

Impact of obstetric and gynaecological factors in married women of reproductive age group suffering from abnormal white discharge - A cross sectional study

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Abstract

Background: Vaginal Discharge or Leucorrhoea is a physiological discharge which changes with the menstrual cycle, but when it is characterized by a change of colour, consistency, volume, or odour and associated with symptoms such as itching, soreness and bleeding, it is categorized as pathological or abnormal. Hence this study was conducted to find the impact of the obstetric, and gynaecological factors on abnormal white discharge. **Methodology:** A detailed obstetric and gynaecological history was taken of married women aged 18-49 years suffering from white discharge and a per speculum examination was conducted. Systematic sampling with random start was used for the study. Qualitative data was denoted in the form of frequencies and percentage. **Results:** A total of 350 women participated in the study. The per speculum examination revealed that 58.6% were suffering from visible vaginal discharge. Menstrual cycle irregularity and flow was found to have a significant association with abnormal white discharge accounting to 84.1% having irregular menses and 85.9% with heavy menstrual flow. **Conclusion:** There should be an increased awareness related to reproductive hygiene and sexually transmitted infections as the reproductive system plays the central role in a women's overall health and wellbeing.

Keywords: Obstetrics and Gynaecological factors, Abnormal white discharge, Leucorrhoea, Married women.

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Received Date: 02/06/2022 Revised Date: 09/07/2022 Accepted Date: 16/08/2022

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Access this article online

Quick Response Code:	Website: www.medpulse.in
	DOI: https://doi.org/10.26611/10112411

INTRODUCTION

Reproductive tract infections (RTIs) and sexually transmitted diseases are significantly higher among females in developing countries. They are at risk of complications from pregnancy and childbirth, face a risk in preventing undesirable pregnancy, bear most of the burden

of contraception, and suffer the complications of unsafe abortions.¹ Reproductive health issues of women encompass obstetric and gynaecological morbidity.²

1. Gynaecological Issues: Include diseases related to menstruation and gynaecology including RTIs/STIs, HIV/AIDS, breast problems, infertility, and cancers. Also, related morbidity like urinary tract infections (UTIs), anaemia, high blood pressure, etc.

2. Obstetric Issues: It includes diseases related to pregnancy, delivery, and post-partum period.

Leucorrhoea commonly called as “Safed Paani” in the local language, is a symptom and not a disease but a vaginal discharge in the female that may be normal or a sign of infection. It is a very common complaint or clinical problem among women of reproductive age group, in obstetric and medical practice.³ After menstrual disorders, it (leucorrhoea) is the second most common

problem.^{4,5} Subjectively and objectively it is an expression of some underlying disorder, either functional or organic. One in ten women will present with vaginal discharge in a year.^{4,6} Approximately, ten million hospital visits each year are attributed to vaginal discharge complaints.^{4,7} Symptomatic vaginal discharge is caused by inflammation due to infection of the vaginal mucosa. It is found in 1-14% of all women in the reproductive age group.^{8,9} Many women with vaginal complaints self-treat incorrectly with over-the-counter drugs.^{4,10} Indian studies on reproductive health are few and most deal with sexually transmitted diseases or reproductive tract infections as a whole and not abnormal white discharge per se. In India, routine surveillance of reproductive tract infections or sexually transmitted infections is not carried out and estimation of the impact of obstetric and gynaecological factors is difficult to find out. Stigma and discrimination associated with STIs and poor attendance of STI patients, especially women, in sexually transmitted disease (STD) clinics, are some of the main reasons for lack of RTI/ STI data.¹¹

Aim and Objectives: The present study was started with the objective of evaluating the impact of obstetric and gynaecological factors on the abnormal (pathological) white discharge in married women between the reproductive age group of 18-49 years in an urban slum community. Proper understanding of this problem would help in initiating appropriate medical education, programmes, and framing health policies. If all women had access to modern and effective contraceptive methods, including voluntary sterilization and safe abortion the burden of RTIs in them would be greatly reduced.

