



Original Research Article

Frequency of Bacterial Vaginosis in Non-Pregnant Outpatient Women Presenting with Vaginal Discharge

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Abstract: **Background:** Bacterial Vaginosis is a major problem in non-pregnant women which may leads to serious complications in the future. **Objective:** The objective of this study was to determine the frequency of bacterial vaginosis in non-pregnant outpatient women presenting with vaginal discharge. **Material and methods:** The present study was carried out at the department of Gynae Unit 4 Bolan Medical Complex Hospital Quetta, Balochistan from January 2025 to June 2025 after taking approval from the ethical committee of the institute. The sample was determined using WHO calculator. A total of 230 married non-pregnant outpatient women of different age groups presented with vaginal discharge were included. Using a pre-designed proforma, a thorough history of each patient was collected, including name, age, marital status, education level, occupation, parity, miscarriages, contraception, vaginal discharge, related itching, dyspareunia, and discharge color. A sterile speculum examination was performed to check for color and discharge. Bacterial vaginosis was diagnosed using the Amsel criteria. SPSS version 20.0 was used for analysis. **Results:** A total of 230 non pregnant women with vaginal discharge were examined in this study. The mean age of the study population was 35.4 (ranged 17-52) years. Following the use of the Amsel criteria, 47.82% participants tested positive for bacterial vaginosis. Bacterial vaginosis was most prevalent in the age group above 31 years 50%. Bacterial vaginosis was found in 37.5% of the individuals who were illiterate, 38 (38%) of those with elementary education, and 40% of those with college or higher education. In contraceptive user its frequency was 62% and in condom user was 20(40%). Bacterial vaginosis was seen in the 50.3% cases in dyspareunia patients. Frequency of bacterial vaginosis based on abnormal discharge color revealed that it was most prevalent in white color discharge 74.0%. **Conclusion:** The present study concluded that the frequency of bacterial vaginosis was most prevalent in outpatient women presenting with vaginal discharge 47.82%.

Keywords: Bacterial vaginosis, vaginal discharge, Amsel criteria

INTRODUCTION

One of the most prevalent vaginal infections that affect women globally is bacterial vaginosis. It is caused by the over growth of normal vaginal flora and its clinical manifestation is abnormal vaginal

discharge that smells like fish. Usually, the discharge is thin and either white or gray in color. Patients with bacterial vaginosis are more likely to get sexually transmitted infections (STIs), and pregnant women are especially susceptible to abortion.¹ *Gardnerella vaginitis* was the previous name for bacterial vaginosis,

which attributed the disease only to *Gardnerella bacteria*. It is more appropriate to refer to the possible proliferation of different anaerobic bacteria in the vaginal environment as is termed as bacterial vaginosis. The term "bacterial vaginosis" emphasizes the knowledge that this disease can result from the overgrowth of many bacteria that are normally present in the vagina.² Bacterial vaginosis is usually caused by an overabundance of anaerobic bacteria and a decrease in lactobacilli that produce hydrogen peroxide in the vagina.³ The exact etiology of bacterial vaginosis, which is caused by the growth of *Gardnerella* and other anaerobic bacteria, is yet unknown. The degree of transmissibility of *Gardnerella vaginalis* is still unknown, despite the fact that it is not usually regarded as infectious. The normal balance of bacteria in the vagina may be upset if this bacterium is spread through sexual intercourse. This imbalance promotes the overgrowth of opportunistic anaerobic bacteria, such as *G vaginalis*, which may lead to bacterial vaginosis.⁴ Regular bathing, massaging, smoking, having several sexual partners, using inexpensive intravaginal hygiene products, elevated stress levels, and increasing frequency of sexual activity are some of the variables that may lead to the development of bacterial vaginosis.⁵ Malodorous vaginal discharge is a common complaint among females with bacterial vaginosis.⁶ This sensation frequently intensifies following sexual activity. Dysuria, dyspareunia, & vaginal pruritus are possible additional symptoms, however many afflicted people may not have any symptoms at all. A relevant history of bacterial vaginosis infections and risk factors for the disease should be obtained by the practitioner. Vaginal douching, having several sexual partners, recent antibiotic usage, smoking cigarettes, and using an intrauterine device are some potential risk factors for bacterial vaginosis.⁷ Bacterial vaginosis affects 5% to 70% of females of reproductive age. In different countries its rate is from 20% to 60%. Africa have the highest prevalence of this illness, whereas Asia and Europe have the lowest rates.⁸ Furthermore, women who have several sexual partners, are single, started having sex at a young age, work in commercial sex, or indulge in frequent douching are more likely to contract bacterial vaginosis.⁹ The present study was conducted to determine the frequency of bacterial vaginosis in non-pregnant outpatient women presenting with vaginal discharge.

