Investigation of Infectious Vaginitis and Urinary Tract Infection among women of reproductive age visiting Nepalgunj Medical College Teaching Hospital, Kohalpur; and their associated risk factors

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Overview

1. **INTRODUCTION**
2. **OBJECTIVES**
3. **METHODS**
4. **RESULTS**
5. **CONCLUSIONS**
6. **RECOMMENDATIONS**
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INTRODUCTION

- Vaginitis is an inflammation of the vagina.
- 3 most common vaginitis:

a) Bacterial Vaginosis (*Gardnerella vaginalis*, *Bactrioles* spp., genital mycoplasma and, anaerobic bacteria.)

b) Vaginal Candidiasis (*Candida* spp.)

c) Trichomoniasis (*Trichomonas vaginalis*)

- Characteristics: - Vaginal discharge containing WBC,
  - Itching,
  - Vaginal odor,
  - Dyspareunia,
  - Dysuria,
  - Vaginal Erythema, and so on.

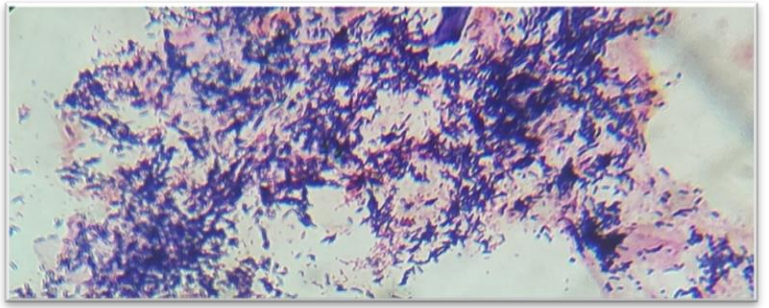


Fig: Bacterial Vaginosis

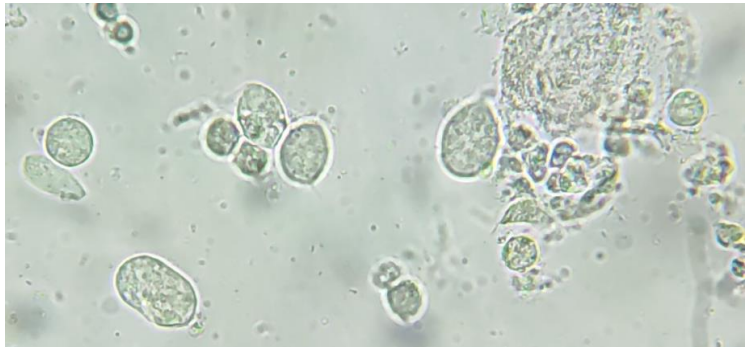


Fig: *Trichomonas vaginalis*

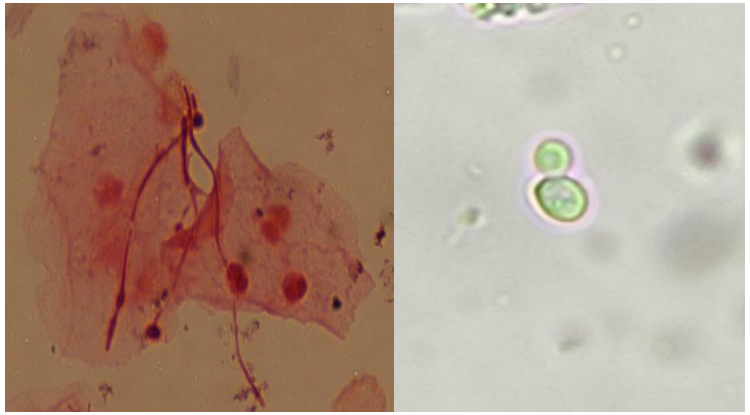


Fig: Pseudohyphae and budding yeast cell

Urinary Tract Infections (UTI)

- **Gram-Negative Bacteria (GNB)** : *Escherichia coli*, *Klebsiella* spp., *Proteus* spp., *Enterobacter* spp., *Citrobacter* spp., *Serratia* spp., *Pseudomonas* spp. and so on.
- **Gram-Positive Bacteria (GPB):** *Staphylococcus* spp., *Enterococcus* spp., *Streptococci* spp., etc.

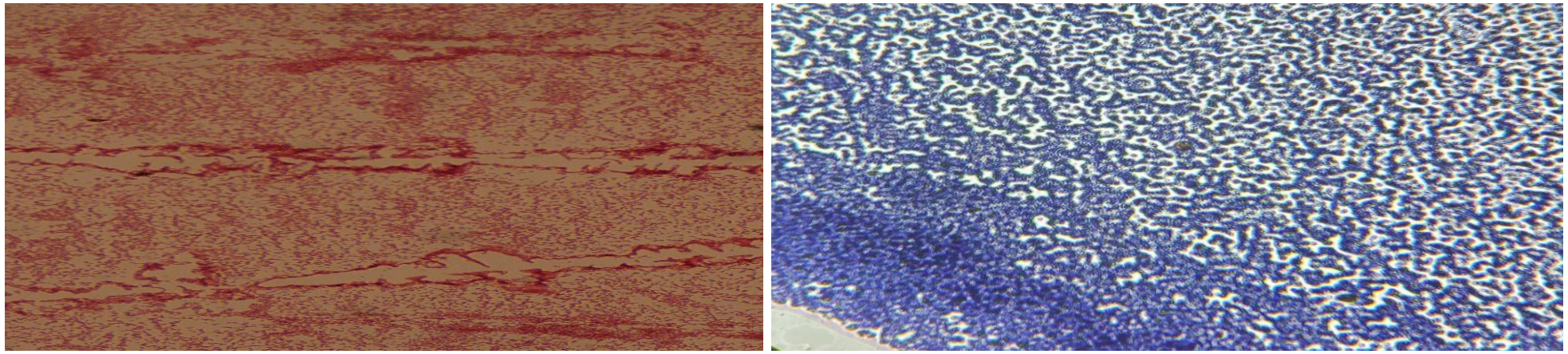


Fig: GNB and GPB

Sample Size

Using **Cochran's equation**,

$$n = \frac{(z^2)p[\![1-q]\!]}{e^2}$$

Where, n = sample size

Z = Degree of confidence interval (95%)=1.96

p = Population proportion= 50% = 0.05

e = allowable error = 5.76%

Hence, **sample size (n) = 290**

OBJECTIVES

1. General Objective:

To evaluate the prevalence of trichomoniasis, candidiasis, and UTI among women of reproductive age visiting GOPD at NGMCTH.

2. Specific Objectives:

- To determine the prevalence of trichomoniasis and its associated risk factors among the women of reproductive age visiting GOPD at NGMCTH.
- To analyze the prevalence and associated risk factors of vaginal candidiasis.
- To investigate the prevalence of Urinary Tract Infection (UTI) and its associated risk factors.

INCLUSION AND EXCLUSION CRITERIA'S

1. **Inclusion Criteria:**

- Symptomatic patients (dysuria, frequent urination, redness of the genital area, lower abdominal pain, nocturia, profuse vaginal discharge, dark or cloudy pee, etc.)

2. **Exclusion Criteria:**

- Patients with catheters, serious diseases, kidney problems, etc.
- Patients not willing to participate and provide informed consent.

