Importance of Socio-demographic Status of Symptomatic Vaginal Discharge in Females, North India

EKTA RANI[1], SANJEEV SAHAI[2], ALOK KUMAR[3]

[1,3]*Microbiology, MSY Medical College & Hospital Meerut, India*
[2]*Microbiology, Mayo Institute of Medical Sciences, Barabanki, India*

Abstract: *Vaginal discharge is one of the most common reasons for gynecological consultation. Not all women with vaginal symptoms have vaginitis; approximately 40% of women with vaginal symptoms will have some type of vaginitis.Previously we published to study prevalence of AVF, BV, VVC and TVin abnormal vaginal discharge in females. Total of 322 women were enrolled in the study whose vaginal secretions was tested for screening using Gram's staining, wet mount, Culture, Nugent's scoring &Amsel's criteria. Out of 322females tested, maximumpatients belonged to the age group of 21-30 years. Majority 52.2% of cases belonged to sub-urban area, while illiterate patients found 59.3%. Majority 51.5% of cases belonged to Low socioeconomic status, while fair level of personal hygiene was found in 43.5% of cases. All these findings were statistically significant. To conclude, demographic factors like residence, increasing age, illiteracy and low socioeconomic status are all contributory factors for frequent occurrence of abnormal vaginal discharge.*
Keywords: *Abnormal vaginal discharge, Prevalence, Socio-demographic status.*

I. Introduction

Bacterial vaginosis (BV) is the most common vaginal condition affecting women of reproductive age, with prevalence estimates of between 10–30% among women who have sex with men in developed nations and 20–50% of women who have sex with women (WSW) **(Bilardi et al.,2013).** The complaint of vaginal discharge is very common, particularly in South East Asia where treated for some or all of the five common reproductive tract infections: *Chlamydia trachomatis* infection, gonorrheal, and trichomoniasis, which are sexually transmitted infections and bacterial vaginosis and candidiasis, which result from disturbance in the normal bacterial flora of vagina **(Patel et al., 2005).** BV is of special public health concern in India because of the high burden of reproductive and pregnancy-related morbidity. Research on BV in India is sparse and mainly limited to a few states **(Patel et al.,2006).** The overall prevalence of BV varies, greatly depending on the population. Estimates range from 4% among asymptomatic college students to 60% among women attending a sexually transmitted disease clinic. Among reproductive age women in the general population the estimated prevalence varies from 10% to 25% **(NanselT R et al., 2006).** The prevalence of abnormal vaginal discharge was 26.3% in the rural area of India (**Komal et al., 2014**).

There is scarcity of data on microbiological analysis of abnormal vaginal discharge from our region therefore, present study was planned to know the spectrum of pathogens in symptomatic women and try to correlate our finding with socio-demographic status.

II. Materials &Methods

A hospital based cross sectional study was done over a period of 6 months from January to June 2017, among IPD/OPD patients attending a tertiary care hospital of North India, to determine the prevalence and correlation among them. The study was approved by Institutional Ethical Committee. An informed consent was taken from all IPD/OPD patients included in the study prior to sample collection. A pre-designed questionnaire was used to get the information regarding the demographic profile (age, sex, socio-economic status, educational status, occupation, health hygiene and residence) of the patients included in the study.

INCLUSION CRITERIA:
1. Patients presenting with complaints of abnormal vaginal discharge attending OPD/IPD Department of Obstetrics &Gynecology, IIMS&R, Lucknow.
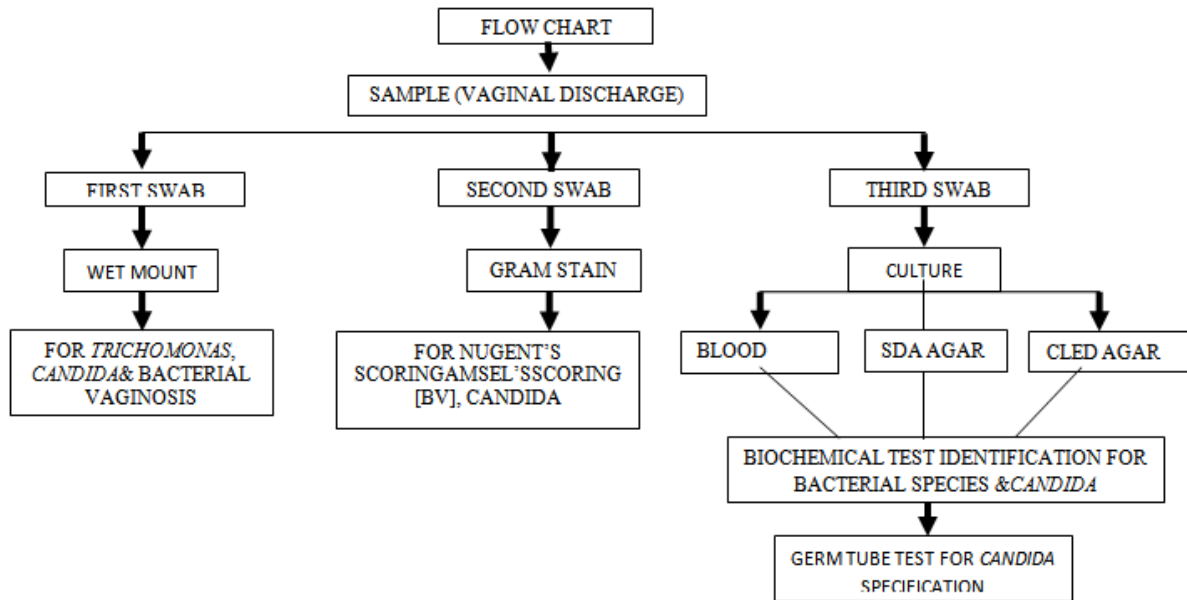
EXCLUSION CRITERIA:
1. All patients have any history of receiving treatment within two weeks were excluded.
2. Patients not willing to give consent to participate in the study.