METHODS

A community based cross sectional epidemiological study conducted in the urban slum of Mumbai, the field practise area of a medical college, among married women between 18-49 years suffering from white discharge for more than 2 weeks, during January 2017 to December 2017. After

necessary approval from the Institutional Ethics Committee, the study was conducted in those women who consented for being part of the study.

Exclusion criteria: Women not willing to participate or suffering from any other colour discharge apart from white, and those having any severe medical or surgical conditions associated with the genitourinary system were excluded from the study.

Sample size: A total of 350 married women having white discharge for more than 2 weeks, were taken for the study. The sample size calculated was as per the following formula:

$$n = p(1 - p) \left(\frac{Z}{E}\right)^2$$

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With a prevalence(p) of 28.7% of pathological white discharge,¹² Z of 1.96 and precision (E) of 0.05.

Sampling Technique: Systematic random sampling method was used. Every 48th house having women fitting the study criteria was selected, a patient information sheet and consent form in the language she best understood was given. Only after getting an informed consent, the woman was interviewed as per the structured questionnaire. After taking a complete history, a group of the subjects were accompanied to the urban health centre for carrying out the per speculum examination using disposable Cusco's speculum. Necessary treatment, counselling and referrals were given as per individual cases.

Statistical Analysis: The data was entered in excel sheets. Qualitative data (which included obstetric and gynaecological history) was denoted in the form of frequency and percentage. Association between the qualitative variables was evaluated by Chi-square test. Appropriate statistical software PSPP version 1.0.1 was used for statistical analysis. Graphical representation was done on MS Excel.

RESULTS

The 350 married women (18-49 years) were interviewed and examined for this study.

Table 1: Showing the sexual practices as well as the contraceptive behaviour among the subjects.

	No.	Percentage	
Weekly frequency of sexual intercourse among those living with husbands (number of times)	Everyday	4	1.2%
	1	151	46.3%
	1 to 2	47	14.4%
	2	44	13.5%
	2 to 3	51	15.6%
	3	10	3.1%
	3 to 4	18	5.5%
	4	1	0.3%
	Total	326	100.0%
	Yes	276	84.7%

If sexually active, do you wash yourself after sexual intercourse.	No	50	15.3%
	Total	326	100.0%
Are you currently using any contraception?	Yes	162	49.7%
	No	164	50.3%
	Total	326	100.0%

All those living with husbands were sexually active and maximum frequency of sexual intercourse among these 326 Subjects was once a week (151 (43.1%)) followed by 1 to 2 times a week and 2 to 3 times a week (47, 14.4% and 51, 15.6% respectively). Among those 326 sexually active women, most i.e., 272 (84.7%) had a habit of washing themselves after intercourse which was a good sign in terms of personal hygiene and sexual health. Among those 326 sexually active Subjects almost 50% (162) were using contraception, in the form of condom use being in 70 subjects (43.2%), OC pills (14.8%) or Intra uterine devices (7.4%), and 52 women undergoing sterilization operations as well. (Non-tabulated data)

Table 2: Showing Obstetric and Gynaecological parameters of the subjects. (Parity, Abortion history and Menstrual history).

		No.	Percentage
How would you categorize your menses?	Regular	306	87.40%
	Irregular	44	12.60%
	Total	350	100.00%
How would you categorize your menstrual flow?	Mild	51	14.60%
	Moderate	235	67.10%
	Heavy	64	18.30%
	Total	350	100.00%
What do you use during your menstrual period?	Disposable Pad	225	64.30%
	One use cloth	86	24.60%
	Reuse cloth	37	10.60%
	Other	2	0.60%
	Total	350	100.00%
Gravida Status	Primigravida	47	13.40%
	Multigravida	303	86.60%
	Total	350	100.00%
Any previous H/o Abortions	Yes	125	35.70%
	No	225	64.30%
	Total	350	100.00%

Pertaining to menstrual history, maximum Subjects had regular menses (306 (87.4%)) and moderate flow (235 (67.1%)) and most (225 (64.3%)) were using disposable pads thus indicating menstrual history had no significant abnormality in most Subjects studied.

Parity-wise, 303 (86.6%) enrolled Subjects were multigravida, and this went well with age distribution of the Subjects with 23 to 32 years Subjects being maximum in the present study.