METHODS

1. Study Area

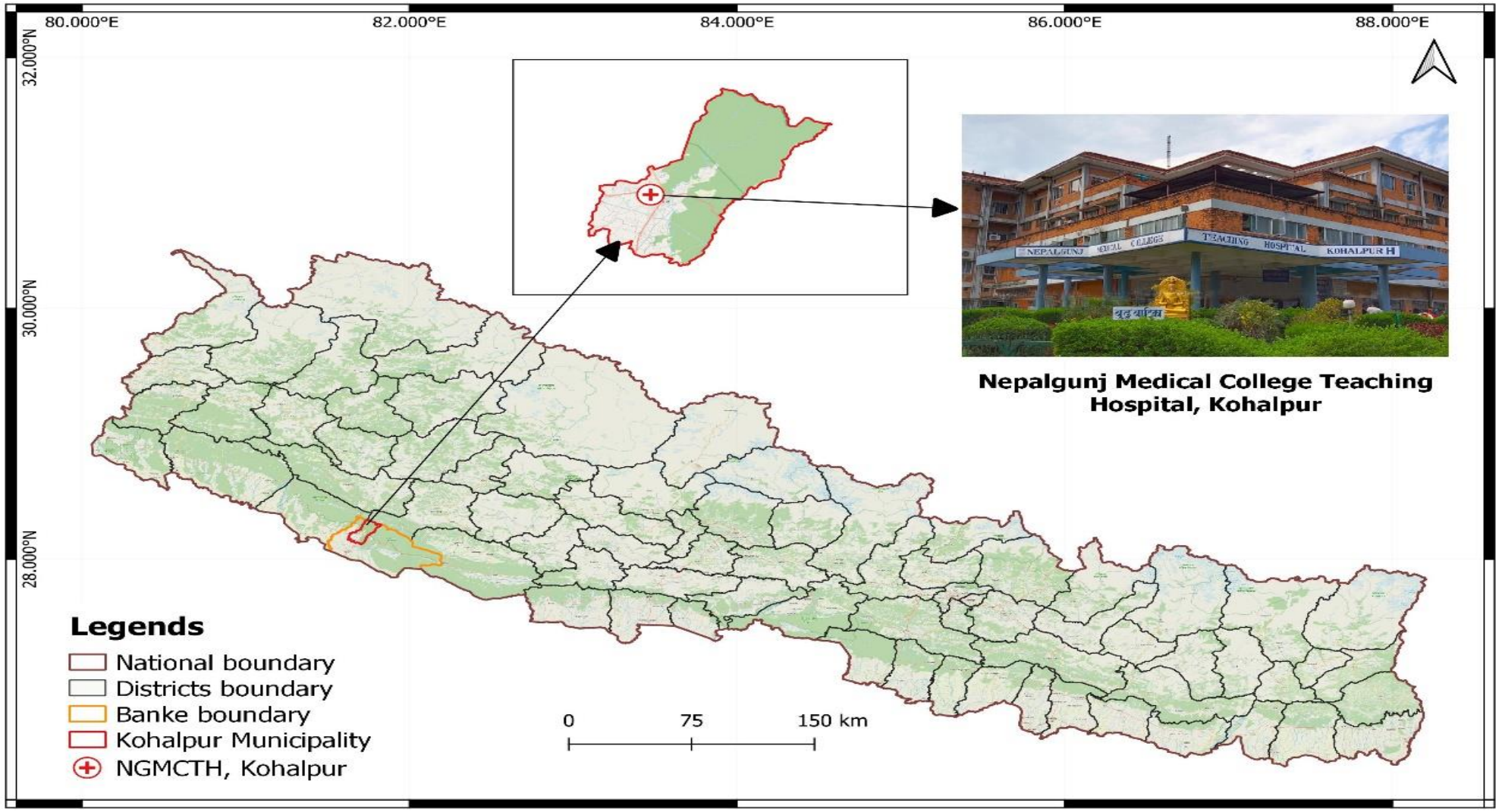


Fig: Map showing the study area

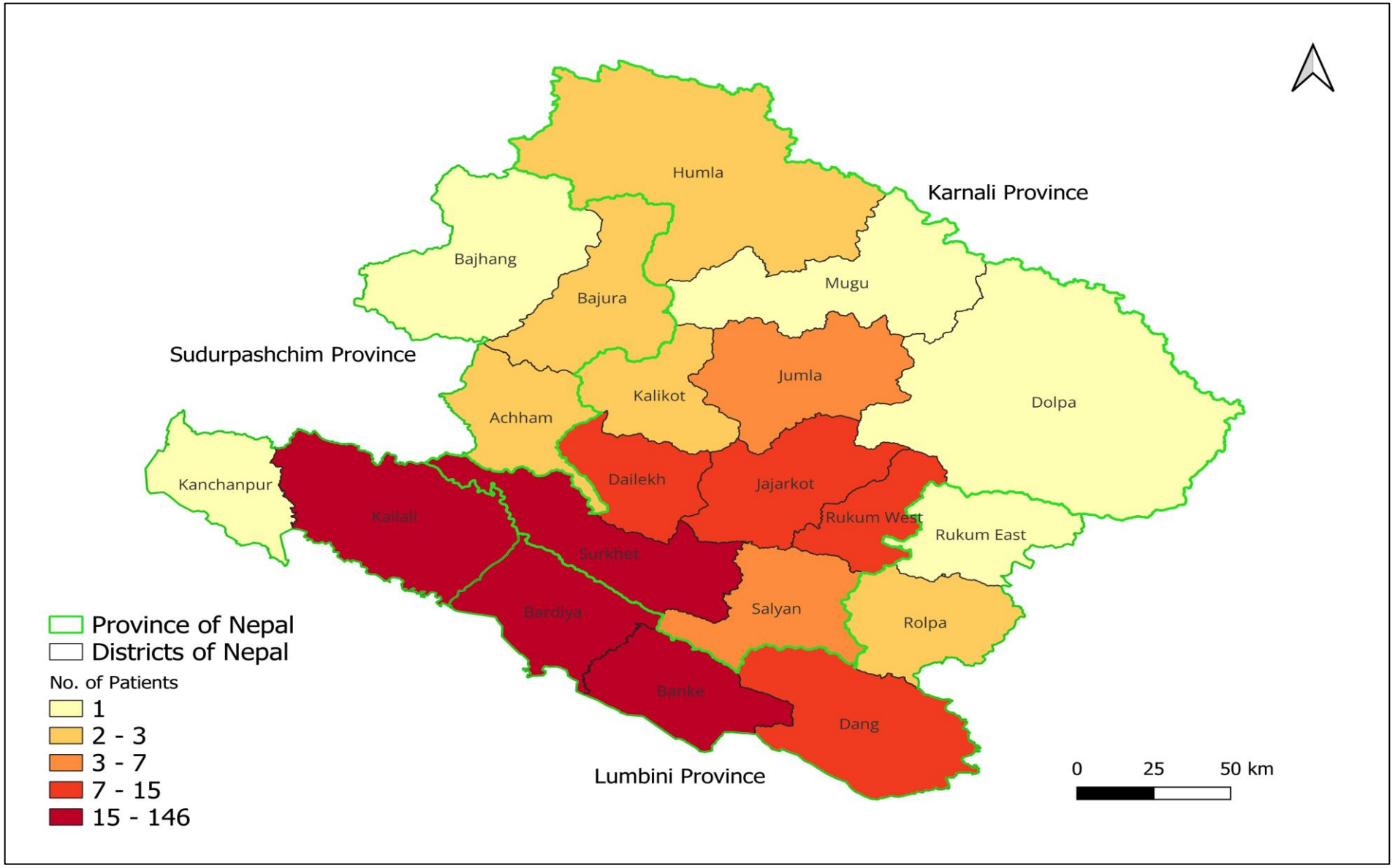


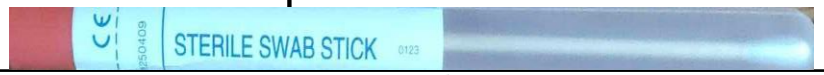
Fig: Map showing participants from different districts

2. Sample collection and processing methods

Patient's written consent

Questionnaire Survey

High vaginal swab in a swab collecting tube via speculum examination



Mid-stream urine in a sterile container

10 ml NS added and centrifuged for 5 minutes at 2000 rpm

Wet mount

Motile trichomonads, yeast cells, clue cells
Frobenius & Bogdan, 2015

KOH preparation for BV (whiff Test) and pH Test

Fishy odor noticed
Gaydos et al., 2017

Smear Preparation

Gram Stain

Giemsa Stain

Stained *Trichomonas vaginalis*, Clue cells, Bactrioles, hyphae, Pseudohyphae (Procop et al., 2020, Fernando et al., 2011)

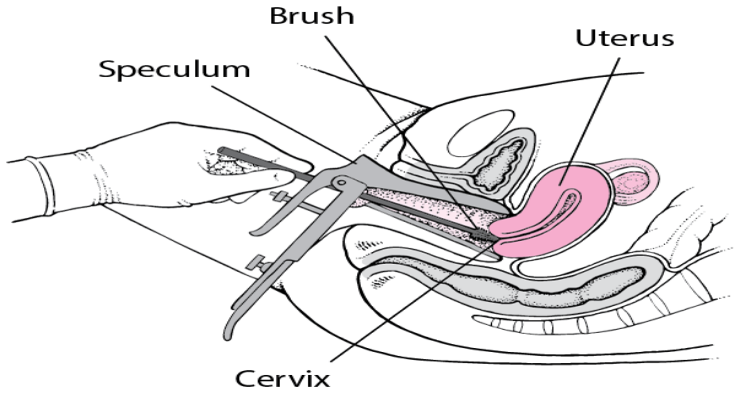


Fig: Speculum Examination and sample collection (David H. Barad,2021)

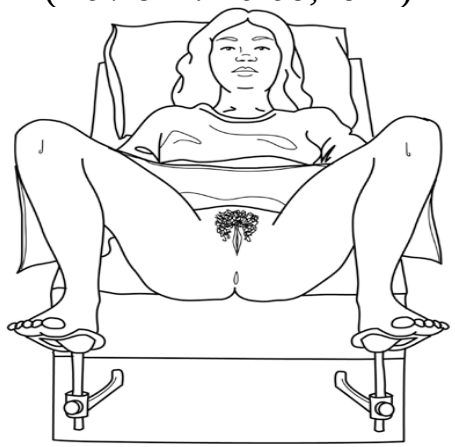


Fig: Lithotomy Position (Cancer Care Manitoba, 2022)

Staining Procedure

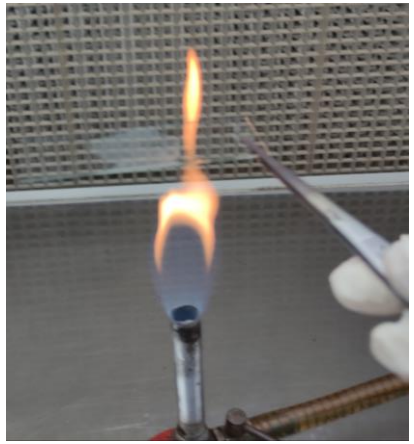


Fig: Heat Treating

Fig: Staining Procedure

Fig: Gram Stain Kit

Air dried, heat treated smear

Giemsa Stain

Absolute Methanol- Fixation

Flooded with 10 % Giemsa solution for 10-15 min

Wash

Gram Stain

Crystal Violet (1 min)

wash

Gram's Iodine (1 min)

wash

Decolorizer (10-20)sec

wash

Safranin (1 min)

wash

Air dried

Visualization using anisole under microscope 10X and 40X

Mid-stream urine sample

↓

Inoculation into Macconkey Agar (MA) and Blood Agar(BA) plates and incubation at 37℃ (24 – 48 hours)

↓

No growth

↓

Discard the plates

↓

Significant bacteriuria $\geq 10^5$ CFU/ml

↓

Colony characteristics on MA and BA

↓

Perform gram staining and different biochemical tests as required

↓

Result of biochemical tests of specific isolates and species identification

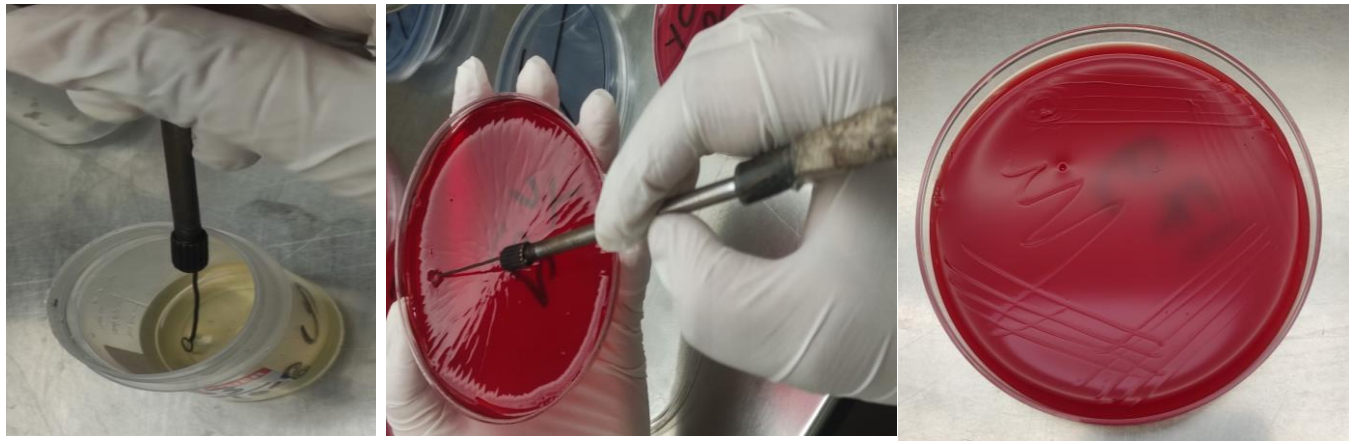


Fig: Inoculating the sample

(Baveja, 2017)

Biochemical Tests

Fig: Catalase Test

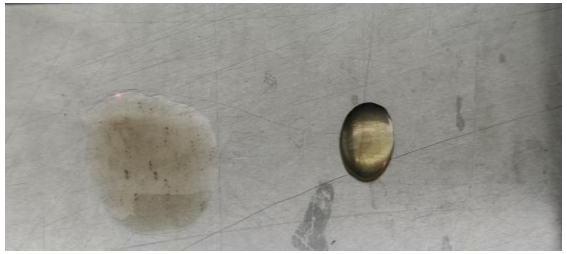
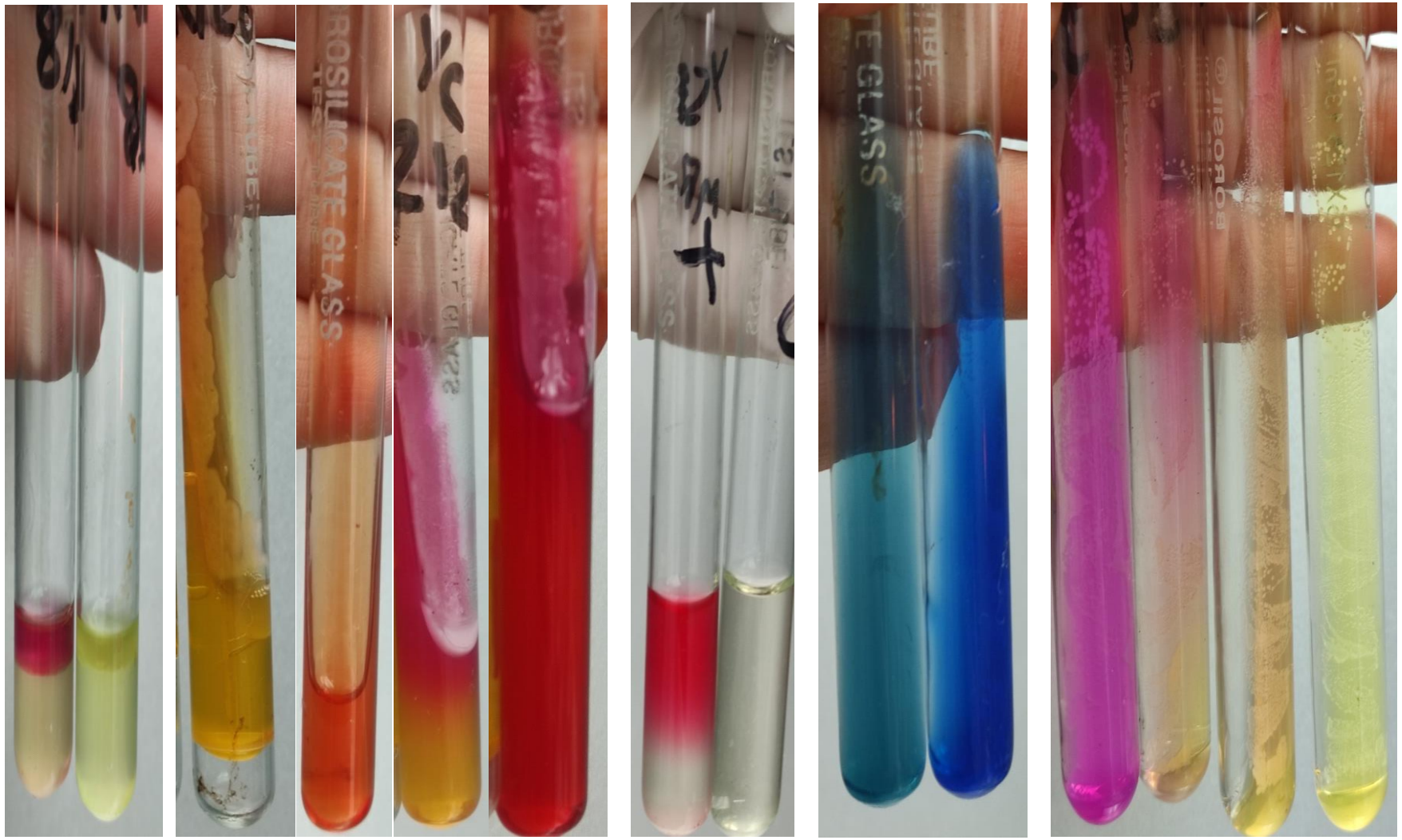


