

A study of pattern and assessment of life quality index in patients of nonvenereal dermatoses of external genitalia at a tertiary care center

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Abstract

Background: Nonvenereal dermatoses (NVD) are the spectrum of disorders involving the genitalia with varied etiology and having a considerable influence on the health-related quality of life (QOL), but it remains under evaluated. **Objective:** To study the prevalence, pattern, and the effect of nonvenereal genital dermatoses on the QOL of patients with the help of dermatological life quality index (DLQI) questionnaire. **Materials and Methods:** This was a cross-sectional study conducted for a period of 1 year. A total of 132 patients were included in the study. QOL was assessed by using the DLQI questionnaire. **Results:** The prevalence was found to be 10.2/1000 cases in our study. Genital scabies (34.8%) was the common dermatoses followed by vitiligo (18.9%) and lichen simplex chronicus (8.3%). These dermatoses were having moderate effect on the DLQI of majority (52.3%) of the patients and its having very large effect on DLQI in 20.5% of patients. Mean DLQI scores were high among the age group of 41–70 years, male sex and in patients who had <1 month duration of the dermatoses. Regarding individual dermatoses, infestation (scabies) was having higher mean DLQI scores and it was statistically significant. **Conclusion:** This study depicts that NVD are having impact on the QOL and its mainly attributed to the site of dermatoses and also due to the symptoms. Proper counseling about the nature of these disorders and prompt treatment were important, thereby improving the QOL of such patients.

Key words: Dermatology life quality index, genital scabies, nonvenereal dermatoses, quality of life

Introduction

Contrary to the common belief, all lesions of the genital region are not manifestations of sexually transmitted disease. These nonvenereal diseases are a cause of considerable concern to patients, who are convinced that they have developed a sexually transmitted infections.^[1] Because venereal and nonvenereal dermatoses (NVD) tend to be confused, the occurrence of these dermatoses may be associated with mental distress and guilt feelings in affected patients.

The term NVD is used to designate the large group of disorders involving the genitalia, which are not transmitted sexually. Depending on the site of involvement, NVD can be categorized into two groups, disorders seen only in the genitalia and disorders seen on genitalia as well as other parts of the body.^[2] Based on etiopathogenesis, these dermatoses can be classified

into the following categories. They are benign conditions and normal variants, congenital anomalies, inflammatory conditions, infections and infestations, premalignant conditions, malignant conditions, and miscellaneous conditions.^[3]

Since these groups include a wide variety of disorders, the identification and establishment of the nature of disease can be challenging. Although most of the dermatoses under this category are not fatal, they are having a considerable influence on the quality of life (QOL), thereby affecting the psychological well-being of the patients. It may affect interpersonal and social behavior, thereby increasing the psychosocial morbidity. Very few studies have assessed the QOL in patients suffering from NVD.

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Objectives

The objective was to study the prevalence, pattern, and the effect of nonvenereal genital dermatoses on the QOL of patients with the help of dermatological life quality index (DLQI) questionnaire.

Materials and Methods

This was a cross-sectional study conducted in our skin and STD outpatient department after getting approval from the ethical committee. The study population included 132 patients with genital lesions who attended our outpatient department during the study period of 1 year. Those patients who presented with symptoms and signs of classical sexually transmitted infections were excluded from the study. After obtaining informed consent from all patients, baseline information regarding demographic features (age, sex, and occupation), duration of illness, and symptoms were collected from all the individuals on a questionnaire.

After screening, skin diseases were classified under ten broad categories for the purpose of analysis: (1) Congenital conditions, (2) infections, (3) infestations, (4) pigmentary disorders, (5) drug-induced conditions, (6) inflammatory conditions, (7) benign conditions, and (8) premalignant conditions, (9) malignant conditions, and (10) miscellaneous conditions all these patients were subjected to routine investigations and screening to rule out any STD (Sexually Transmitted diseases/HIV(Human immunodeficiency virus) infection. Relevant dermatological investigations such as KOH mount, Grams stain, and biopsy were done to establish the diagnosis whenever required.

