapur on 2025. Presently working as Nursing officer at Azad Hospital Viayapur. She has attended many International & National Conferences, Seminar, Workshop, FDP, and Guest Lecture. Email: patilsonu9042@gmail.com
	Shashidhar Talli  Completed BSc Nursing from BLDEA's Shri B M Patil Institute of Nursing Sciences, Vijayapur on 2025. He has attended many International & National Conferences, Seminar, Workshop, FDP, and Guest Lecture. Email: shashidhartalli@gmail.com
	Shivananda Chalawadi  Completed BSc Nursing from BLDEA's Shri B M Patil Institute of Nursing Sciences, Vijayapur on 2025. He has attended many International & National Conferences, Seminar, Workshop, FDP, and Guest Lecture. Email: shivanandac680@gmail.com