Material and methods

The present study was carried out at the department of Gynae Unit 4 Bolan Medical Complex Hospital Quetta, Balochistan from January 2025 to June 2025

after taking approval from the ethical committee of the institute. A total of 230 married non-pregnant outpatient women of different age groups presented with vaginal discharge were included while unmarried women, pregnant postmenopausal, individuals with antibiotics therapy (for the last 7 days of presentation) and in menstrual periods were excluded from the study. All participants were fully informed about the purpose of data collecting processes and persuaded that they may withdraw from the study at any point throughout its duration. The participant was assured that their data would be kept private. Using a pre-designed proforma, a thorough history of each patient was collected, including name, age, marital status, education level, occupation, parity, miscarriages, contraception, vaginal discharge, related itching, dyspareunia, and discharge color. Additionally, parity was noted. A sterile speculum examination was performed to check for color and discharge.

For the purpose of inspection and sample, women were positioned dorsally. After the vulva was examined, the sterile speculum was passed. The color, shape, consistency, and discharge color of the vagina were examined. Bacterial vaginosis was diagnosed using the Amsel criteria (15). The acidity of vaginal discharge was determined using the pH paper. For the purpose of to prevent bias, the pH paper was kept away from the cervix's alkaline discharge by placing it across the lateral vaginal wall for a minute. After that, the color of the paper was compared to the standard pH card (control). A sterile cotton-tipped swab was used to collect discharge from the posterior fornix of the vagina. To prevent surface contamination, all necessary measures were taken. The sample were transferred to two slides that had previously been labeled and prepared. A cover slip and one or two drops of normal saline were applied to the first slide, which was then inspected under a light microscope for white blood cells or clue cells. In order to examine the vaginal discharge's odor, a drop of 20% potassium hydroxide (20% KOH by "Laboratory Chemicals") was put to the second slide. This procedure was called a "whiff test." Bacterial vaginosis was diagnosed in females with three or more positive Amsel criteria factors, such as white, thin, gray, or yellow discharge, Clue cells, pH over 4.5, and fishy odor discharge after adding 20% KOH.¹⁰ Microsoft Excel was used to compile the data, while SPSS version 20.0 was used for analysis. Tables and graphs were used to display the results. The variables that were present in categories and continuous by average were characterized by proportions. The chi-square and T tests were used to compare the variables. The value of $p < 0.05$ was considered statistically significant.

RESULTS

A total of 230 non pregnant women with vaginal discharge were examined in this study. The mean age of the study population was 35.4 (ranged 17-52) years. Following the use of the Amsel criteria, 110(47.82%) participants tested positive for bacterial vaginosis as presented in **figure 1**. Bacterial vaginosis was most prevalent in the age group above

31 years 40(50%) followed by age group 26-31 30(28.5%) and 17-25 37(82.2%) years respectively. The results revealed that multiple risk factors were involved in vaginosis. Bacterial vaginosis was found in 30 (37.5%) of the individuals who were illiterate, 38 (38%) of those with elementary education, and 20 (40%) of those with college or higher education. In contraceptive user its frequency was 25(62%) and in condom user was 20(40%). Bacterial vaginosis was seen in the 78(50.3%) cases in dyspareunia patients as presented in table 1. Frequency of bacterial vaginosis based on abnormal discharge colour revealed that white colour discharge was seen in 135(58.6%) individuals of which 100(74.0%) had bacterial vaginosis. 60(26.0%) of the participants had yellow colour discharge of which only 10% had vaginosis. Gray colour was detected in 15(6.5%) of the women out of which 10(66.6%) had vaginosis while individuals with clear discharge had 30 % of vaginosis as presented in table 2.

Figure 1. Frequency of Bacterial Vaginosis in the study population



Table 1. Demographic features of the study population and its relationship with bacterial vaginosis N= 230

Age in years	N (%)	Bacterial vaginosis	
		Yes	No
17 to 25	45(19.5%)	8(17.7%)	37(82.2%)
26 to 30	105(45.6%)	30(28.5%)	75(71.4%)
31 or above	80(34.7%)	40(50%)	40(50%)
Education status			
illiterate	80(34.7%)	30(37.5%)	50(62.5%)
Primary education	100(43.4%)	38(38%)	62(62%)
College and above	50(21.7%)	20(40%)	30(60%)
Employment status			
Employed	50(21.7%)	20(40%)	30(60%)
Unemployed	180(78.2%)	80(44%)	100(56%)
Miscarriage status			
Yes	130(56.5%)	85(65.3%)	45(34.6%)
No	100(43.4%)	50(50%)	50(50%)
Contraceptive and condom usage			
user	40(17.39%)	25(62%)	15(38%)
Non user	60(26.0%)	30(50%)	30(50%)
Condom user	50(21.7%)	20(40%)	30(60%)
Non condom user	80(34.7%)	20(25%)	60(75%)
Dyspareunia status			
Yes	155(67.3%)	78(50.3%)	77(49.6%)
No	75(32.60%)	35(46.6%)	40(53.3%)

