Journal of Cardiovascular Disease Research
ISSN: 0975-3583,0976-2833 VOL 15, ISSUE 6, 2024

A Study Using Questionnaires to Examine the Genital Hygiene Routines of Women With and Without Chronic Vulvar Dermatosis

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Abstract
Background: Vulvar dermatoses are dermatological conditions affecting the vulva, characterized by symptoms such as redness, skin damage, open sores, thickening of the skin, itching, burning, and discomfort. Various factors increase the likelihood of barrier disruption in this area, leading to vulvar dermatosis. This study aimed to ascertain the prevalence of intimate hygiene habits and knowledge among a female population at a tertiary care hospital.
Methods: An observational cross-sectional study was conducted at the Outpatient Department (OPD) of Dermatology in NMCH, Patna. The study included female patients aged 16-65 who attended the OPD and provided consent. Exclusion criteria were illiteracy and follow-up cases. Data were collected through a questionnaire available in Hindi and English, consisting of three sections: socio-demographic information, intimate hygiene habits, and awareness of appropriate practices. Participants were classified into Group A (with vulvar dermatosis) and Group B (without vulvar dermatosis).
Results : The study included 258 patients with vulvar dermatosis and 160 without. Significant differences were observed in educational status, profession, and marital status between the groups. Group A had lower levels of education and awareness about intimate hygiene practices compared to Group B. Intimate hygiene practices such as vaginal douching, use of deodorants, and wiping habits differed significantly between the groups. Group A had a higher prevalence of incorrect practices, leading to an increased risk of vulvar dermatosis.
Conclusion: The study highlights the crucial role of intimate hygiene in preventing vulvar dermatosis and the need for increased education and awareness among women. Socioeconomic status, cultural, and religious customs significantly influence hygiene practices. Educating women on proper intimate hygiene and the use of safe products is essential to prevent vulvar dermatosis and maintain optimal health.

Keywords :*Vulvar dermatoses, intimate hygiene, cross-sectional study, socio-demographic factors, women's health, NMCH Patna, vaginal douching, education, awareness.*

INTRODUCTION

Vulvar dermatoses are dermatological conditions that specifically impact the vulva. These conditions are characterised by symptoms such as redness, damage to the outer layer of skin, open sores, and thickening of the skin, leading to itching, burning, and discomfort for the affected individuals.[1] Various factors, including anatomical position, occlusion, body secretions, oestrogen deficiency, friction, and heat, increase the likelihood of barrier disruption in this area, which can result in vulvar dermatosis.[2] It is classified into inflammatory, infectious, and neoplastic categories.[3] Common inflammatory vulvar dermatoses include atopic dermatitis, contact dermatitis, lichen planus, lichen simplex chronicus, psoriasis, and lichen sclerosus atrophicus.[4]Reduced

Additionally, it can be caused by seborrhoeic dermatitis, plasma cell vulvitis, and Fox-Fordyce disease.[5]The reported infectious causes have been found to vary depending on age. Vulvar pruritus

ISSN: 0975-3583,0976-2833 VOL 15, ISSUE 6, 2024

is commonly caused by Group A beta-hemolytic streptococcus (GABHS) in prepubertal females and vulvovaginal candidiasis in adult women.[6,7] Approximately 75% of women have experienced vulvovaginal candidiasis at least once in their lifetime.[8,9] Common parasitic infestations in adults that affect the vulva include pediculosis pubis (pubic lice) and scabies. Additionally, Enterobius vermicularis (pinworm) can cause itching in the vulva and anogenital area.[10] Tinea cruris is a superficial fungal infection that can cause itching in the vulva of women, affecting the folds of the groyne and the outer lips of the vagina.[11] Vulvar pruritus is rarely caused by benign or malignant neoplasms such as SCC, melanoma, extramammary Paget's disease (EMPD), or vulvar intraepithelial neoplasia (VIN).[12]

Attitudes and practices regarding reproductive healthcare vary greatly across nations, communities, and individuals. Women's perceptions and behaviours regarding their reproductive healthcare are influenced by factors such as socioeconomic status, religion, caste, and level of education. Specifically, there is a wide range of feminine hygiene practices among women who have a high prevalence of inaccurate behaviours that make them more susceptible to vulvar dermatosis. Ultimately, it can result in significant deterioration of one's overall well-being, affecting sexual performance, interpersonal connections, sleep patterns, and self-confidence.

