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BACKGROUND

- Bacterial vaginosis (BV) is the most common dysbiosis among reproductive-aged women. BV is characterized by the significant reduction of *Lactobacilli* in the vagina, leading to an overabundance of obligate or facultative anaerobic bacteria such as *Gardnerella vaginalis*, *Atopobium vaginae*, *Mycoplasma hominis*, *Prevotella*, *Peptoniphilus*, *Megasphaera*, *Mobiluncus*, and BV-associated bacteria (BVAB-1 to 3).
- Approximately 50% of BV cases are asymptomatic, however, when symptoms arise women experience abnormal vaginal discharge, increased vaginal pH, vaginal itching, and vaginal malodour. Upon physical examination, a thin milky discharge sometimes with a fishy odour is present. BV has been associated with adverse gynaecologic and pregnancy complications such as pelvic inflammatory disease (PID), preterm delivery, and postpartum and post-abortion endometritis.
- Furthermore, previous studies have reported a positive association between BV and increased transmission of sexually transmitted infections (STIs) such as *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *Trichomonas vaginalis*, human immunodeficiency virus (HIV) and human papillomavirus (HPV).
- This study aimed to investigate the prevalence and risk factors associated with BV and the association between BV and vaginal pH in women from Durban, South Africa.

METHODS

STUDY POPULATION	<ul style="list-style-type: none"> Biomedical Research Ethics Committee (BREC), UKZN 150 women from King Edward VIII Hospital Provided written informed consent and vaginal swab
DIAGNOSIS OF BV AND PH ASSESSMENTS	<ul style="list-style-type: none"> Smears were prepared from one of the four swab samples and the slides were air-dried, heat-fixed, and Gram-stained. All smears were assessed as per the grading systems of Nugent. The reading on the pH strip (Lovibond®: Tintometer® Group, United Kingdom) was compared to the diagnosis of BV by Nugent scoring.
DNA ISOLATION AND DETECTION OF BV ASSOCIATED MICROORGANISMS	<ul style="list-style-type: none"> Pellets subjected to DNA extraction using the PureLink Microbiome Kit Detected using the Quantitative PCR Primers and probes specific for (BVAB2), (BVAB1), and (BVAB3). Performed on the QuantStudio™ 5 Real-Time PCR detection system
STATISTICAL ANALYSIS	<ul style="list-style-type: none"> Model fit was checked using standard statistical tests, and influential variables removed were detected. All analyses were conducted with 95% confidence intervals and a significance level of 0.05. All analyses were conducted in STATA 17.1.

DISCUSSION AND CONCLUSION

- This study observed a high prevalence of 29.3% for positive BV and 29.3% for intermediate BV and the age group 18-24 had a positive and intermediate BV prevalence of 11.3% and 15.9%, respectively.
- Among the pregnant women, 27.2% were BV positive and 15.9% were BV intermediate and in the current study, the prevalence of positive and intermediate BV was high (79.5% and 63.6%, respectively) among women living with HIV compared to the uninfected women (20.4% and 36.3%, respectively).
- In our study cohort, older women in the age group 31 to 40 years old were approximately 7 times more likely to test positive for BV.
- BVAB1, BVAB2, and BVAB3 belong to the phylum *Clostridium*. BVAB1-3 have been observed in vaginal smears of BV positive women attached to the vaginal epithelial cells and in our study cohort, *A. vaginae* was present in 59.3% (vs 40.7%) of the BV positive women.
- The high percentage of women with an intermediate BV status warrants the need for routine screening and management for BV to reduce the burden of this dysbiosis on the women's sexual health. In this study, vaginal pH was not associated with BV, therefore it is poor predictor for BV.

RESULTS

- Bacterial vaginosis infection prevalence = 29.3% (44/150)**
- Table 1: Prevalence of BV-associated microorganisms in women with a healthy and unhealthy vaginal Ph**

Variables	Vaginal pH		p-value
	Healthy (<4.5) n(N)	Unhealthy (>4.5) n(N)	
Overall	48 (54.5)	40 (45.5)	
BVAB1			0.394
Negative	32 (51.6)	30 (48.4)	
Positive	16 (61.5)	10 (38.5)	
BVAB2			0.782
Negative	29 (55.8)	23 (44.2)	
Positive	19 (52.8)	17 (47.2)	
BVAB3			1.000
Negative	30 (54.5)	25 (45.5)	
Positive	18 (54.5)	15 (45.5)	
Atopobium vaginae			0.522
Negative	20 (58.8)	14 (41.2)	
Positive	28 (51.8)	26 (48.2)	
Prevotella bivia			0.709
Negative	15 (51.7)	14 (48.3)	
Positive	33 (55.9)	26 (44.1)	
Gardnerella vaginalis			0.934
Negative	16 (55.2)	13 (44.8)	
Positive	32 (54.2)	27 (45.8)	
Megasphaera type 1			0.370
Negative	23 (50)	23 (50)	
Positive	25 (59.5)	17 (40.5)	
Sneathia sanguinegens			0.517
Negative	32 (57.1)	24 (42.9)	
Positive	16 (50)	16 (50)	