Table 2. Prevalence of bacterial vaginosis based on abnormal discharge colour n = 230

Colours	N (%)	Bacterial vaginosis	
		Yes	No
Gray	15(6.5%)	10(66.6%)	5(33.3%)
White	135(58.6%)	100(74.0%)	35(25.9%)
Yellow	60(26.0%)	6(10%)	54(90%)
Clear	20(8.6%)	6(30%)	14(70%)

DISCUSSION

Bacterial vaginosis is the second most prevalent lower genital tract condition affecting women in their

reproductive years that have a lot of foul-smelling, whitish-grey vaginal discharge.¹¹ Because of the confined inflammation; it is not known as bacterial

vaginitis. Numerous studies have shown that women with bacterial vaginosis have greater levels of the proinflammatory cytokine interleukin-1beta (IL-1beta).¹² This might result from the pathogenic microorganisms inhibiting or degrading IL-1beta.¹² Furthermore, it has been demonstrated that vaginal microbes have completely replaced ordinary lactobacilli with anaerobes, such as *Gardnerella vaginalis*, *peptostreptococcus*, *Prevotella*, *Bacteroides*, *Atopobium*, and *Leptotrichia*. Apart from the aforementioned, three *Clostridium* species are known as bacterial vaginosis-associated bacteria because they cause bacterial vaginosis.¹³ Most of the time, it may be asymptomatic, but occasionally it manifests as a large, foul-smelling, whitish-grey vaginal discharge without any typical inflammatory symptoms. Since the symptoms of bacterial vaginosis are generally nonspecific and asymptomatic, microscopic analysis to identify the types of bacteria causing vaginal infections and clinical diagnostic tests like Amsel's criteria are the best methods for determining the presence of vaginitis.¹⁴ The goal of the current study was to ascertain the frequency of bacterial vaginosis in women who are not pregnant. A total of 230 non pregnant women with vaginal discharge were examined in this study. Following the use of the Amsel criteria, 110(47.82%) participants tested positive for bacterial vaginosis. Our study results are similar to the study conducted by Bibi et al in which the frequency of bacterial vaginosis was 49%.¹⁵ The current investigation corroborated the similar prevalence of bacterial vaginosis described by Shnawa et al, accounting for 48.60% of the total sample.¹⁶ However the results of the current study was not comparable to the study conducted by Venugopal et al, in which the frequency of this disease was 27% in non-pregnant women.¹⁷ Compared to these studies, the comparison and greater frequency of cases might be the result of different materials and techniques. In our study bacterial vaginosis was most prevalent in the age group above 31 years 40(50%) followed by age group 26-31 30(28.5%) and 17-25 37(82.2%) years respectively. similar findings were noted in the previous study.¹⁵ The current findings are similar to those of a research conducted by Ibrahim, which revealed that women between the ages of 15 to 24 had a lower incidence rate of bacterial vaginosis, but women beyond the age of 25 had a higher frequency (47% to 60%).¹⁸ Therefore, women over the age of 25 are more likely to contract bacterial vaginosis. The results proved that multiple risk factors were involved in vaginosis. Bacterial vaginosis was found in 30 (37.5%) of the individuals who were illiterate, 38 (38%) of those with elementary education, and 20 (40%) of those with college or higher education. Similar findings were recorder from the previous study.¹⁵ Our results showed that in the contraceptive user its frequency was 25(62%) and in condom user was 20(40%). Bacterial vaginosis was seen in the 78(50.3%) cases in dyspareunia patients.

A research reported in India found that females employing regular intrauterine contraceptive methods have a greater likelihood of acquiring bacterial vaginosis (29.4%) vs with non-users of a device (17.20%).¹⁹ Frequency of bacterial vaginosis based on abnormal discharge colour revealed that white colour discharge was seen in 135(58.6%) individuals of which 100(74.0%) had bacterial vaginosis. 60(26.0%) of the participants had yellow colour discharge of which only 10% had vaginosis. Gray colour was detected in 15(6.5%) of the women out of which 10(66.6%) had vaginosis while individuals with clear discharge had 30 % of vaginosis. our study findings are similar to the previous study done by Ibrahim.¹⁸ and Bibi et al.¹⁵ The key limitation of our research was that it was a hospital based study. The frequency of bacterial vaginosis in the general population was not sufficiently revealed by a hospital-based investigation. Because the short sample size did not reveal that individuals over 30 had a significant prevalence of bacterial vaginosis, a greater sample size is required. Only non-pregnant women who had visited the hospital within a particular time frame were included in this study.

Conclusion

The present study concluded that the frequency of bacterial vaginosis was most prevalent in outpatient women presenting with vaginal discharge (47.82%). According to our findings, doctors should use clinical tests like the AMSEL criteria in addition to various diagnostic tests to speedily diagnose bacterial vaginosis while also saving patients' time and money.

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