Almost 40% of the enrolled Subjects i.e., 125, had history of abortions either spontaneous or induced.

Table 3: Distribution among subjects of white discharge and symptoms (as perceived by the women)

Symptoms	No.	Percentage (n=350)	
Any itching/ irritation	210	60.00%	
Burning micturition	105	30.00%	
Abdominal or pelvic pain	191	54.60%	
Abnormal spotting or bleeding	12	3.40%	
Fever with chills	8	2.30%	
Consistency of discharge	No.	Percentage	
	Thick	190	54.30%
	Thin	123	35.10%
	Creamy	37	10.60%
	Total	350	100.00%
Odour of discharge	Strong	92	26.30%
	Odourless	153	43.70%
	Mild	105	30.00%

Total	350	100.00%
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Symptom wise, 60.0% (210) Subjects had itching or irritation in genitalia, 191 i.e., 54.6% had abdominal or pelvic pain and 105 (30.0%) had burning micturition. Twelve Subjects had abnormal spotting or bleeding, hence indicating that most women had symptomatic white discharge for at least 2 weeks (criteria for inclusion) and yet they had not taken treatment for the same. In the present study wherein, Subjects enrolled on the inclusion criteria of white discharge at the time of interview, 190 (54.3%) said they had thick white discharge followed by 123 (35.1%) stating thin discharge. In most Subjects the discharge was odourless (153 (43.7%)) or had mild odour (105 (30.0%)).

Table 4: Distribution among subjects of examination findings

General Examination findings		No.	Percentage (n=350)
Febrile Body temperature		4	1.10%
Head louse infestation		55	15.70%
Inflammation on Vulva examination		2	0.60%
Inguinal swelling		1	0.30%
Vaginal discharge		205	58.60%
Cervical discharge		89	25.40%
Per Speculum Examination findings		No.	Percentage
Vaginal Examination			
	Erythema	16	4.60%
	Lesion	3	0.90%
	Other	20	5.70%
	Normal	311	88.90%
	Total	350	100.00%
Colour of Vaginal discharge			
	White	169	82.40%
	Clear	34	16.60%
	Blood stained	2	1.00%
	Total	205	100.00%
Quantity of Vaginal discharge			
	Profuse	62	30.20%
	Moderate	96	46.80%
	Scanty	47	22.90%
	Total	205	100.00%
Odour of Vaginal discharge			
	Foul smelling	118	57.60%
	Non-foul smelling	87	42.40%
	Total	205	100.00%
Consistency of Vaginal discharge			
	Curdy	116	56.60%
	Homogenous	83	40.50%
	Frothy	6	2.90%
	Total	205	100.00%

General examination was done among the enrolled Subjects and the most significant finding was head louse infestation in 55 Subjects (15.7%). At the time of examination using disposable Cusco’s speculum, on vaginal examination, visible vaginal discharge was seen in 205 (58.6%) Subjects, while 89 (25.4%) had cervical discharge. However, it may be noted that all Subjects had complained of white discharge and were hence enrolled for the study. Vaginal examination was normal in 311 (88.9%) Subjects and those remaining having abnormality, (16 (4.6%)) had erythema. Among 205 with visible vaginal discharge on speculum examination, 169 (82.4%) had white discharge and the quantity was moderate in most (96 (46.8%)). Foul smelling odour was noted in 118 (57.6%) Subjects with visible vaginal discharge and the consistency was mostly curdy (116 (56.6%)). Cervical examination was normal in all Subjects with only 89 visible cervical discharge. Quantity was scanty in 45 (50.6%) Subjects and the discharge was white in 56 (62.9%) Subjects.