STATISTICAL ANALYSIS:
1. Data was analysed by using chi-square test.
2. P<0.05 will be taken as significant.

METHODS: Vaginal swabs were taken by help of the gynaecologist. Three high vaginal swabs were obtained from each patient. The first swab was used for wet mount, second one used for microscopical examination and other swab used for culture.

FLOW CHART

SAMPLE (VAGINAL DISCHARGE)

FIRST SWAB → WET MOUNT → FOR *TRICHOMONAS, CANDIDA* & BACTERIAL VAGINOSIS

SECOND SWAB → GRAM STAIN → FOR NUGENT'S SCORINGAMSEL'SSCORING [BV], CANDIDA

THIRD SWAB → CULTURE → BLOOD, SDA AGAR, CLED AGAR

BIOCHEMICAL TEST IDENTIFICATION FOR BACTERIAL SPECIES &*CANDIDA*

GERM TUBE TEST FOR *CANDIDA* SPECIFICATION

III. Results

       Out of the 322 enrolled cases the maximum patients belonged to the age group of 21-30 years. The mean age was 31 years, in this age group predominant infection of mixed type of infection, out of 147 cases, 74(23.0%) were detected in 21-30 years age group, followed by 31-40 age group 47(14.6%) cases were predominant, 41-50

       age group 15(4.7%), 10(3.1%) in 10-20 years and 1(0.2%) in >51 years.

       Out of 118 cases of AVF, most common 62(19.2%) cases, belonged to age group 21-30 years, followed by 26(8.1%) in 31-40 years, 13(4.0%) in 10-20 years, 9(2.8%) in >51 years and 8(2.5%) in 41-50 years.

       Out of 40 cases of VVC, most common 18(5.6%) cases belonged to the age group 21-30 years followed by 13(4.0%) in 31-40 years, 4(1.2%) in10-20 years, 3(1.0%) in 41-50, 2(0.6) >51 years.

       Out of 17(5.3%) cases of Trichomoniasis, 21-30 year age group was most commonly affected with 7(2.2%) cases, followed by 6(1.9%) in 31-40, 2(0.6%) in 10-20 years, 1(0.3%) case each in 41-50 and >51 years age groups. This finding was found to be statistically significant **(p≤0.05=significant). (Figure 1.1)**
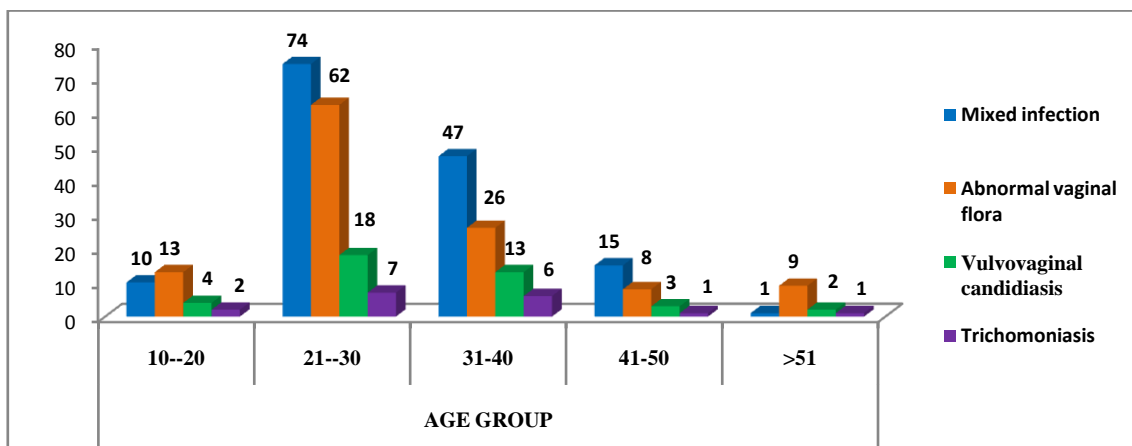