Fig: Coagulase Test

Fig: Oxidase Test



(a) (b) (c) (d) (e)

Fig: (a) Indole-Ring Test, (b)Triple Sugar Iron Agar Test (TSIA), (c)Methyl-Red Test, (d) Citrate Test, (e) Urease Test

Fig: Mannitol Agar Test

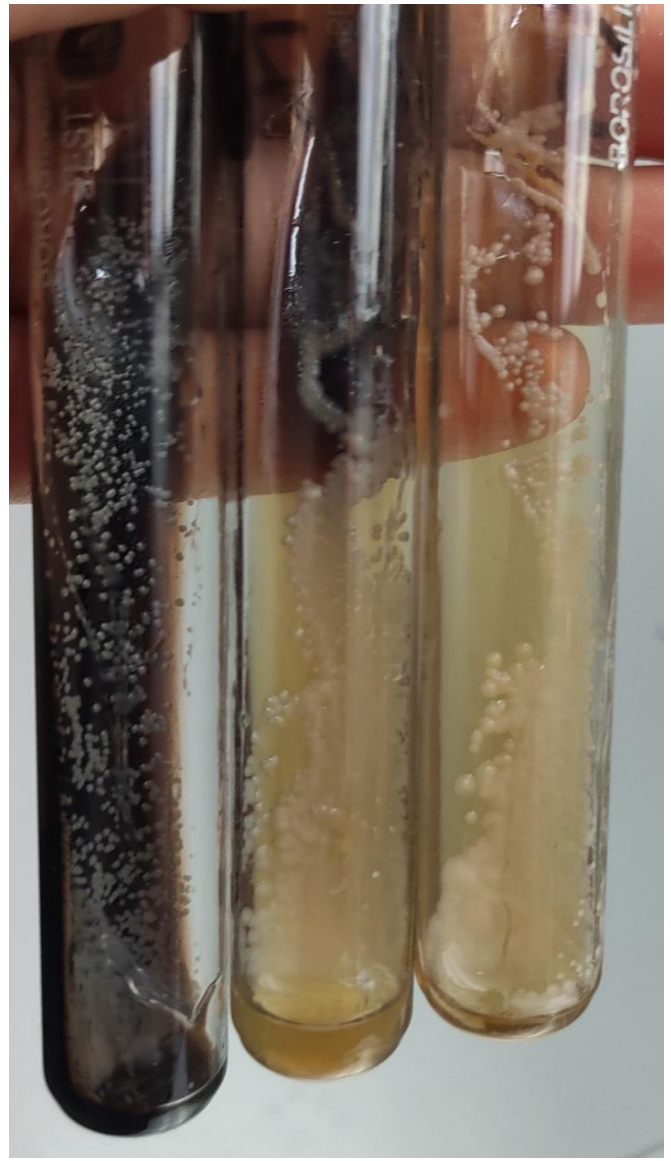


Fig: Bile-Esculin Test

4. Ethical Consideration

- Written questionnaire consent form from the participants
- Institutional Review Committee (IRC), Tribhuvan University (TU) Institute of Science and Technology (IoST), Kirtipur [Ref no.107/079/080]
- Institutional Review Committee (IRC), Nepalgunj Medical College Teaching Hospital (NGMCTH), Kohalpur, Banke [Ref no. 01/080-081]

Tribhuvan University

Institute of Science and Technology

Kirtipur, Kathmandu, Nepal

Institutional Review Committee

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Member Secretary

Assoc. Prof. Dr Komal Raj Rijal

Head, Central Department of Microbiology

IRC/IOST Secretariat

Central Department of Microbiology

Phone: 4331869

Ref. No.: 107/079/080 Date: 02 July, 2023

PI: **Dr. Rajendra Prasad Parajuli**
M.Sc student: **Yamini Chhetri**
Central Department of Zoology
Tribhuvan University
Kirtipur, Kathmandu

Ref.: IRC Ethical Approval of research proposal entitled **" Urinary tract infections and trichomoniasis among women of reproductive age"**

Dear **Dr. Parajuli**,

It is our pleasure to inform you that the above mentioned proposal submitted on 03 June, 2023 (Regd. No **IRCIOST-23-0049**), following independent expert review and discussion in the IRC/IoST meeting held on **30 June, 2023** has been approved for implementation [start date 02 July, 2023 and end date 30 Dec, 2023], maintaining ethical principles, set by the Nepal Health Research Council.

The investigators have to strictly follow the protocol stipulated in the proposal. Any change in objective(s), problem statement, research question or hypothesis, methodology, implementation procedure including deviation of the protocol, data management and budget need to be submitted in detail with justification for seeking prior approval to implement the proposed change including extension of the date, in the protocol.

Further, the researchers are also directed to follow the national ethical guidelines published by Nepal Health Research Council during the implementation of research. You are required to submit the final report to the IRC within a month of completion of the research, as planned in the approved proposal.

If you have any questions, please contact the Institutional Review Committee of Institute of Science and Technology, Tribhuvan University.

Thanking you,

Assoc. Prof. Dr. Komal Raj Rijal
Member Secretary
Institutional Review Committee
Institute of Science and Technology
Tribhuvan University

P.L. No. 614/053/054

NEPALGUNJ MEDICAL COLLEGE

(Manage by Lord Buddha Educational Academy Ltd.)

NEPALGUNJ, BANKE-NEPAL

Ref. 01/080-081 Date: 14th August-2023

TO WHOM IT MAY CONCERN

The Institutional Review Committee at Nepalgunj Medical College & Teaching Hospital has no objection Ms. Yamini Chhetri, MSc. Zoology, Tribhuvan University, Kirtipur, analysing and conducting (thesis) at Nepalgunj Medical College for her research proposal entitled **"Urinary Tract Infection (UTIs) and Trichomoniasis among Women of Reproductive Age."**

Prof. Dhundi Raj Paudel
Chairman
IRC-NGMC

CHAIRMAN, IRC
Nepalgunj Medical College

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5. **Statistical Analysis**

- Univariate analysis and Multivariate analysis
- Statistical tool used: R Core Team (2023) version 4.3.2