Table 5: Association of various factors with abnormal white discharge

How would you categorize your menses	Discharge Type		Chi square X ² (p-value)
	Pathological	Non-pathological	
Regular	No. 197 (64.4%)	109 (35.6%)	5.885 (0.015) df=1
Irregular	No. 37 (84.1%)	7 (15.9%)	
Total	No. 234 (66.9%)	116 (33.1%)	
How would you categorize your menstrual flow	Discharge Type		Chi square X ² (p-value)
	Pathological	Non-pathological	

Mild	No.	31 (60.8%)	20 (39.2%)	12.959 (0.00153) df=2
Moderate	No.	148 (63.0%)	87 (37.0%)	
Heavy	No.	55 (85.9%)	9 (14.1%)	
Total	No.	234 (66.9%)	116 (33.1%)	
What do you use during your menstrual period		Discharge Type		Chi square X² (p-value)
Disposable Pad	No.	154 (68.4%)	71 (31.6%)	0.53
One use cloth ^	No.	50 (58.1%)	36 (41.9%)	(0.467)
Reuse cloth ^	No.	28 (75.7%)	9 (24.3%)	df=1
Other ^	No.	2 (100.0%)	0 (0.0%)	
Total	No.	234 (66.9%)	116 (33.10%)	
Gravida Status		Discharge Type		Chi square X² (p-value)
Primigravida	No.	37 (78.7%)	10 (21.3%)	2.859 (0.091)
Multigravida	No.	197 (65.0%)	106 (35.0%)	df=1
Total	No.	234 (66.9%)	116 (33.1%)	

§ 2 cells (25.0%) have expected count less than 5. ^ Row data pooled and Chi-Square Test reapplied with Continuity Correction.

The pathological process involving pathological discharge was likely to alter the flow and frequency of menstrual cycle. This was observed while assessing the association between menstrual cycle and discharge type, with Subjects with regular menses having less pathological discharge as compared to irregular menses i.e., 197 out of 306 (64.4%) with regular menses as compared to 37 out of 44 (84.1%) with irregular menses. The association between the regularity of menses and discharge type was found to be statistically significant. (**p-value = 0.015**)

The type of menstrual flow was also likely to be influenced by the pathological process which further led to pathological discharge. When the menstrual flow was associated with discharge type, it was found that those with heavy menstrual flow had highest proportion of pathological discharge with 55 (85.9%) of 64 heavy menses Subjects having pathological discharge, followed by those with moderate flow (63.0%). The association between menstrual flow and discharge type was found to be statistically significant. (**p-value = 0.00153**)

It was observed that subjects were more aware about usage of disposable pads during their menstrual cycle, where a total of 225 Subjects (64.3%) [Table 2] were using disposable pads. The proportion of pathological discharge among these Subjects was 68.4%. But the proportion of pathological discharge was found to be more in the Subjects using reuse cloth i.e., 28 out of a total of 37 had a pathological discharge (75.7%). The association between the material used during the menstrual cycle and discharge type, however, was statistically not significant. (**p-value = 0.467**)

Between the primigravida and multigravida, the Subjects who were primigravida had higher proportion of pathological discharge with 37 out of 47 primigravida showing pathological white discharge (78.7%). Since the primigravida were seen to be more sexually active and less aware of pathology as well as had lesser health seeking

attitude (as observed from non-tabulated analysis), they showed a higher proportion of pathological discharge. The association between gravida status and discharge type was statistically not significant. (**p-value= 0.091**) (Figure 1).

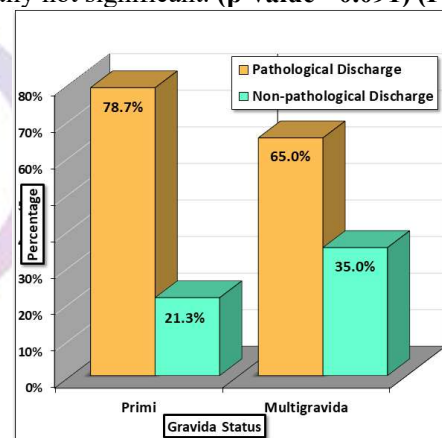


Figure 1: Distribution of discharge by Gravida status

DISCUSSION

The study conducted in 350 married women (18-49 years) residing in an urban slum of Mumbai, had an objective to find the impact of obstetrics and gynaecological factors on pathological white discharge. Among those Subjects living with their husbands, all were sexually active and maximum frequency of sexual intercourse among these 326 Subjects was once a week (151 (43.1%)) followed by 1 to 2 times a week and 2 to 3 times a week. Of these 326 sexually active women, 272 (84.6%) had a habit of washing themselves after sexual intercourse which was a sign of good personal as well as genital hygiene. A study conducted in the United States by Koumans EH *et al.*, stated that an early initiation of sexual activity and increasing number of partners, had an influence on the female partner. The women reporting more than one sex partner in the previous 12 months (recent) and more than one lifetime sex partner had a