Figure 1.1: Bar diagram showing prevalence of pathogens causing vaginal discharge in different age groups

On studying residential status of cases, majority 168(52.2%) belonged to suburban background, with predominant presentation of mixed infection 82(25.5%), followed by AVF 55(17.0%), VVC 22(6.8%) and Trichomoniasis in 9(2.8%) cases.

Among 154(47.8%) cases belonging to rural background, mixed infection 65(20.2%) was the most common infection, followed by AVF 63(19.6%), VVC 18(5.6%), and Trichomoniasis 8 (2.5%). The difference between suburban and rural background was found to be statistically significant only in BV+AVF, but not in any other disease presentation. **(Table 1.1&Figure 1.2)**

Table 1.1: Prevalence of pathogens causing vaginal discharge in different Residential status

| Types of infection	Total N (%)	Residence		P value
		Suburban N (%)	Rural N (%)	
Mixed infection	**147(45.7)**	**82(25.5)**	**65(20.2)**	**0.281**
BV+ AVF	72 (22.4)	46(14.3)	26(8.1)	**0.033**
BV+VVC	32 (10.0)	13(4.0)	19(6.0)	0.234
BV+AVF+VVC	13 (4.0)	6(1.8)	7(2.2)	0.872
AVF+VVC	11 (3.4)	7(2.2)	4(1.2)	0.640
AVF+TV	10 (3.1)	5(1.5)	5(1.5)	0.888
BV+AVF+TV	6 (1.9)	3(0.9)	3(0.9)	0.914
BV+TV	3 (0.9)	2(0.6)	1(0.3)	0.613
Abnormal vaginal flora	118 (36.6)	55 (17.0)	63 (19.6)	0.160
Vulvovaginal candidiasis	40 (12.4)	22(6.8)	18(5.6)	0.831
Trichomoniasis	17 (5.3)	9 (2.8)	8 (2.5)	0.948
Total	**322(100.0)**	**168(52.2)**	**154(47.8)**	**0.305**
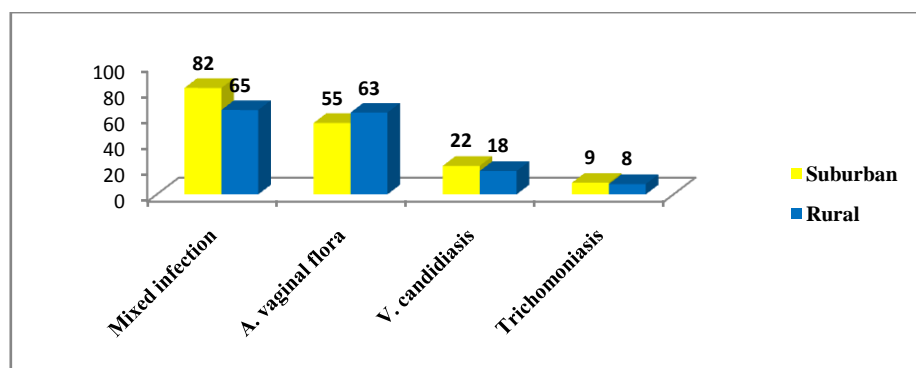
Figure 1.2: Bar diagram showing residential status of abnormal vaginal discharge cases

On analysing literacy status with diseases presentation out of total 322 cases, majority of cases 191(59.3%) were illiterate, with most common diagnosis of mixed infection in 87(27.0%) cases, followed by AVF in 71(22.0%), VVC in 23(7.2%) and Trichomoniasis in 10(3.1%) cases.

Second commonest group was secondary education group with 84(26.0%) cases, with most number of cases had mixed infection 36(11.2%) followed by AVF in 29(9.0%), VVC in 14(4.3%) and Trichomoniasis in 5(1.6%) cases.

Among graduates, 30(9.3%) cases were found with the predominant finding of mixed infection 14(4.4%), followed by AVF in 11(3.4%), VVC in 3(0.9%) and Trichomoniasis in 2(0.6%) cases.