The DLQI questionnaire, first introduced by Finlay and Khan, in 1994^[4] was used as the study instrument for this study after obtaining a formal permission. DLQI is a validated questionnaire which grades QoL by assessing the following domains: (a) Physical symptoms and feelings (questions 1 and 2), (b) daily activities (questions 3 and 4), (c) leisure (questions 5 and 6), (d) work/school (questions 7), (e) personal relationships (questions 8 and 9), and (f) treatment (question 10). Each question is scored as “very much” (score 3), “a lot” (score 2), “a little” (score 1), and “not at all” (score 0), keeping in mind the problems faced the previous week due to the disease. Final DLQI score is the sum of all scores (range 0–30). High scores indicate poor QoL. DLQI score interpretation is done as follows:

- 0–1 no effect on patient’s life
- 2–5 small effect on patient’s life
- 6–10 moderate effect on patient’s life
- 11–20 very large effect on patient’s life
- 21–30 extremely large effect on patient’s life.

Patients were asked to fill up the DLQI questionnaire (Tamil or English) without assistance. English version of the DLQI was translated into Tamil by two bilinguals. Forward and backward translation was done by different translators and validated by two other members.

The findings were recorded in a pro forma for the analysis and interpretation of data. SPSS software version 16 (SPSS, Inc., Chicago, IL, USA) was used for the data analysis. DLQI and domain scores were correlated with various variables such as age, sex, duration of the disease, and the type of NVD using the analysis of variance. Level of significance was estimated with 95% confidence intervals and $P < 0.05$ was considered to be statistically significant.

Results

During the study period, 132 patients had NVD among the patients who attended the outpatient department, making the total prevalence to be 10.2/1000 cases. Majority of the study subjects were in the age group of 21–40 years (44.7%). The mean age of the study population was 26.37. There was a male preponderance in our study population with a male: female ratio of 1: 0.22.

Out of the 108 male patients, 39 (36.1%) patients had lesions on penis, 38 (35.2%) patients had lesions on scrotum, and 31 (28.7%) patients had lesions on both penis and scrotum. Among the 24 female patients, 41.7% had lesion on labia majora, 16.6% had lesion on labia minora, and 29.2% had lesion over both labia majora and labia minora. Majority of the patients (40.9%) had isolated lesions on the genitalia and the remaining people had lesions over other areas of the body. Regarding duration of the diseases, 28.8% of patients had lesions < 1 week duration, 28.8% had lesions between 1 week and 1 month duration, 27.3% had lesions between 1 month and 1 year duration, 14.4% had lesions for more than a year, and 1 (0.8%) patient had lesion since birth. About 70 (53%) patients had itching, 29 (22%) patients were asymptomatic, 17 (12.9%) patients had pain, and 8 (6.1%) patients had burning sensation.

Regarding categorization of NVD, 46 (34.8%) patients had infestation, 25 (19%) patients had pigmentary disorders, 25 (19%) had inflammatory conditions followed by infectious dermatoses (13.6%) [Table 1]. Almost 22 types of genital dermatoses were identified among the study population. Regarding individual disorders, genital scabies (34.8%) was the common dermatoses followed by vitiligo (18.9%) and lichen simplex chronicus (LSC) (8.3%). Almost 21 types of genital dermatoses were identified among the males and genital scabies (28.7%) was the common dermatoses followed by vitiligo (13.7%) and LSC (8.3%). Six different types of genital dermatoses were identified among the females. Genital scabies (6.1%) was the common dermatoses followed by vitiligo (5.2%) and lichen sclerosus et atrophicus (LSEA) among the females [Table 2].

Regarding infestations, scabies was most commonly seen in the age group of 11–20 years (19.69%), with a $P = 0.0001$ which was statistically significant and it was more commonly seen among males (28.7%), with a $P = 0.797$ which was statistically not significant. Our study shows that 18 (13.6%) patients had infectious dermatoses, out of which 10 (7.6%) patients had candidal balanoposthitis [Figure 1]. These infectious dermatoses

Table 1: Category wise distribution of the nonvenereal dermatoses in the study population

Category	Frequency, n (%)
Congenital conditions	2 (1.5)
Infections	18 (13.6)
Infestations	46 (34.8)
Drug-induced conditions	7 (5.3)
Pigmentary disorders	25 (19)
Inflammatory conditions	25 (19)
Benign conditions	4 (3)
Malignant conditions	1 (0.8)
Miscellaneous conditions	4 (3)

Table 2: List of individual dermatoses affecting genitalia in the study population