prevalence of 39.6%, those who conveyed one recent sexual partner or no sexual partner and more than one lifetime partner had a prevalence of 29.1%, those who reported no or one sex partner in the last 12 months and one lifetime partner had a prevalence of 22.4%, and those who reported never having had sex had a prevalence of 18.8%.¹³ Of the 326 sexually active Subjects almost 50% (162) were using contraception, either in the form of condom (43.2%), Oral contraceptive pills (14.8%) or Intra Uterine Device (7.4%), while 52 subjects had undergone sterilization. [Non-tabulated data] Among the enrolled Subjects, 303 (86.6%) out of 350 were multigravida which went well with age distribution of the Subjects (23 to 32 years being maximum in the present study). Majority of the cases i.e., 39% were of parity 2, followed by parity 3 in 25% in the study conducted by Vijayalakshmi.⁸ In a study done by Guntoory I, et. al, 90% of respondents never used any temporary method of contraception which was higher than the current study conducted.¹⁴ In the study by Uma Devi, those who underwent tubectomy were 55.4%, while those using IUCD and OCPS were 25.6% and 19% respectively¹⁵ in contrast with the present study as most women preferred condoms. In the study by Fonseca TM, *et al.*, the prevalence of pathological vaginal discharge was found to be present in 44% primiparous women.¹⁶ Of the enrolled Subjects i.e., 125 (35.7%) Subjects had history of previous abortions which were either spontaneous or induced. In the study by Indira Guntoory et. al 15% had a history of abortion with a high prevalence of vaginal discharge among women who had a history of induced abortion.¹⁴

Maximum enrolled Subjects had regular menses (306 (87.4%)) with a moderate flow in 235 (67.1%) Subjects and 64.3% used disposable pads, thus indicating menstrual history had no significant abnormality in most Subjects studied. Bacterial Vaginosis (BV) was less common among women experiencing amenorrhea, but type of menstrual protection was not associated with it as seen in a study by Klebanoff MA *et al.*¹⁷ At the time of interview, 190 (54.3%) Subjects were said to have a thick white discharge followed by 123 (35.1%) stating thin discharge. The discharge was odourless (153 (43.7%)) in most or had a mild odour in 30.0% (105) Subjects. Two hundred and ten (60.0%) Subjects had itching or irritation in genitalia, 191 (54.6%) had abdominal or pelvic pain, 105 (30.0%) had burning micturition, and 12 (3.4%) had abnormal spotting or bleeding.

The study conducted on vaginal discharge by Vijayalakshmi, the most common complaint was itching seen in 33.3% cases, followed by backache in 29%.⁸ In the study by Vikram Patel *et al.* 53.2% women reported their discharge to be odourless, 56.8% of women reported discharge to be present only on certain days of the