A dearth of research exists on the subject of intimate hygiene practices among women. Therefore, we conducted a cross-sectional study to ascertain the prevalence of various intimate hygiene habits and the level of knowledge among a female population receiving care at a tertiary care hospital.

MATERIAL AND METHODS

An observational study with a cross-sectional design was conducted at the Outpatient department (OPD) of the Department of Dermatology in NMCH,Patna.

Inclusion criteria

1. All the female patients who attended theoutpatient department and give consent for the study.
2. 16-65yearofage group

Exclusion Criteria

1. Illiteracy,
2. Followup cases.

The study commenced following approval from the ethical committee. The investigators furnished information regarding...

The study was conducted with all participants using their respective local languages. Prior to completing the questionnaire, all participants are required to provide oral informed consent. The questionnaire consists of three pages and is available in both Hindi and English languages. Participants were afforded privacy and uninterrupted time to complete the questionnaire.

Sections of Questionnaire

The survey comprised three sections. The initial section gathered socio-demographic information, along with medical and reproductive history. The second section addressed intimate hygiene habits, contraception, and symptoms of vulvar dermatoses, while the third section assessed women's awareness of appropriate practices through yes or no questions. We primarily evaluated the frequency of intimate wash, vaginal douching, use of wipes and deodorants, pubic hair removal, and vulvar dermatosis. Patients are classified into two subgroups, group A and group B, based on the clinical findings.Group A consists of individuals with vulvar dermatosis, while Group B consists of individuals without vulvar dermatosis.

Data analysis refers to the process of inspecting, cleaning, transforming, and modelling data in order to discover useful information, draw conclusions, and support decision-making. The data was analysed using the Statistical Package for Social Science software (SPSS, version 17).

RESULT

ISSN: 0975-3583,0976-2833 VOL 15, ISSUE 6, 2024

Table1:Socio-demographic profile of the studied population			
CATEGORY	**SUB CATEGORY**	**PATIENTS WITH VULVARDERMATOSIS (n=258)**	**PATIENTS WITHOUT VULVARDERMATOSIS (n=160)**
Educational status	• Upto8th standard • Upto12th standard • Graduate	173 (67.05%) 53 (20.73%) 32(12.22%)	42(26.47%) 72 (44.85%) 46(28.68%)
Profession	• Housewives	131 (50.77%)	44(27.72%)
	• Student • Employee • Laborers/daily wage workers	36(13.75%) 70 (27.33%) 21(8.15%)	63 (39.25%) 43(27.12%) 10(5.91%)
Religion	• Hindu • Muslim • Sikh • Christian • Jain	227 (87.98%) 24(9.49%) 01(0.39%) 00(0.00%) 6(2.14%)	121 (75.70%) 10(6.54%) 10(5.91%) 4 (2.19%) 15(9.66)
Marital status	• Single • Married • Divorced/widowed	76 (29.26%) 171 (66.47%) 11(4.27%)	73 (45.79%) 68 (42.36%) 19(11.85%)
Residence	• Rural • Urban	90 (34.68%) 168 (65.32%)	66 (41.13%) 94 (58.87%)

The socio-demographic profile of the studied population reveals distinct differences between patients with vulvar dermatosis (n=258) and those without (n=160). Educational status among patients with vulvar dermatosis shows that 67.05% had education up to 8th standard, 20.73% up to 12th standard, and 12.22% were graduates, compared to 26.47%, 44.85%, and 28.68% respectively among patients without vulvar dermatosis. Professionally, 50.77% of patients with vulvar dermatosis were housewives, 13.75% were students, 27.33% were employees, and 8.15% were laborers/daily wage workers, whereas the corresponding figures for those without vulvar dermatosis were 27.72%, 39.25%, 27.12%, and 5.91%. In terms of religion, the majority of patients with vulvar dermatosis were Hindu (87.98%), followed by Muslims (9.49%), Jains (2.14%), Sikhs (0.39%), and no Christians, whereas those without vulvar dermatosis were 75.70% Hindu, 6.54% Muslim, 5.91% Sikh, 2.19% Christian, and 9.66% Jain. Marital status showed 29.26% of patients with vulvar dermatosis were single, 66.47% married, and 4.27% divorced/widowed, compared to 45.79%, 42.36%, and 11.85% respectively for those without vulvar dermatosis. Lastly, 34.68% of patients with vulvar dermatosis resided in rural areas and 65.32% in urban areas, while among those without the condition, 41.13% lived in rural areas and 58.87% in urban areas.