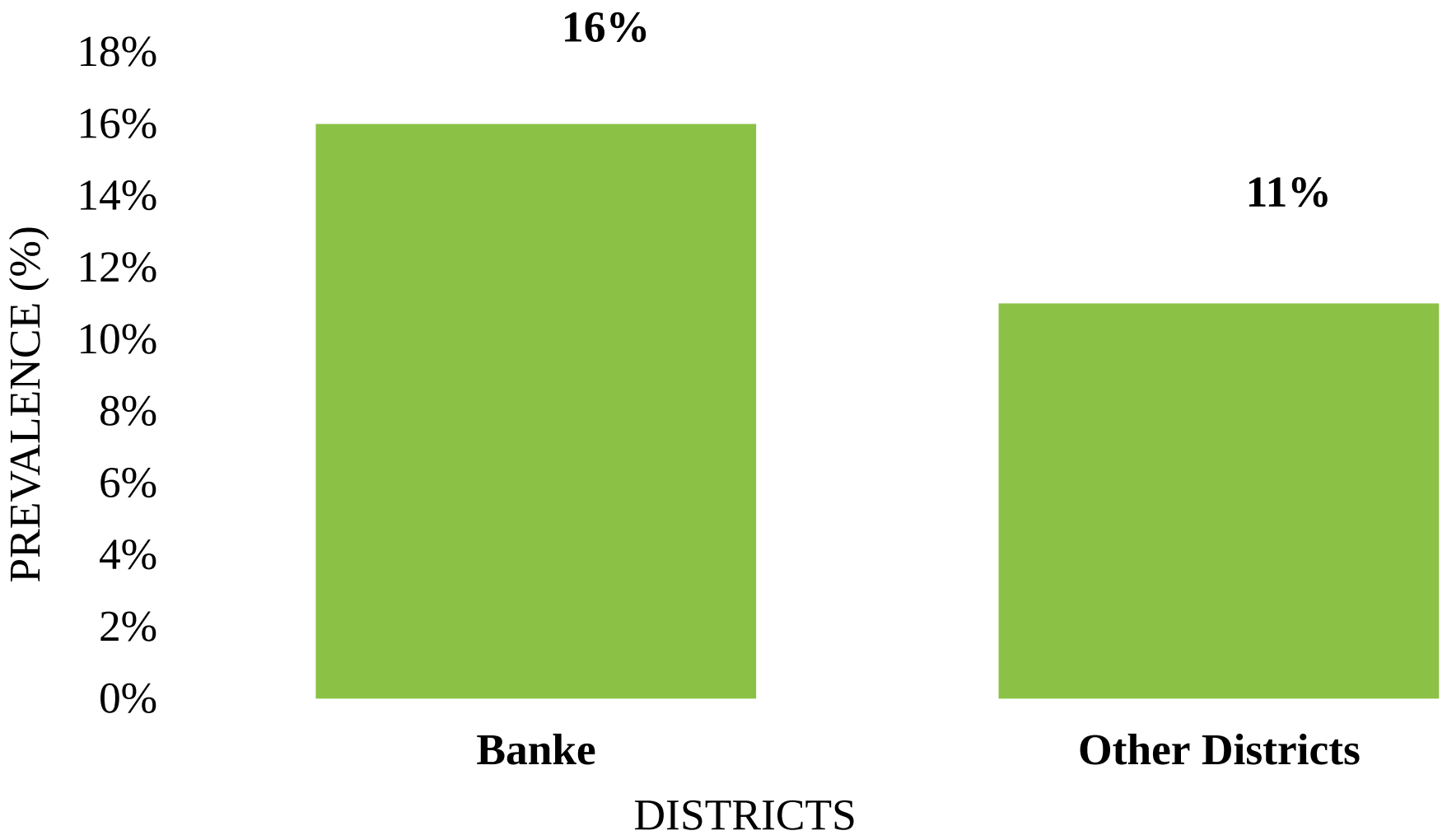
RESULTS

1. Prevalence of Trichomoniasis and its associated factors

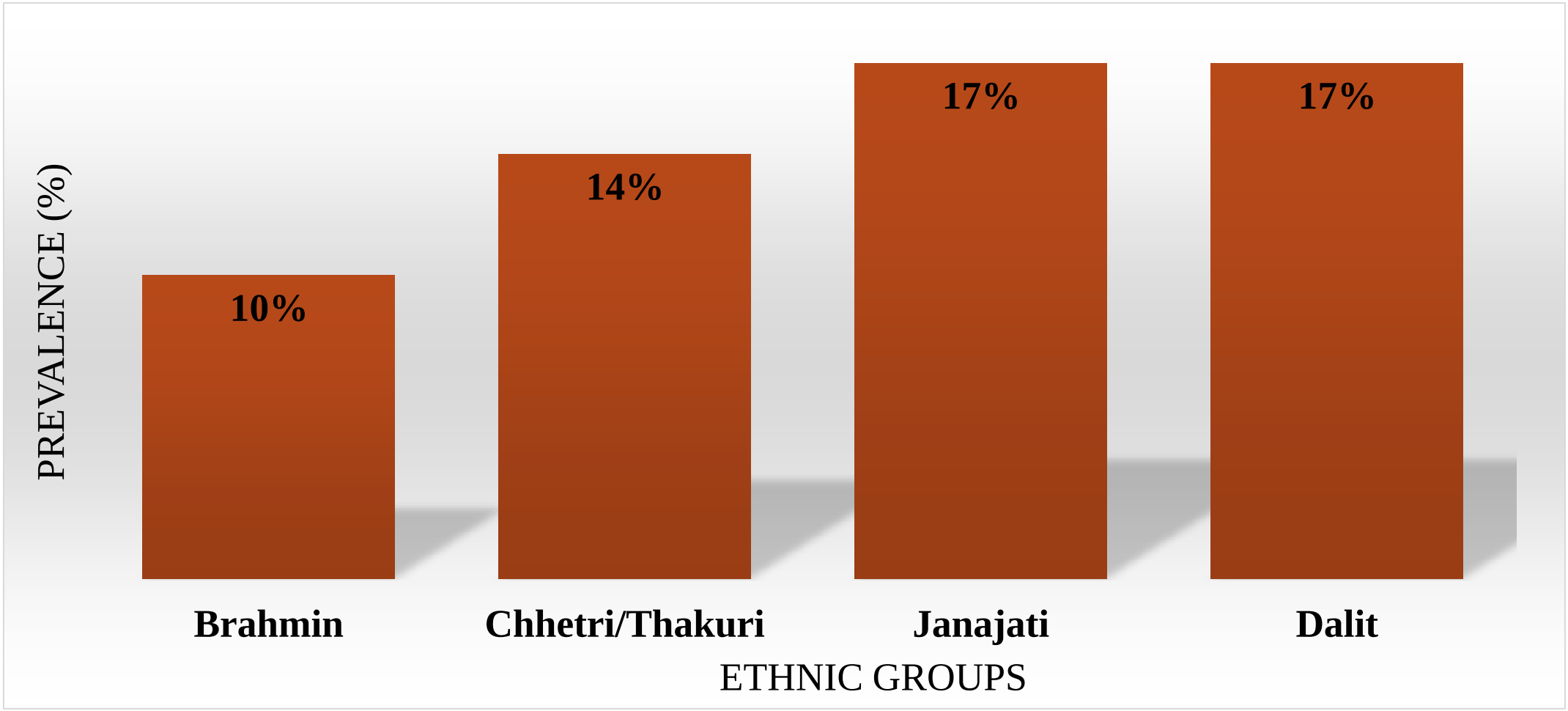
- Out of 290 samples, 40 (13.79%) were positive for *Trichomonas vaginalis*.

Table: Prevalence of trichomoniasis among women of reproductive age visiting GOPD

Demographic Variables	Total no. (%)	Positive no. (%)	P-value
Age Group			
<25	73(25.17)	12(**16.44**)	
26-35	145(50)	17(11.72)	
36-45	63(21.72)	11(**17.46**)	0.441
>46	9(3.10)	0(0)	
Educational Status			
Illiterate	68(23.45)	6(8.82)	
School Level	200(68.96)	33(**16.50**)	0.157
College Level	22(7.59)	1(4.54)	
Marital Status			
Married	274(94.48)	39(**14.23**)	
Unmarried	8(2.76)	1(12.5)	0.844
Widow	8(2.76)	0(0)	
Residency			
Municipality	211(72.76)	31(**14.69**)	
Rural Municipality	79(2.24)	9(11.40)	0.568
Occupation			
Housewife	219(75.52)	24(10.96)	
Student	14(4.83)	2(14.29)	**0.037***
Work	57(19.65)	14(**24.56**)	



District-Wise Prevalence of Trichomoniasis Among Women of Reproductive Age



Ethnicity-Wise Prevalence of Trichomoniasis Among Women of Reproductive Age

Table: Distribution of trichomoniasis among different ethnic groups in relation to economic status

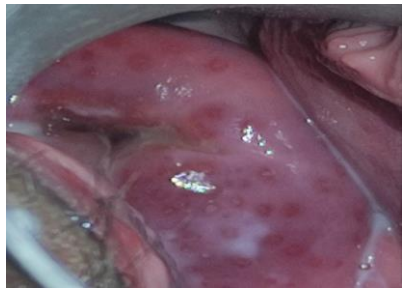
Ethnicity	Total no.	Positive no.	Percentage (%)
Brahmin			
High Class	7	1	**14.29**
Middle Class	44	5	11.36
Low Class	8	0	-
Chhetri/Thakuri			
High Class	5	0	-
Middle Class	119	16	13.45
Low Class	23	4	**17.39**
Janajati			
High Class	2	0	-
Middle Class	30	5	16.67
Low Class	9	2	**22.22**
Dalit (Scheduled caste)			
High Class	3	1	33.33
Middle Class	7	6	**85.71**
Low Class	31	0	-

Table: Assessment of risk factors of trichomoniasis among women of reproductive age

Risk Factors	Total no. (%)	Positive no.(%)	P-value	Univariate	Multivariate
Sexual Partners					
1 partner	280(96.55)	38(13.57)	**0.019***	Ref	Ref
2 or more	2(0.69)	2(100)		**31.49[1.4-669]**	**31.92 [1.48-690]**
Not Active	8(2.76)	0(0)		0.37 [0.02-6.55]	0.22 [0.01-6.31]
Contraception Use					
Barrier	28(9.65)	4(14.29)	0.431	Ref	Ref
Hormonal	90(31.03)	13(14.44)		0.95[0.29-3.02]	**1.64[0.01-281.16]**
IUDs	2(0.69)	1(50)		5.44[0.46-64.78]	**9.45[0.03-2522]**
Not Active	8(2.76)	0(0)		0.32 [0.02-6.59]	0.56[0.00-193.06]
Never Use	151(52.07)	22(14.57)		0.95 [0.32-2.84]	**1.64 [0.01-276.81]**
Permanent	11(3.79)	0(0)		0.24 [0.01-4.78]	0.41[0.00-141.27]

Table: Assessment of symptomatic factors of trichomoniasis among women of reproductive age

Factors	Total no. (%)	Positive no. (%)	P-value	Univariate	Multivariate
Body Temperature					
< 98.6	255(87.93)	21(8.23)	**<0.001***	Ref	Ref
> 98.6	35(12.07)	19(53.56)		12.97[5.84-29.56]	**8.75[2.04-37.59]**
Lower abdominal pain					
Yes	248(85.52)	29(11.69)	**0.015***	0.37 [0.17-0.85]	**1.04[0.13-8.29]**
No	42(14.48)	11(26.19)		Ref	Ref
Dyspareunia					
Yes	29(10)	11(37.93)	**<0.001***	4.86 [2.03-11.31]	**1.47 [0.22-9.90]**
No	261(90)	29(11.11)		Ref	Ref
Presence of Discharge					
Yes	215(74.14)	40(18.61)	**0.005***	15.58 [0.94-259]	**3.88 [0.22-68.40]**
No	75(25.86)	0(0)		Ref	Ref

Color of Discharge					
Curdy white	22(7.59)	2(9.09)		Ref	Ref
Greenish	47(16.21)	21(44.68)		**7.87 [1.61-77.01]**	**7.90 [1.39-44.87]**
Milky white	121(41.72)	8(6.61)	**<0.001***	0.71 [0.13-7.34]	0.91 [0.15-5.43]
Mixed	25(8.62)	9(36)		**5.43 [0.93-58.58]**	**8.70 [1.33-56.79]**
Normal	75(25.86)	0(0)		0 [0.00-1.53]	0 [0.00-1.11]
Foul Smelly Discharge					
Yes	94(32.41)	34(36.17)	**0.005***	**17.73[7.40-48.46]**	**9.06 [1.56-52.72]**
No	196(67.59)	6(3.06)		Ref	Ref
Strawberry Cervix					
Yes					
	7(2.41)	7(100)	**<0.001***	**112.16[6.26-2009]**	**90.79[4.21-1959]**
No	283(97.59)	33(11.66)		Ref	Ref

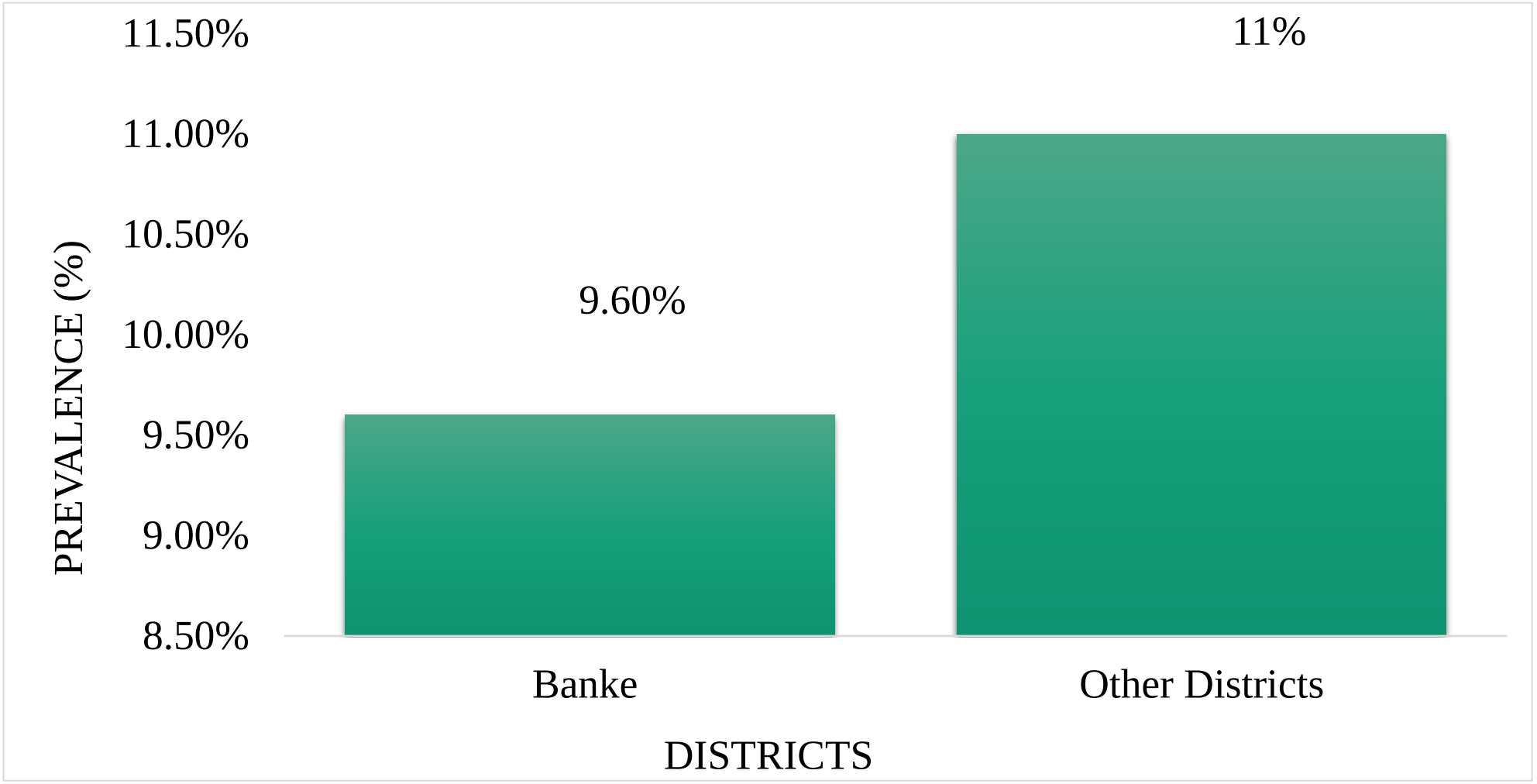
2. Prevalence of Vaginal Candidiasis and its associated factors

- Out of 290 samples, **30 (10.34%)** were positive for vaginal candidiasis.