menstrual cycle, the commonest occasion being premenstrual (61.8%).¹⁸ The commonest colour of the discharge was white (97.05%) followed by yellow (2.95%), 60.52% of the women reported their discharge to be odourful, and in 64.57% discharge was present continuously while the rest reported it to be present on and off, in the study by V Chaudhary.¹⁹ In the study by Zaher EH *et al.*, the colour of vaginal discharge was white in 51.3% cases, 53% of the women complained of abnormal vaginal discharge for two months, and 53.8% had thick discharge while 11.1% had thin discharge, 36.8% had a moderate odour, 70.1% of women complained of itching and 73.5% had lower abdominal pain.²⁰ In the study conducted by Ibrahim B on pathological vaginal discharge in Kampala University, 8% of the participants had offensive vaginal discharge.²¹ All 350 subjects underwent a general examination, and the most noteworthy result was head louse infestation in 55 Subjects (15.7%). On vaginal examination (using disposable Cusco's speculum), visible vaginal discharge was seen in 205 (58.6%) cases at the time of examination, while 89 (25.4%) had cervical discharge. Nevertheless, it may be noted that all Subjects enrolled for the study had complained of white discharge. On per speculum examination, vaginal examination was normal in 311 (88.9%) Subjects with 16 (4.6%) Subjects having erythema. White coloured discharge among the 205 with visible vaginal discharge was found in 169 (82.4%) Subjects and the quantity was moderate in 96(46.8%). Foul smelling odour noted in 118 (57.6%) Subjects with visible vaginal discharge and the consistency was mostly curdy (116 (56.6%)). Cervical examination was normal in all cases with only 89 visible cervical discharge. Quantity was scanty in 45 (50.6%) cases and the discharge was white in 56 (62.9%) cases. Initially on symptoms it felt that the vaginal discharge was non- pathological but on further examination general as well as per speculum the proportion of pathological discharge was more. In the study by Indira Guntoory *et al.*, 49% of women had thick and curdy and 50% had thin and watery discharge, in 90% discharge was white in colour, scanty in 58%, on and off in 62%, odourless in 64%, and not associated with pruritus in 72% of the respondents.¹⁴ As per the study by Devi SU in a South Asian community, thin mucoid discharge was observed in 59%, thick curdy discharge in 34% and frothy discharge in 7% among study group, 52% had moderate amount of discharge, 27% minimal amount and 21% copious amount. Discharge was accompanied with odour in 27% of women, 36% had pruritus, 37% had dysuria and 24% with dyspareunia.¹⁵ Thick creamy discharge was the most common presentation (58.2%), watery discharge came next (24.5%), with an infection rate of 25.5%, least common was frothy discharge, occurring in only 17.1% of the cases, with an infection rate of 73.3% as in the study

conducted in Riyadh by Al Quaiz J M.²² In the study by Bro F., 20% women with complaints of discharge, the pelvic examination was normal. In 14% women without complaints, the doctor found an abnormal vaginal secretion.²³ The pathological discharge was expected to alter the flow and frequency of the menstrual cycle. Women with regular menses (64.4%) having less pathological discharge as compared to those with irregular menses (84.1%). The association was found to be statistically significant. (**p-value = 0.015**). The pathological process influenced the type of menstrual flow which further led to pathological discharge. It was found that those with heavy menstrual flow had highest proportion of pathological discharge with 55 Subjects having heavy menses out of a total 64 (85.9%). The association was found to be statistically significant. (**p-value = 0.00153**) The type of menstrual material used did not have a role in the discharge type. The proportion of pathological discharge was found to be more in the Subjects using reuse cloth i.e., 75.7% had pathological discharge. The association was statistically not significant. (**p-value = 0.467**)

Similar to present study, Indira Guntoory's study also proved that usage of sanitary pads or home-made cloth pads had no significant association with vaginal discharge.¹⁴ In the study by Klebanoff MA, et al., bacterial vaginosis (BV) was less commonly seen in women experiencing amenorrhea and type of menstrual protection did not show association with BV.¹⁷ Among the Subjects, primigravida had higher proportion of pathological discharge (78.7%). The association between gravida status and discharge type was statistically not significant. (**p-value = 0.091**). Vaginal discharge was found to be significantly associated with the number of children, history of induced abortion and place of delivery ($p < 0.001$) in the study by Varsha Chaudhary.¹⁹

CONCLUSION

The present study was aimed at studying the impact of obstetric and gynaecological factors on pathological white discharge in married women aged 18-49 years. Amongst all the factors studied, the association between menstrual flow and regularity of menses with the discharge type was found to be statistically significant. Treatment was provided for the abnormal white discharge based on syndromic approach of NACO.

RECOMMENDATIONS

1. Routine screening and periodic surveys to detect the patterns of discharge are needed.
2. Educating the Anganwadi workers to provide health talk on reproductive tract infections and STIs, who in turn could educate the community.

3. Focussed group discussions and mass health education can be imparted to the women residing in the urban slums.
4. Affordable source or pad rendering machines installed in the urban health centres to obtain sanitary pads.
5. Making existing services better and women friendly if possible.

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Source of Support: None Declared
Conflict of Interest: None Declared