Table 2:Scenarios for intimate bathing and assessment among GroupA and GroupB			
REASONS FOR INTIMATE BATHING	**GROUPA(n=258)**	**GROUPB(n=160)**	**P value**
Before worshipping the God	165 (63.75%)	108 (67.28%)	0.1487
Relief from itching	83 (32.36%)	114 (71.33%)	0
To get rid of vaginal discharge	56 (21.70%)	132 (81.93%)	0
To get rid of vaginal odor	66 (25.58%)	124 (77.25%)	0
To prevent infection	37(14.14%)	119 (74.19%)	0
To treat infection	45(17.63%)	130 (80.68%)	0
Before menstruation	160 (62.20%)	133 (83.17%)	0
After menstruation	244 (94.57%)	145 (90.65%)	0.0149
After micturition	159 (61.62%)	104 (64.79%).	0.1780
After defecation	208 (80.81%)	139 (86.60%)	0.01499
Before intercourse	136 (52.51%)	109 (67.91%)	0.000006

After intercourse	213(82.75%)	121 (75.70%)	0.0065
To feel fresh	224 (87.00%)	143(89.00%)	0.1649

The scenarios for intimate bathing and assessment between Group A (patients with vulvar dermatosis, n=258) and Group B (patients without vulvar dermatosis, n=160) show significant differences in various contexts. Bathing before worshipping the God was practiced by 63.75% in Group A and 67.28% in Group B (p=0.1487). A stark contrast is seen in relief from itching (32.36% in Group A vs. 71.33% in Group B, p<0.0001), getting rid of vaginal discharge (21.70% vs. 81.93%, p<0.0001), vaginal odor (25.58% vs. 77.25%, p<0.0001), and preventing infection (14.14% vs. 74.19%, p<0.0001). Treating infection was a reason for 17.63% in Group A compared to 80.68% in Group B (p<0.0001). Before menstruation, 62.20% in Group A bathed compared to 83.17% in Group B (p<0.0001), while after menstruation, the figures were 94.57% and 90.65% respectively (p=0.0149). Bathing after micturition was practiced by 61.62% in Group A and 64.79% in Group B (p=0.1780), and after defecation by 80.81% and 86.60% respectively (p=0.01499). Before intercourse, 52.51% in Group A bathed compared to 67.91% in Group B (p<0.0001), and after intercourse, 82.75% in Group A compared to 75.70% in Group B (p=0.0065). Lastly, to feel fresh, 87.00% in Group A bathed compared to 89.00% in Group B (p=0.1649).

Table 3 a: genitals hygiene practices among the patients with or with out vulvar dermatosis

		Yes	**No**	**Do not know**	**P value**
Spray deodorant gets rid of vaginal odor if used	Group A	34.3 %	33.1 %	32.6 %	0.015
regularly	Group B	30.7 %	51.4 %	17.9 %	
Spray deodorant can replace the use of soap and	Group A	24.2 %	54.1 %	21.7 %	0.08
water	Group B	20.7 %	67.4 %	11.9 %	
Deodorant should be applied over genitalia	Group A	6.7 %	61.8 %	31.5 %	0.2392
	Group B	3.4 %	69.9 %	26.7 %	
Vaginal douching is are commended hygiene	Group A	23.5 %	41.2 %	35.3 %	0
Practice	Group B	4.6 %	67.1 %	28.3 %	
Vaginal douching is recommended when ever there	Group A	42.8 %	31.5 %	25.7 %	0.0097
Is a change in vaginal discharge	Group B	21.4 %	57.4 %	21.2 %	
Vaginal douchinghould not be done unless	Group A	21.9 %	64.2 %	13.9 %	0.0045
Recommended by a doctor	Group B	54.3 %	23.9 %	21.8 %	
Tampons should be changed twice daily.	Group A	21.8 %	41.1 %	37.1 %	0.0032
	Group B	56.4 %	24.9 %	18.7 %	
A genital infection in the partner is not considered	Group A	41.8 %	23.4 %	34.8 %	0.0283
asource ofvulvardermatosis	Group B	32.3 %	45.8 %	21.9 %	
Vaginal douching is recommended after	Group A	24%	48.2 %	27.8 %	0.2153
menstruation	Group B	16.3 %	61.3 %	22.4 %	
Persistent discharge in small quantities is	Group A	41.7 %	26.2 %	32.1 %	0.0169
normal	Group B	17.8 %	64.6 %	17.6 %	
Allergic or irritant reactions to deodorants do	Group A	10.8 %	51.2 %	38%	0.1709
Not require follow-up	Group B	14%	54.3 %	31.7 %	
Sprays are harmless for use	Group A	43.4 %	27.2 %	29.4 %	0.3243
	Group B	12.3 %	61.4 %	26.3 %	