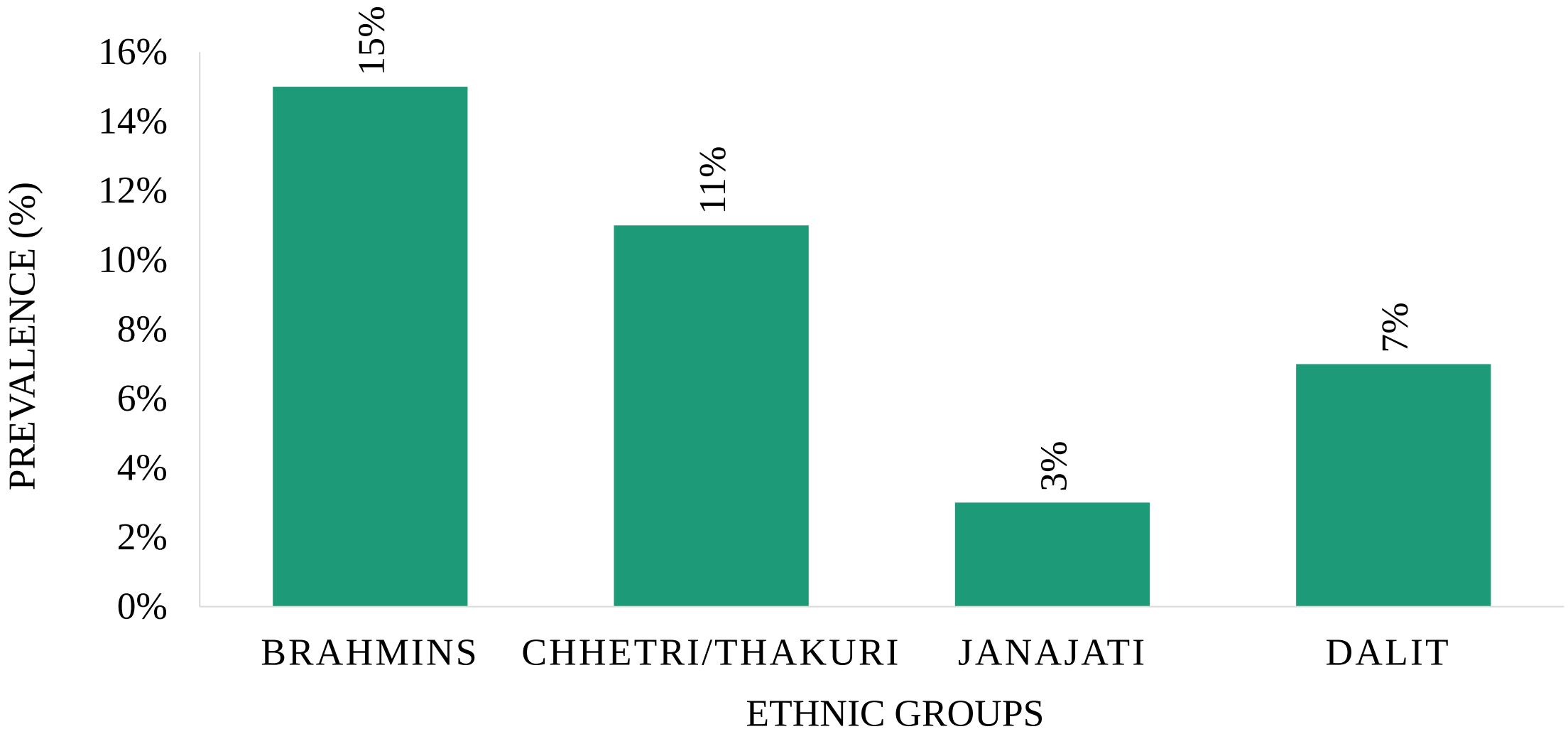
Fig: Pseudohyphae(Gram stain and wet mount) and budding yeast cell

Table: Prevalence of Candidiasis Among Women of Reproductive Age Group

Demographic Variables	Total no. (%)	Positive no. (%)	P-value
Age Group			
<25	73(25.17)	11(**15.07**)	
26-35	145(50)	14(9.66)	
36-45	63(21.72)	4(6.35)	0.352
>46	9(100)	1(**11.11**)	
Educational Status			
Illiterate	68(23.45)	3(4.41)	
School Level	200(68.96)	19(9.50)	**0.001***
College Level	22(7.59)	8(**36.36**)	
Marital Status			
Married	274(94.48)	28(10.22)	
Unmarried	8(2.76)	0(0)	0.356
Widow	8(2.76)	2(**25**)	
Residency			
Municipality	211(72.76)	21(9.95)	
Rural Municipality	79(2.24)	9(**11.40**)	0.829
Occupation			
Housewife	219(75.52)	23(10.50)	
Student	14(4.83)	1(7.14)	1
Work	57(19.65)	6(**10.53**)	



District-wise Prevalence of Candidiasis Among Women of Reproductive Age



Prevalence of Candidiasis Among Different Ethnic Groups of Women of Reproductive Age

Distribution of Candidiasis Among Different Ethnicity Groups With Different Economic Status

Ethnicity	Total no.	Positive no.	Percentage (%)
Brahmin			
High Class	7	1	14.29
Middle Class	44	7	**15.91**
Low Class	8	1	12.50
Chhetri/Thakuri			
High Class	5	0	-
Middle Class	119	17	**14.29**
Low Class	23	0	-
Janajati			
High Class	2	0	-
Middle Class	30	3	**42.86**
Low Class	9	0	-
Dalit (Scheduled caste)			
High Class	3	0	-
Middle Class	7	1	**3.33**
Low Class	31	0	-

Table: Assessment of risk factors with candidiasis among women of reproductive age

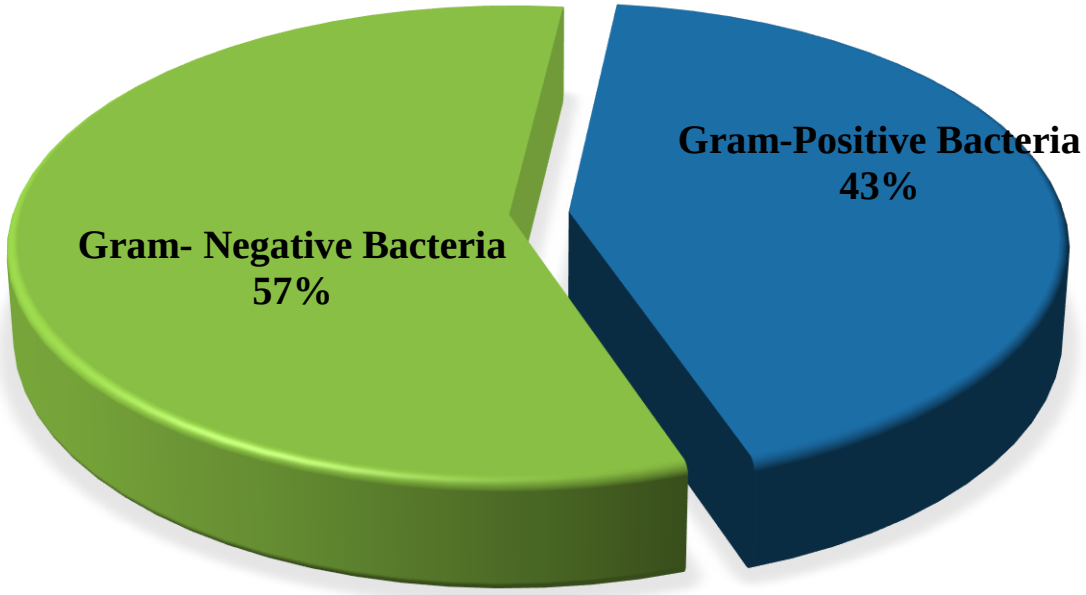
Risk Factors	Total no. (%)	Positive (%)	P-value	Univariate	Multivariate
Shower Habit					
Daily	88(30.34)	5(5.68)		Ref	Ref
2-3 times per week	168(57.93)	22(13.09)	0.174	2.33 [0.88-6.15]	0.56 [0.21-1.49]
Once a week	34(11.72)	3(8.82)		1.69 [0.42-6.85]	**1.91 [0.48-7.62]**
Douching					
Yes	282(97.24)	28(9.93)	0.196	0.33 [0.06-3.52]	0.25 [0.04-1.40]
No	8 (2.75)	2(25)		Ref	Ref
Use of wipes to clean genital parts					
Yes	5(1.72)	3(60)	**0.004***	13.16 [2.48-70]	**8.52 [1.47-49.49]**
No	285(98.27)	27(9.47)		Ref	Ref
Contraception Use					
Barrier	28(9.65)	3(10.71)		Ref	Ref
Hormonal	90(31.03)	7(7.78)		0.65 [0.17-2.51]	0.77 [0.18-3.27]
IUDs	2(0.69)	0(0)		1.45 [0.06-37.03]	**2.63 [0.09-72.61]**
Not Active	8(2.76)	2(25)	0.588	2.80 [0.45-17.59]	**2.44 [0.34-17.44]**
Never use	151(52.07)	18(11.92)		1.01 [0.29-3.41]	**1.17 [0.26-5.16]**
Permanent	11(3.79)	0(0)		0.32 [0.015-6.65]	0.29 [0.01-6.77]

Table: Assessment of symptomatic factors of candidiasis among women of reproductive age

Risk Factors	Total No. (%)	Positive No. (%)	p-value	Univariate	Multivariate
Lower abdominal pain					
Yes	248(85.52)	22(8.87)	**0.009***	0.41 [0.17-1.06]	**1.02 [0.25-4.20]**
No	42(14.48)	8(19.05)		Ref	Ref
Vaginal Itching					
Yes	123(42.41)	16(13.01)	0.247	1.62 [0.77-3.43]	**1.68 [0.51-5.50]**
No	167(57.59)	14(8.38)		Ref	Ref
Abnormal discharge					
Yes	250(86.21)	30(12)	**0.012***	11.20 [0.67-186.93]	**9.95[0.59-166]**
No	40(13.79)	0(0)		Ref	Ref
Redness in the genital areas					
Yes	6(54.54)	11(3.79)	**0.002***	12.45 [3.41-47.65]	**14.40[2.48-83]**
No	24(8.60)	279(96.21)		Ref	Ref
Discharge color					
Normal	75(25.86)	0(0)		Ref	Ref
Curdy-white	22(7.59)	18(81.18)		62.08[31.98-12048]	**62.79 [5.97-660]**
Greenish	47(16.21)	2(4.25)	**<0.001***	8.29 [0.39-176.69]	0.89[0.07-10.51]
Mixed	25(8.62)	1(4)		12.75[0.74-222.23]	**1.37[0.15-12.57]**
Milky white	121(41.72)	9(7.44)		9.25 [0.36-234.38]	1 [0.26-3.87]

3. Prevalence of UTI and its associated factors

- Out of 290 samples, 42 (14.48%) were positive for UTI.