In primary education group, 16(5.1%) cases were found and the most common presentation was mixed infection of 9(2.8%) and AVF 7(2.2%) was the second commonest infection found in this group and no any case found in VVC and Trichomoniasis. And the last post graduate group only 1(0.3%) case found in mixed infection. **(Figure 1.3)**
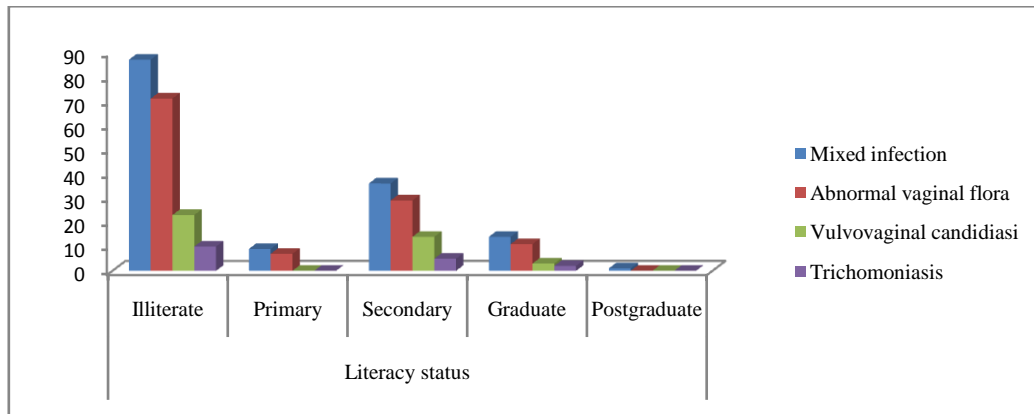
Figure 1.3: Bar diagram showing literacy pattern of abnormal vaginal discharge cases

While studying correlation between socioeconomic statuses (SES) of abnormal vaginal discharge cases, patients belonging to Low SES 166(51.5%) were predominant with 69(47.0%) cases of mixed infection, followed by AVF in 68(21.1%) cases, VVC 21(6.5%) and Trichomoniasis 8(2.5%) cases. Whereas second commonest group was of Middle SES cases, with predominance of mixed infection 78(53.0%) cases, whereas AVF in 50(15.5%) cases, VVC 18(5.6%) and Trichomoniasis 9(2.8%) cases.
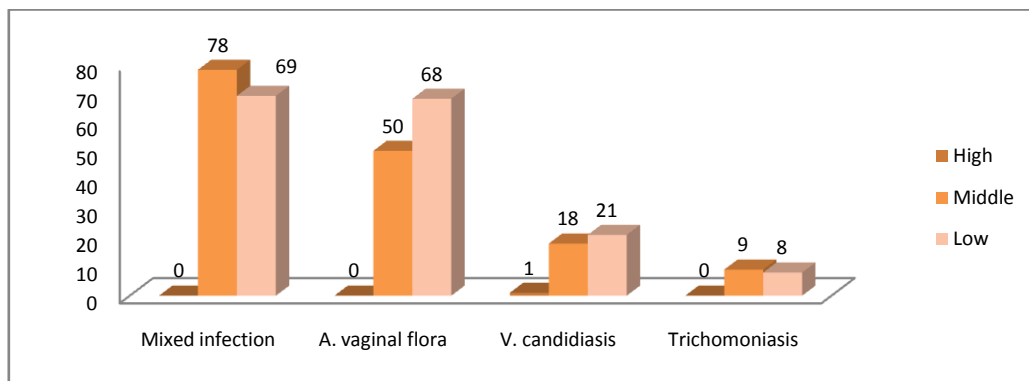Only one case was detected in high SES which belonged to VVC. **(Figure 1.4)**

Figure 1.4: Bar diagram showing Socio-economic status of abnormal vaginal discharge cases

While analysing correlation between personal hygiene and disease presentation majority of patients had 140(43.5%) cases in fair personal hygiene category.

Out of 147 cases of mixed infection, 59(18.3%) cases belonged to fair hygiene group, whereas 53(16.5%) cases had in good hygiene and 35(10.9%) had bad personal hygiene group. Out of total 118(36.6%) of AVF, 54(16.7%) cases belonged to fair hygiene, followed by bad in 38(11.8%) and good in 26(8.1%) cases.

Out of 40(12.4%) cases of VVC, majority of 16(5.0%) cases were found in fair personal hygiene, followed by good and bad each in 12(3.7%).