The genital hygiene practices among patients with and without vulvar dermatosis show varied awareness and behaviors. In Group A (patients with vulvar dermatosis), 34.3% believed that spray deodorant gets rid of vaginal odor if used regularly, compared to 30.7% in Group B (patients without vulvar dermatosis), with a p-value of 0.015 indicating a significant difference. Regarding the replacement of soap and water with spray deodorant, 24.2% in Group A and 20.7% in Group B agreed (p=0.08). Only 6.7% in Group A and 3.4% in Group B believed deodorant should be applied over genitalia (p=0.2392). Vaginal douching was considered a recommended hygiene practice by 23.5% in Group A and 4.6% in Group B, showing a significant difference (p<0.0001). When there was a change in vaginal discharge, 42.8% in Group A and 21.4% in Group B recommended vaginal

douching (p=0.0097). However, 21.9% in Group A and 54.3% in Group B believed vaginal douching should not be done unless recommended by a doctor (p=0.0045).

Regarding tampon usage, 21.8% in Group A believed tampons should be changed twice daily, compared to 56.4% in Group B (p=0.0032). When considering a genital infection in the partner as a source of vulvar dermatosis, 41.8% in Group A and 32.3% in Group B disagreed (p=0.0283). Vaginal douching after menstruation was recommended by 24% in Group A and 16.3% in Group B (p=0.2153). Persistent discharge in small quantities was seen as normal by 41.7% in Group A compared to 17.8% in Group B (p=0.0169). Allergic or irritant reactions to deodorants were not considered to require follow-up by 10.8% in Group A and 14% in Group B (p=0.1709). Lastly, sprays were considered harmless for use by 43.4% in Group A and 12.3% in Group B (p=0.3243).

Table3b: The genital hygiene practices among patients with and without vulvar dermatosis

		Yes	No	Do not Know	P value
Vaginal douching causes a cystocele	Group A	0%	18.3 %	81.7 %	0.2944
	Group B	3.2 %	16.6 %	80.2 %	
Allergic or irritative reactions to deodorants may occur Even if their previous use did not cause any problem	Group A	13.6 %	58.3 %	28.1 %	0.0361
	Group B	46.8 %	37.5 %	15.7 %	
Vaginal discharge can be normal in scanty amount	Group A	21.8 %	3.6 %	74.6 %	0.2400
	Group B	23.9 %	14.6 %	61.5 %	
Wiping after micturition/defecation should be Done	Group A	34.1 %	9.8 %	56.1 %	0.0075
	Group B	17.6 %	42.2 %	40.2 %	
Use cotton menstrual pads and tampons and do Not leave your tampon in overnight	Group A	17.1 %	58.3 %	24.6 %	
	Group B	47.6 %	31.7 %	20.7 %	
Not using contraceptive creams or spermicides During sexual intercourse	Group A	42.6 %	29.3 %	28.1 %	
	Group B	24.8 %	51.7 %	23.5 %	
Use of talcum powder as a routine care	Group A	19.6 %	43.7 %	36.7 %	
	Group B	16.4 %	52.5 %	31.1 %	
Tight-fitting clothes prevent vulvar dermatosis	Group A	26.5 %	56.7 %	16.8 %	0.3658
	Group B	21.7 %	63.9 %	14.4 %	