PREVALENCE OF UROPATHOGEN

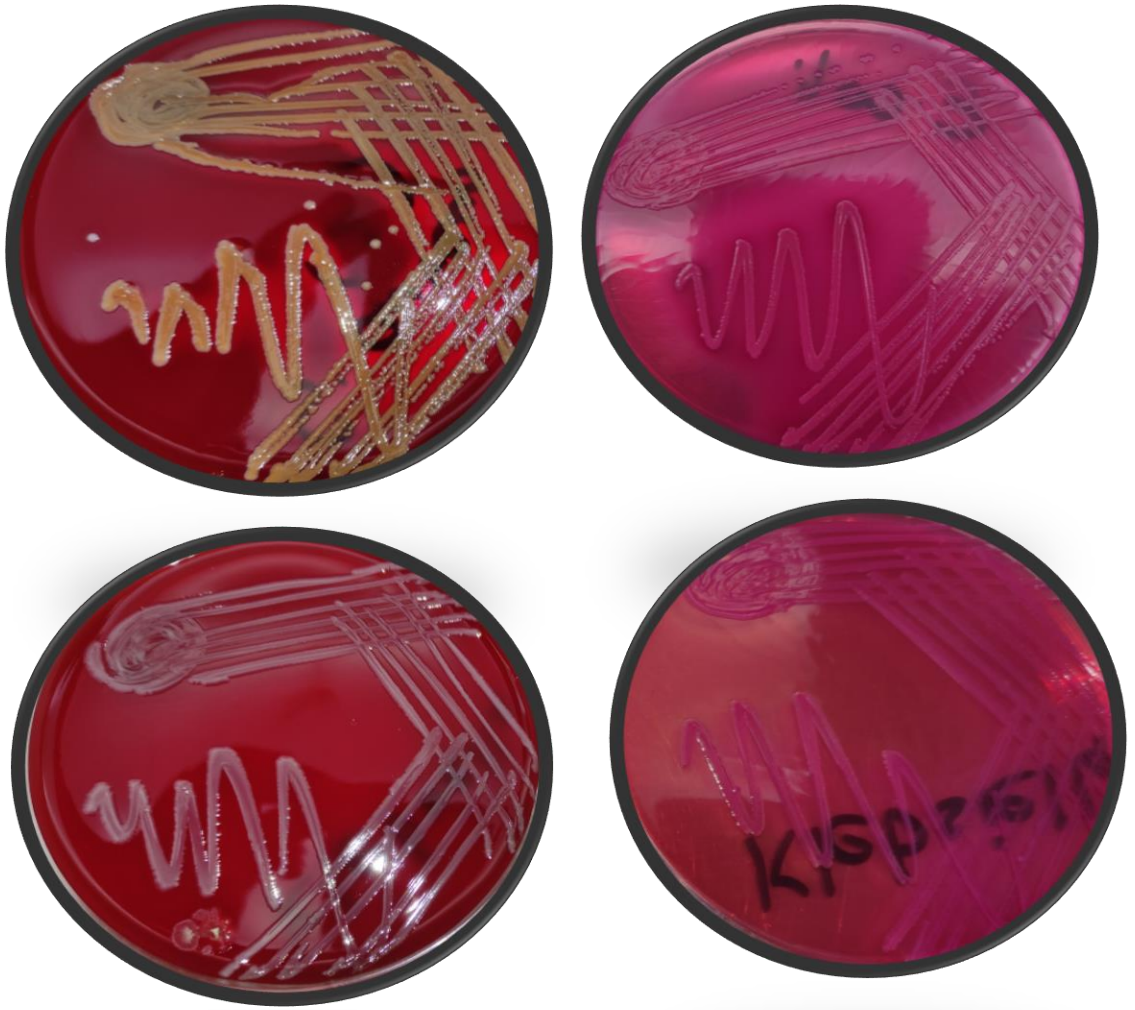
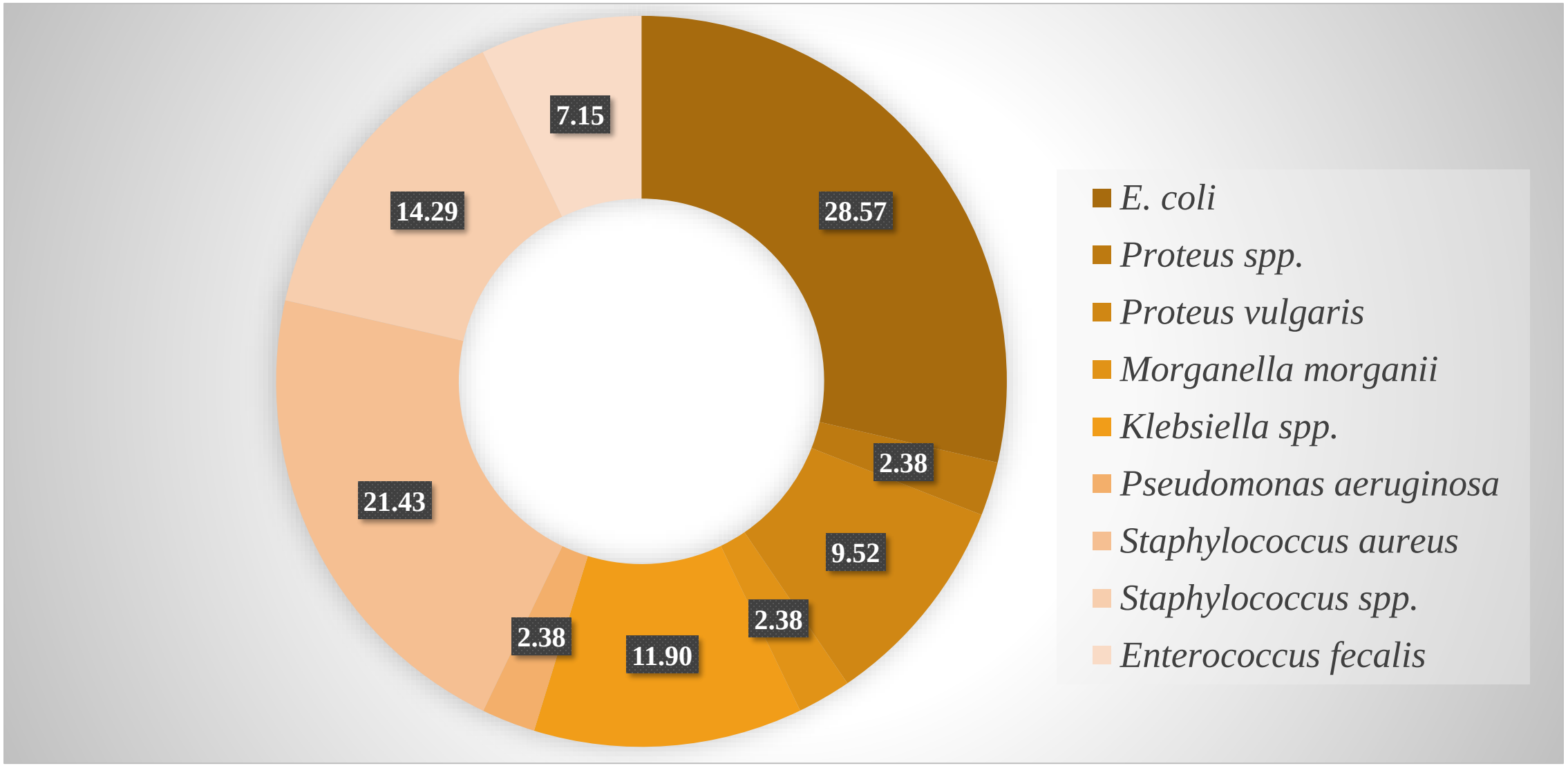


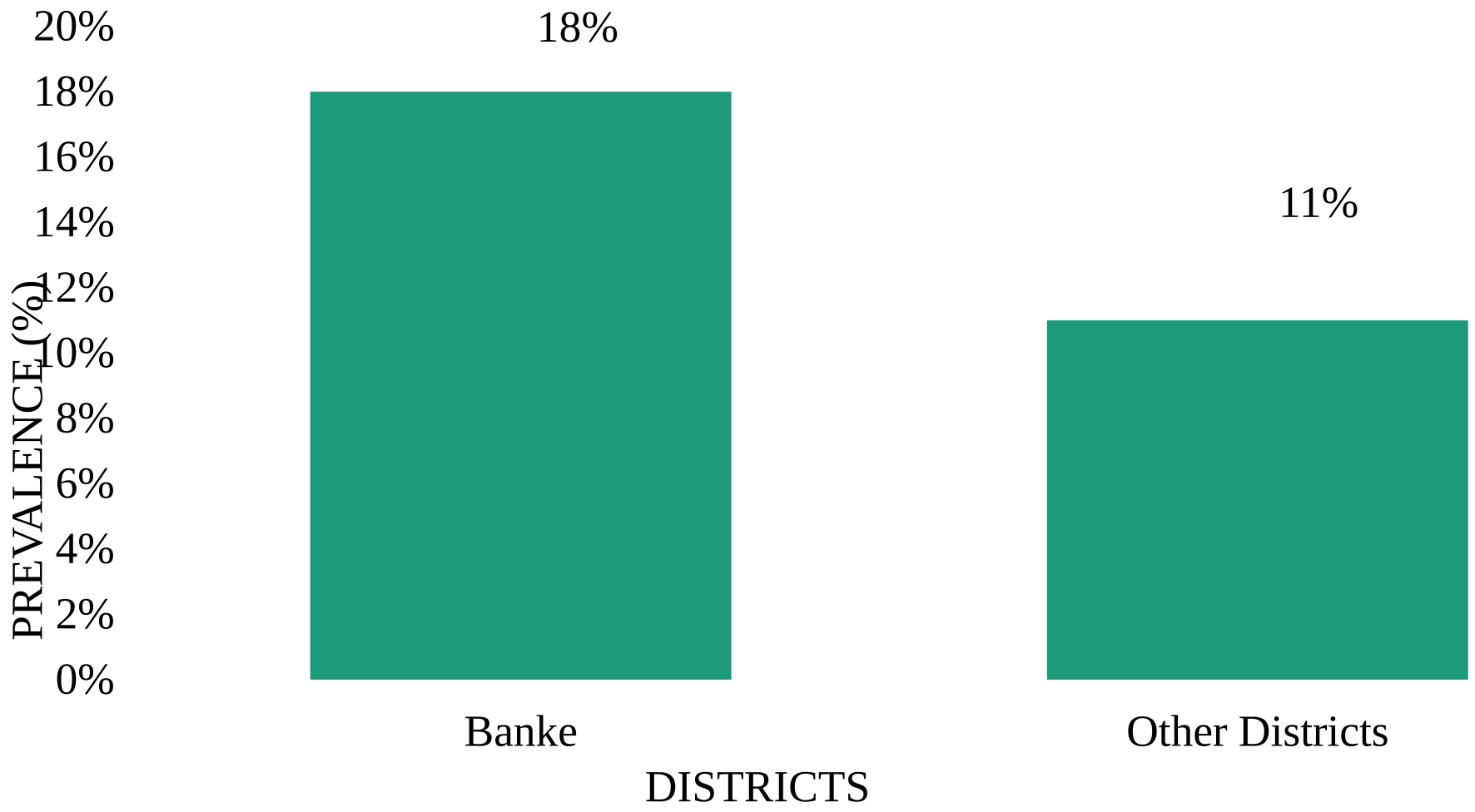
Fig: Bacterial growth on MA and BA



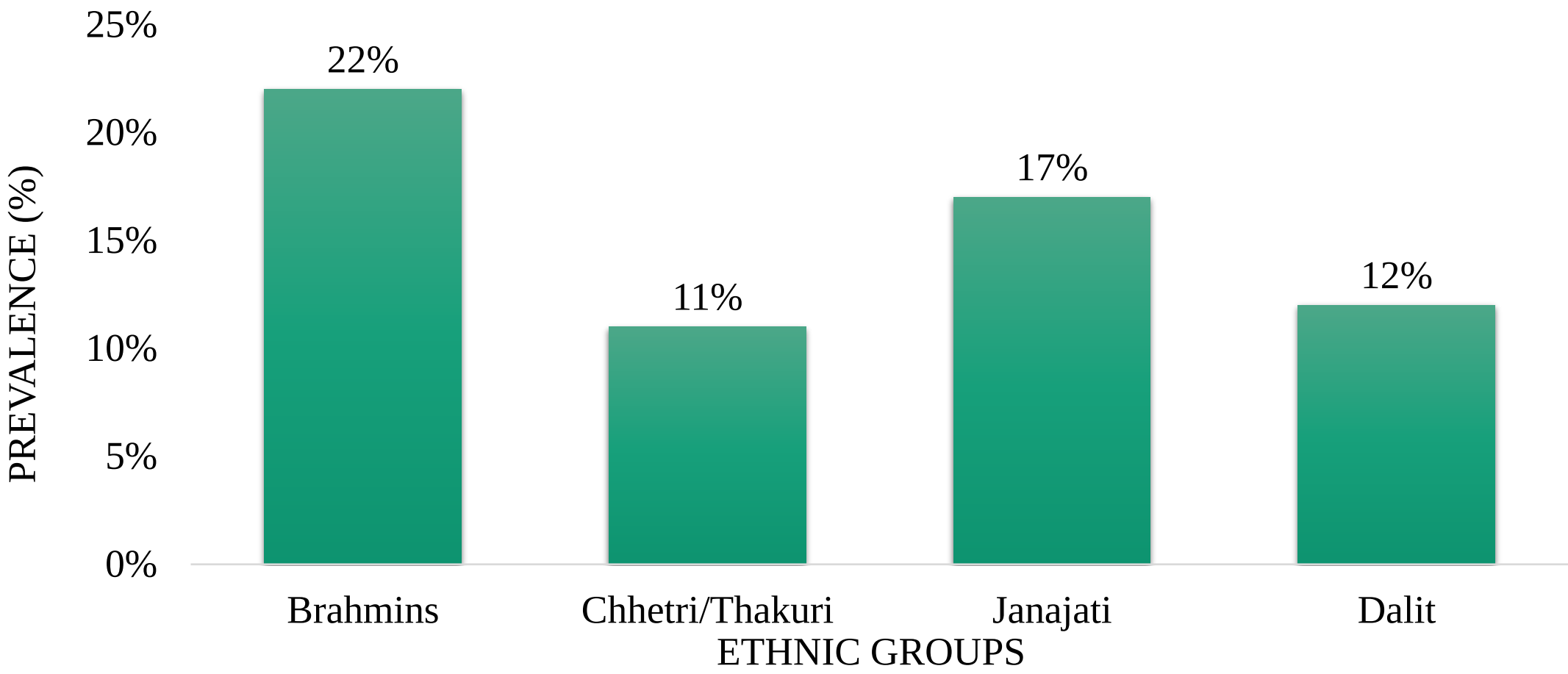
Prevalence of Different Species of Uropathogen