Trichomoniasis 17(5.3%) was themost common infection reported in fair personal hygiene 11(3.4%) female patients followed by bad and good in 3(0.9%) cases respectively. **(Figure 1.5)**
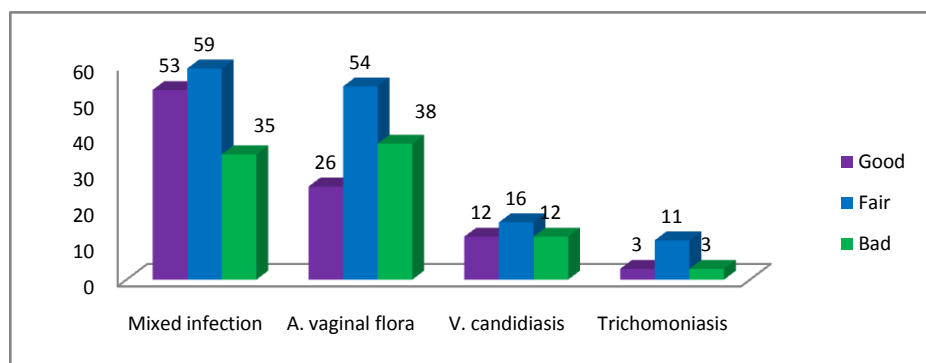

Figure 1.5: Bar diagram showing Personal hygiene status of abnormal discharge cases

IV. Discussion

Mixed infection was the most prevalent type in the 21-30 year age group (23%), followed by 31-40 (14.6%), 41-50(4.7%), 10-20(3.1%) and >51(0.3%) year age groups. Our findings are in accordance with previous studies by**Rajalakshmi and Kalaivani, 2016, Vijaya et al., 2016, Gandhi et al., 2015 and Khamees etal., 2012 (Table 1.1).** Our findings confer that, abnormal vaginal discharge is a common disease of sexually active age group females with minor variance from population.

Table 1.1: Comparison of the commonest Age group with previous studies

S.No.	Age Group (Years)	Author's Name	Area	Year
1.	21-30	Present study	Lucknow	2017
2.	25-35	Rajalakshmi and Kalaivani	Tamil Nadu	2016
3.	30-39	Vijaya et al.,	Pune	2016
4.	26- 35	Gandhi et al	Surat	2015
5.	26-30	Khamees et al.,	Libya	2012

While analysing distribution of cases on the basis of rural and sub-urban residence, we found majority (52.2%) of cases belonged to sub-urban area, and the difference between rural and sub-urban cases was statistically significant between BV with AVF in mixed infection. However, **Zaher et al., 2017** from Egypt have reported rural predominance (55%). Our study hints that health awareness might be a reason for relatively increased percentage of sub urban cases in attending hospital. Moreover, due to scarcity of data on this aspect, larger studies are needed to confirm our findings.

On analysing distribution of cases on the basis of educational status, majority (59.3%) of cases were illiterate, which is in accordance to previous studies from **Chaudhary et al., 2012** from Bareilly, who reported aprevalence rate of 60.1%. However, due to scarcity of studies on this aspect, more studies are needed to confirm our findings.

While studying socio economic status (SES) of cases, most cases (51.5%) belonged to low SES, followed by middle (48.2%) and only one case belonged to high SES; our findings are comparable to a previous study by **Chaudhary etal., 2012** who reported that vaginal discharge was most common among low socioeconomic status class VI (34.9%)**.** In contrast to our study, **Sivaranjini et al., 2013** have reported that 63.5% cases belonged to the upper lower SES and little difference between low and middle SES cases. Nevertheless, due to scarcity of data, more studies are needed to confirm our findings.

While analysing distribution of cases on the basis of personal hygiene, we found majority (43.5%) cases belonged to fair group followed by good (29.2%) and bad (27.3%). This is in contrast to a previous study by **Chaudhary et al., 2012** who reported poor personal hygiene to be predominant. Due to lack of scientific data, more studies are needed to confirm our finding.

V. Conclusion

Vaginal infections are worldwide common gynaecological problem in females of reproductive age group. Known predisposing factors for symptomatic vaginal discharge are poor hygiene, low socioeconomic status, residence, early sexual activity and illiteracy all contributory for the occurrence of vaginal discharge.

Laboratory diagnosis for abnormal vaginal discharge is variable and currently vaginal smear microscopy and culture is the most sensitive method available for its accurate diagnosis.The study of sociodemographic was relatively high and was affected by individual hygiene. Therefore, comprehensive healthcare education aimed at reducing bacterial vaginosis, candidiasis, trichomoniasis etc. is needed.

There is scarcity of data in India and Government will have to make plans to aware people. There is a shortage of female health education programs in North India, so that it is not frameless awareness about female health hygiene.

Acknowledgements

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