The genital hygiene practices among patients with and without vulvar dermatosis demonstrate notable differences in knowledge and behaviors. In Group A (patients with vulvar dermatosis), none believed vaginal douching causes a cystocele, while 18.3% disagreed, and 81.7% did not know, compared to 3.2%, 16.6%, and 80.2% in Group B, respectively (p=0.2944). Allergic or irritative reactions to deodorants were acknowledged by 13.6% in Group A and 46.8% in Group B (p=0.0361). Regarding normalcy of scanty vaginal discharge, 21.8% in Group A agreed, while 3.6% disagreed, and 74.6% did not know, compared to 23.9%, 14.6%, and 61.5% in Group B (p=0.2400).

Wiping after micturition/defecation was considered necessary by 34.1% in Group A and 17.6% in Group B (p=0.0075). The use of cotton menstrual pads and not leaving tampons in overnight was advised by 17.1% in Group A and 47.6% in Group B. Not using contraceptive creams or spermicides during sexual intercourse was a practice for 42.6% in Group A and 24.8% in Group B. Use of talcum powder as routine care was noted by 19.6% in Group A and 16.4% in Group B. Lastly, tight-fitting clothes were believed to prevent vulvar dermatosis by 26.5% in Group A and 21.7% in Group B (p=0.3658).

DISCUSSION

The vulvar skin differs from other skin sites of the body due to its increased hydration, occlusion, and Properties related to friction. The presence of normal vaginal microflora, an acidic vaginal pH, and vaginal discharge collectively contribute to the maintenance of the health of the vulvovaginal region.The oestrogen hormone stimulates the growth of normal vaginal flora, specifically lactobacilli, which helps maintain a mildly acidic environment in the vagina. This acidity reduces the chances of developing infections. During menopause, the decrease in oestrogen levels leads to an increase in a

ISSN: 0975-3583,0976-2833 VOL 15, ISSUE 6, 2024

woman's vaginal pH. This change is linked to an increased presence of harmful microbes, which in turn causes an increase in vulvar dermatosis. Moreover, various external factors can influence the vaginal microflora and microbial growth. These factors include feminine hygiene practices, sexual intercourse, antibiotic usage, increased moisture, sweating, menstruation, and hormone replacement therapy. [13,14] The primary outcome of this study involves delineating various prevalent feminine hygiene habits among the patients attending a tertiary care centre and evaluating the extent of awareness regarding appropriate hygiene practices.

Using clean water to cleanse the external intimate area is the most ideal cleansing practice. Alternative options include soaps, liquid soaps, cleansing solutions, and non-soap cleansers. The frequency of washing varies from once or twice per day to once per week. In our study, we observed that Group B patients engage in more frequent cleansing of the external intimate area compared to Group A. Group B patients cleanse their intimate area once daily using clean water, while Group A patients only wash twice weekly. This finding is nearly identical to the study conducted by Gandhi ABetal.[15] Group B patients engage in this behaviour more frequently prior to sexual intercourse, following defecation, prior to menstruation, and in the presence of infections and discharge. Group A patients are more likely to engage in post-coital and post-menstrual hygiene practices. Both groups commonly practise washing to feel refreshed after urination and before praying to God.

Vaginal douching is a procedure used to cleanse the vagina or alleviate symptoms such as odour, itching, or irritation by introducing a liquid solution. Differences in douching practices may exist among women in various countries. It is a prevalent global custom, particularly among African American and Muslim women.[16] The utilisation of douching varies between our two cohorts, with 14% of patients in Group A and 4.6% of patients in Group B engaging in this practice. These rates are significantly lower compared to the prevalence reported by Shaaban et al. in Egypt (73%), Erbil et al. (38.6%) and Ege et al. (61.5%) in Turkey. [17,18,19] There is a correlation between having a low socioeconomic status and a lack of education with an increased likelihood of engaging in douching.[20]Our study found that group A has a higher likelihood of promoting douching, with a statistically significant p value of less than 0.05.