Table: Prevalence of UTI among women of reproductive age visiting GOPD

Demographic Variables	Total no. (%)	Positive no. (%)	P-value
Age Group			
<25	73(25.17)	10(14)	
26-35	145(50)	22(**15**)	
36-45	63(21.72)	9(14)	0.987
>46	9(100)	1(11)	
Educational Status			
Illiterate	68(23.45)	10(14.71)	
School Level	200(68.96)	32(**16**)	0.116
College Level	22(7.59)	0(0)	
Marital Status			
Married	274(94.48)	41(**14.50**)	
Unmarried	8(2.76)	1(12.5)	0.846
Widow	8(2.76)	0(0)	
Residency			
Municipality	211(72.76)	32(**15.17**)	
Rural Municipality	79(2.24)	11(13.92)	0.819
Occupation			
Housewife	219(75.52)	35(**15.98**)	
Student	14(4.83)	1(7.14)	0.533
Work	57(19.65)	6(10.52)	



Prevalence of UTI among Banke and other districts



Prevalence of UTI Among Different Ethnic Groups Among Women of Reproductive Age

Distribution of Candidiasis Among Different Ethnic Groups Based on Economic Status

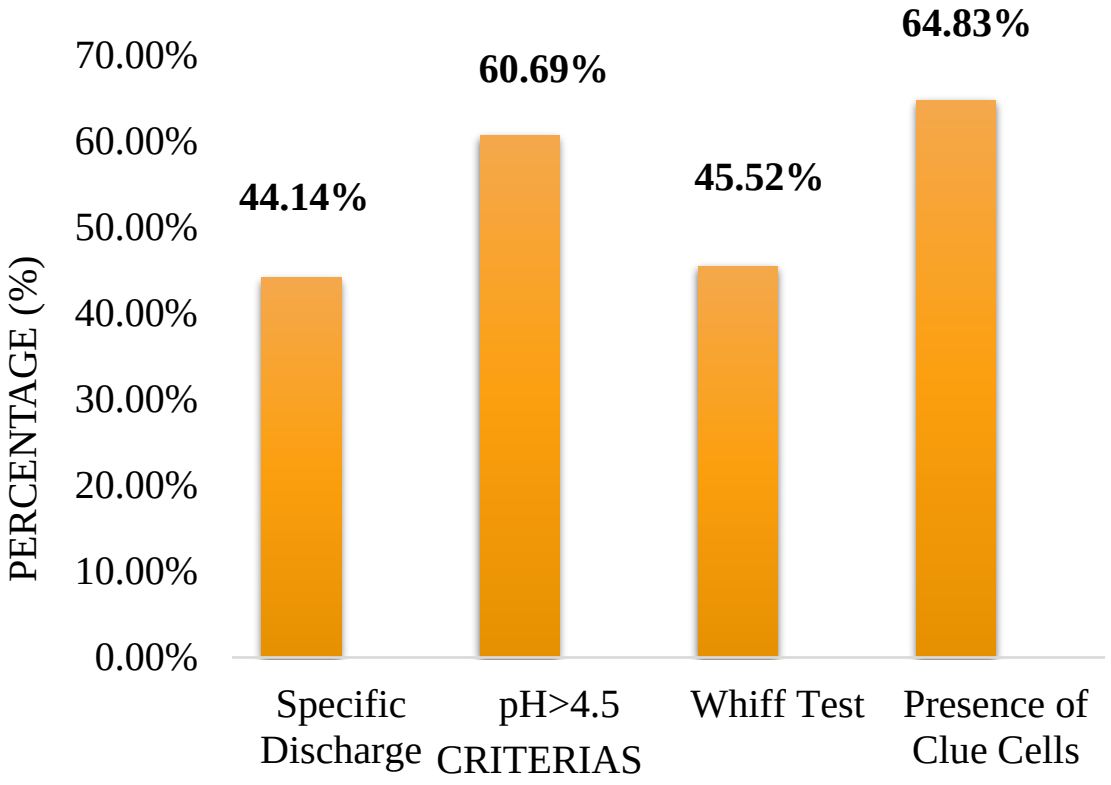
Ethnicity	Total no.	Positive no.	Percentage (%)
Brahmin			
High Class	7	3	**42.86**
Middle Class	44	10	22.73
Low Class	8	0	-
Chhetri/Thakuri			
High Class	5	1	**20**
Middle Class	119	16	13.45
Low Class	23	0	-
Janajati			
High Class	2	1	33.33
Middle Class	30	4	**57.14**
Low Class	9	0	-
Dalit (Scheduled caste)			
High Class	3	1	**50**
Middle Class	7	5	16.67
Low Class	31	1	11.11

Table: Assessment of Risk Factors of UTI Among Women of Reproductive Age

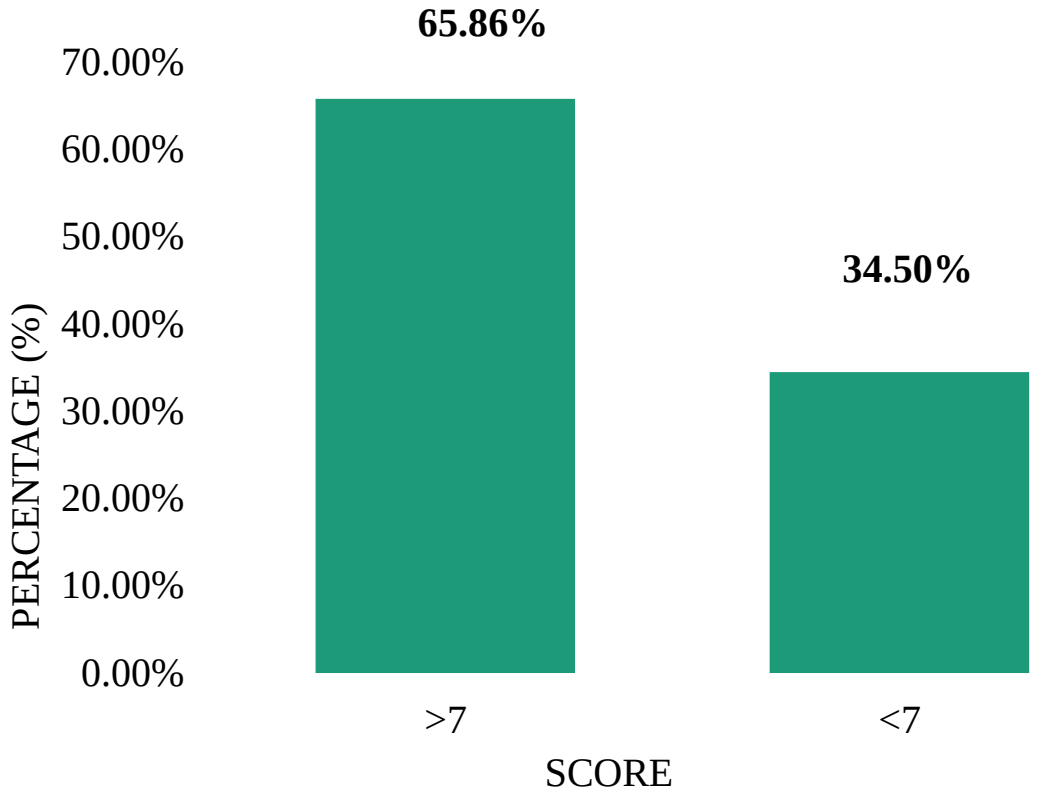
Risk Factors	Total No. (%)	Positive No. (%)	p-value	Univariate	Multivariate
Source of Drinking water					
Municipality Supply	17(5.86)	1(5.88)		Ref	Ref
Ground Water	181(62.41)	20(11.05)	**0.028***	1.39[2.45-7.90]	**1.77[0.32-9.89]**
Jar Water	92(31.72)	21(22.83)		3.31[0.58-18.84]	1.34[0.23-8.13]
Water intake per day					
More than 3l	145(50)	22(15.17)		Ref	Ref
2-3 l	78(26.90)	15(19.23)	0.132	2.16[0.32-6.84]	3.18[1.06-9.49]
Approx. 1l	67(23.10)	5(7.46)		2.88[1.03-9.49]	**2.85[0.99-8.17]**
Washing from back to front after defecation					
Yes	249(85.86)	38(15.26)	0.4748	1.66[0.55-6.79]	**2.9[0.67-12.87]**
No	41(14.14)	4(9.76)		Ref	Ref
Fiber preference for undergarments					
Synthetic fiber	254(87.59)	33(13)	**0.041***	0.39[0.16-0.99]	0.14[0.04-0.45]
Cotton clothes	36(12.41)	10(27.78)		Ref	Ref

4. Bacterial Vaginosis (BV)

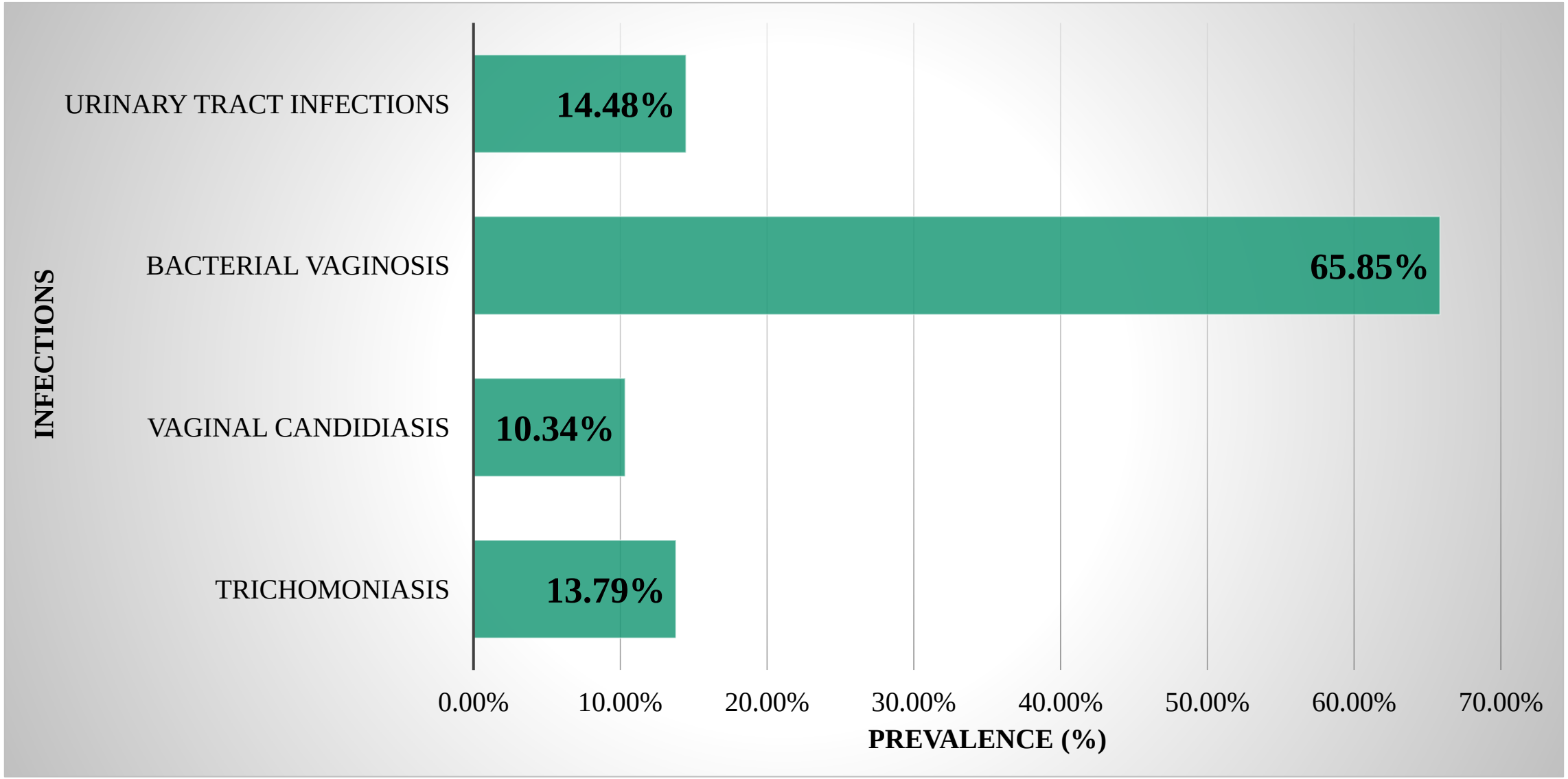
- Nugent’s score: 65.86%
- Amsel’s criteria (specific discharge, whiff test, pH >4.5, and presence of clue cells): 66.21%