Within Group A, 41.2% of patients are cognizant of the potential harm to the vaginal mucosa caused by douching, while 21.9% believe that douching should only be done under a doctor's guidance. Additionally, 23.1% continue to engage in douching as part of their regular routine, and 35.3% lack knowledge regarding douching altogether. In contrast, patients in Group B exhibited a more favourable response to the questions regarding the reasons for douching. Specifically, 67.1% were aware of the potential vaginal injury associated with douching, 54.3% supported their doctor's recommendation for douching, 4.6% actively encouraged the use of douching, and 28.3% had no knowledge about it.Thorough cleansing with the Washing clothes or loofahs can potentially cause localised trauma and should be avoided. Additionally, it disrupts the natural balance of microorganisms in the vagina, making women more susceptible to bacterial vaginosis, pelvic inflammatory disease, and endometritis.[21,22]

The use of wipes for cleaning can cause irritation to the vulvar skin and increase the risk of developing vulvar dermatosis. The results of our study indicate that 34.1% of patients in Group A and 17.6% of patients in Group B use wipes, which is lower than the 19.4% reported by Jazmin Newton et al [23]. Additionally, only 6.7% of Group A patients and 3.4% of Group B patients use deodorants, which is significantly lower than the rates reported by Gowdy JM et al [24] and Ott MA et al [25]. Furthermore, group A patients exhibit a clear deficiency of information regarding the adverse consequences resulting from their use, such as vulvar dermatosis, allergic reactions, and irritant outcomes ($p<0.05$).

Women generally have confidence in the safety of their personal hygiene practices due to their familiarity with them. Marin et al. found that more than 60% of the 530 women who visited a specialised clinic for vulvar diseases reported engaging in harmful intimate hygiene practices, which

aligns with our own findings.[26] When it comes to menstrual care, cotton sanitary napkins are superior to soft cotton clothes.Cotton sanitary napkins cause minimal skin irritation and should be changed regularly based on the level of bleeding.Sanitary pads are worn externally, while tampons are inserted internally. The results of our study showed that Group A patients had a higher percentage (58.3%) of overnight tampon usage compared to Group B patients (31.7%).The p-value is less than 0.05. The level of awareness regarding the utilisation of cotton pads, the frequency of changing them, and the usage of tampons is comparable to a study conducted by Anne E. Hochwalt et al.[27] The spermicide cream contains sensitising agents such as Benzocaine, monophenoxypolyethoxy derivatives, hexylresorcinol, chloramine, quinine, and Nonoxynol-9. Additionally, it can result in discomfort and inflammation in the genital area. Our study reveals that the utilisation of contraceptive creams and spermicides during sexual intercourse is more prevalent among Group A patients (42.6%) compared to Group B patients (24.8%). The p-value is less than 0.05. This aligns with the research conducted by Ridley, C. et al.[28]

Nylon undergarments and snug-fitting clothing can amplify localised friction, resulting in heightened heat and moisture levels. Therefore, the likelihood of infection and skin diseases is higher when using these. As a general recommendation, it is advisable to wear cotton pants and loose clothing on a regular basis. In our study, the level of awareness regarding the association between tight-fitting clothes and vulvar dermatosis is similar in both groups. Specifically, 56.7% of patients in group A and 63.9% of patients in group B are aware of this association. The p-value is greater than 0.05. Certain women utilise talcum powder on their genital area to absorb excess moisture. Currently, commercially available corn starch or baking soda are becoming more popular than talcum powder. Several studies have indicated a small rise in the incidence of ovarian cancer associated with the use of talcum powder, as it has the potential to become contaminated with asbestos.[29]In our study, we observed no statistically significant difference between these two groups in terms of the utilisation of talcum powder as a standard practice (p value > 0.05).

CONCLUSION

The vulva serves as the primary barrier against genital tract infections, making intimate hygiene crucial for maintaining optimal women's health. However, in the context of India, the widespread practice of this is hindered by a lack of awareness, low socioeconomic status, and cultural and religious customs. Our study also confirms this, as patients in Group A, who had vulvar dermatosis, had lower levels of education and awareness compared to patients in Group B. It is crucial to provide women with education regarding intimate hygiene and the utilisation of safe and suitable products that do not pose any harm and do not disrupt the microbial micro flora.

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ISSN: 0975-3583,0976-2833 VOL 15, ISSUE 6, 2024