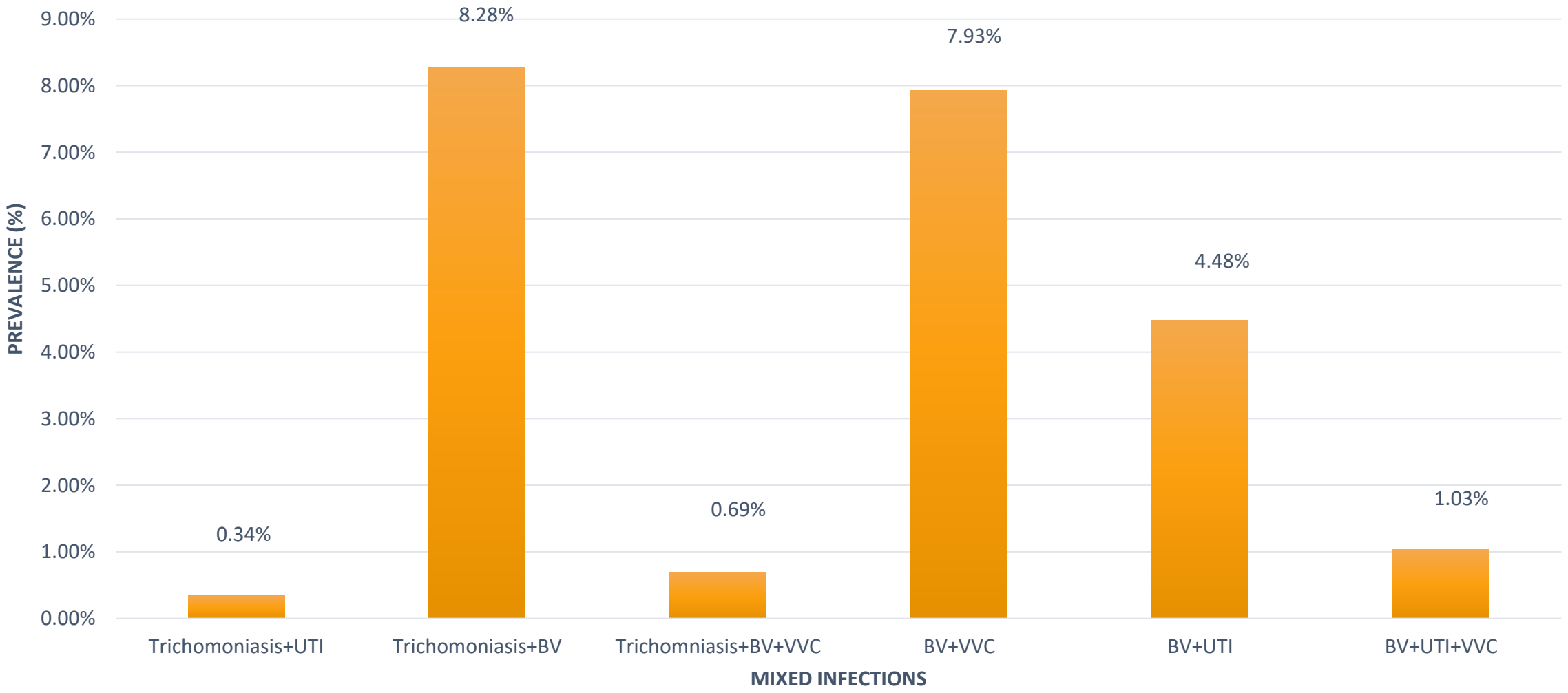
AMSEL’S CRITERIA



NUGENT'S SCORE



Prevalence of different Infectious Vaginitis and UTI



Mixed Infections among women of reproductive age

DISCUSSIONS

Infectious Vaginitis	Prevalence in this research	Similar Trends in other researches	Associated factors
Trichomoniasis	13.69%	• 12.06% Central India (2012) Fule et al. • 12.9% Iran (2017) Rostami et al. • 13.3% Tanzania (2021) Majigo et al.	• 36-45 years age • Lower educational level • Marital status (married) • Occupation (work) • > 2 sexual partners • Contraception method

….DISCUSSIONS

Infectious Vaginitis	Prevalence in this research	Similar Trends in other researches	Associated factors
Candidiasis	10.34%	• 7.2% Ethiopia (2015) Mulu et al. • 14.65% South India (2016) Rajalakshmi and Kalyani et al. • 6.4% China (2022) Zhu et al.	• Age <25 and >46 higher, • College-level education • Marital status (widow) • Occupation (work, housewife) • Rural municipality residency • Showering weekly • Douching habit • Cleaning genitals with wipes (cotton clothes)

….DISCUSSIONS

Infectious Vaginitis	Prevalence in this research	Similar Trends in other researches	Associated factors
UTI	14.48%	• 13.9% Libya (2016) Mohammed et al. • 18.7% Ethiopia (2017) Gessese et al. • 16.90% Dharan (Nepal) (2021) Baral et al.	• Age 26-35 • School-level education • Marital status (married) • Occupation (housewife) • Municipality residency • Source of drinking water (groundwater) • Water intake per day (< 3 lit.)

….DISCUSSIONS

Infectious Vaginitis	Prevalence in this research	Similar Trends in other researches
Bacterial Vaginosis	• 65.86% (Nugent's Score) • 66.21% (Amsels Criteria)	• 59.59% South India (2016) Rajalakshmi and Kalyani et al. • 56% Pokhara (2017) Dahal et al.

….DISCUSSIONS

Mixed Infection	Prevalence in this research	Similar Trends in other researches
Bacterial Vaginosis + Candidiasis	7.93%	• 17.5% Uganda (2023) Mujuzi et al. (n=361) • 26.6% Egypt (2023) Rezk & Alqabbasi • 10.4% Birgunj (2021) Gupta et al.
Trichomoniasis + Bacterial Vaginosis + Candidiasis	0.69%	• 58.45% Uganda (2023) Mujuzi et al. (n=361)

….DISCUSSIONS

Mixed Infection	Prevalence in this research	Similar Trends in other researches
Trichomoniasis + Bacterial Vaginosis	8.28%	-
Bacterial Vaginosis + UTI	4.48%	-
Trichomoniasis + UTI	0.34%	-
Trichomoniasis+ UTI+ Candidiasis	1.03%	-

RECOMMENDATIONS

- Awareness programs need to be executed more effectively regarding sex education, particularly about safe sexual practices with safe and trusted partners, methods of contraception, and their proper use to prevent STIs (Trichomoniasis).
- Intimate hygiene of reproductive organs along with the use of clean undergarments is recommended.
- As women are more likely to have UTI through fecal contamination, special care should be taken to prevent this during defecation and other such practices.

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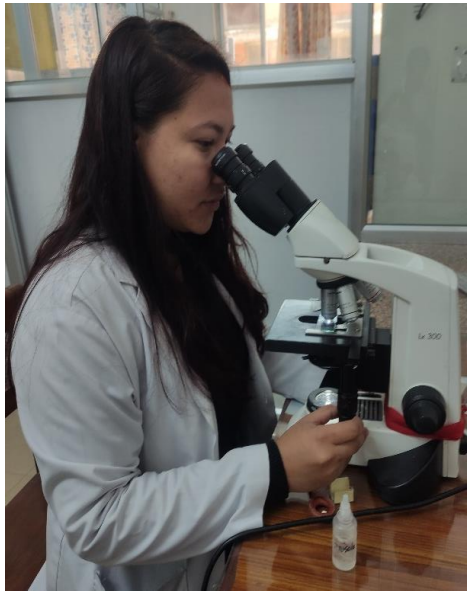
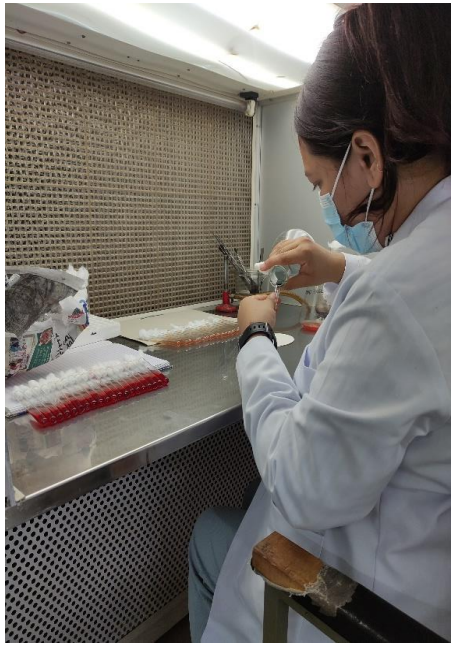
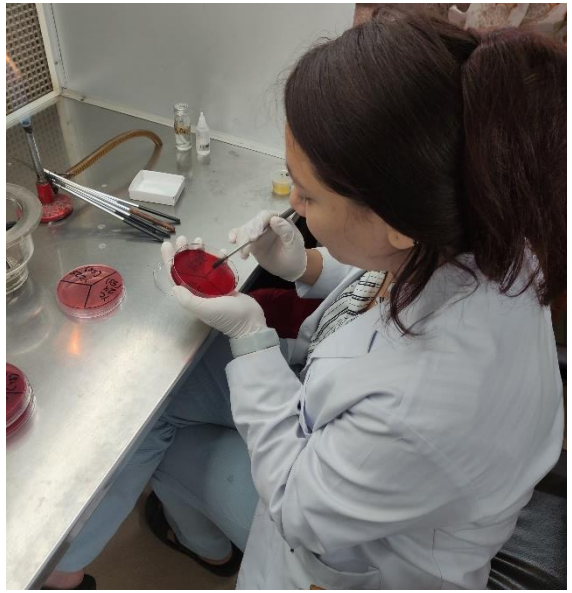
PHOTOGRAPHS







District-wise Prevalence Data-Sheet

Districts		Trichomoniasis	%	BV	BV %	VVC	VVC %	UTI	UTI %
Achham	3	-	-	2	66.67	-	-	1	33.33
Banke	146	24	16	93	63.7	14	9.6	26	17.81
Bardiya	31	6	19	19	61.3	2	6.45	5	16.13
Bajhang	1	-	-	1	100	1	100	-	-
Bajura	3	-	-	1	33.33	1	33.33	-	-
Dailekh	10	-	-	7	70	4	40	-	-
Dang	11	3	27	9	81.81	1	9.09	1	9.09
Dolpa	1	-	-	1	100	-	-	-	-
Humla	3	-	-	3	100	2	66.67	2	66.67
Jajarkot	9	1	11	6	66.67	-	-	-	-
Jumla	5	-	-	5	100	-	-	-	-
Kalikot	3	-	-	2	66.67	-	-	-	-
Kanchanpur	1	-	-	-	-	-	-	-	-
Kailali	18	1	6	12	72.22	2	11.11	2	11.11
Mugu	1	-	-	1	100	-	-	-	-
Surkhet	18	-	-	10	55.56	-	-	1	5.56
Salyan	7	3	43	7	100	-	-	1	14.29
Rukum west	15	2	13	9	60	2	13.33	3	20
Rukum East	1	-	-	1	100	-	-	-	-
Rolpa	3	-	-	3	100	1	33.33	-	-
Total	290	40		192		30		42	


THANK
YOU