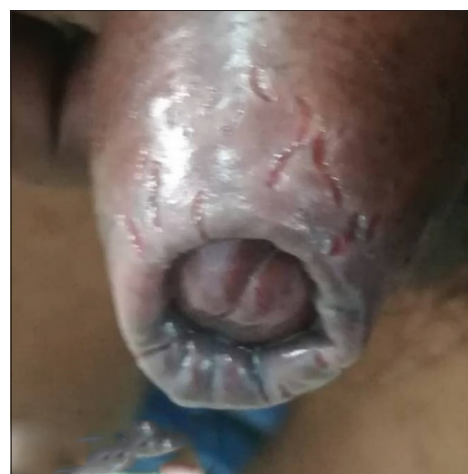
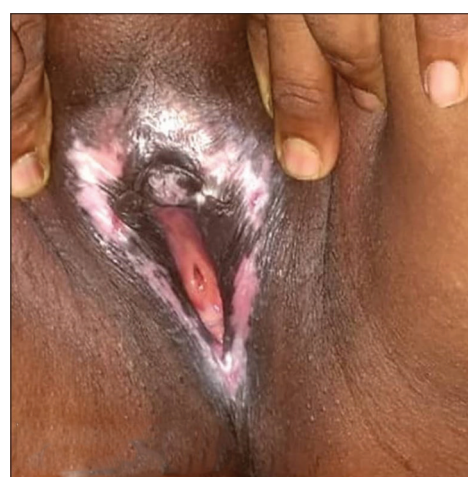
Genital dermatoses	Male	Female	Total (%)
Scabies	38 (28.7)	8 (6.1)	46 (34.8)
Vitiligo	18 (13.7)	7 (5.2)	25 (18.9)
Lichen simplex chronicus	11 (8.3)		11 (8.3)
Candidal balanoposthitis	10 (7.5)		10 (7.6)
Lichen sclerosus et atrophicans	1 (0.8)	5 (3.8)	6 (4.5)
Fixed drug eruptions	5 (3.8)		5 (3.8)
Furuncle	4 (3)		4 (3)
Psoriasis	3 (2.3)		3 (2.3)
Bullous pemphigoid	2 (1.5)		2 (1.5)
Sebaceous cyst	2 (1.5)		2 (1.5)
Dermatophytosis	2 (1.5)		2 (1.5)
Lichen planus	1 (0.8)	1 (0.8)	2 (1.5)
Candidal vulvovaginitis		2 (1.5)	2 (1.5)
Pearly penile papules	2 (1.5)		2 (1.5)
Steven-Johnson syndrome	1 (0.8)	1 (0.8)	2 (1.5)
Scrotal calcinosis	2 (1.5)		2 (1.5)
Pemphigus vulgaris	1 (0.8)		1 (0.8)
Phimosis	1 (0.8)		1 (0.8)
Squamous cell carcinoma	1 (0.8)		1 (0.8)
Pseudoepitheliomatous keratotic and micaceous balanitis	1 (0.8)		1 (0.8)
Median raphe cyst	1 (0.8)		1 (0.8)
Porokeratosis	1 (0.8)		1 (0.8)
Total (%)	108 (81.8)	24 (18.2)	132 (100)

most commonly occurred in males, with a $P = 0.013$ which was statistically significant.

About 25 (18.9%) patients had pigmentary disorders and vitiligo was the only pigmentary disorder seen in our patients. Vitiligo more commonly occurred in the age group of 21–40 years (11.36%) and seen mostly in males (13.64%). In our study, about 25 (18.9%) patients had inflammatory conditions, out of which 11 (8.3%) patients had LSC followed by LSEA [Figure 2] (4.5%) and psoriasis (2.3%). Those inflammatory conditions most commonly occurred in age group of 41–70 (10.6%) years, with a $P = 0.029$ which was statistically significant and they were frequently seen in males (14.39%), with a $P = 0.001$ which was statistically significant.

Among malignancies, only one male (0.8%) patient had squamous cell carcinoma and it was seen in the age group of 41–70 years. Under the category of miscellaneous conditions, one (0.8%) patient had pseudoepitheliomatous micaceous and keratotic balanitis [Figure 3], 2 (1.5%) patients had scrotal calcinosis [Figure 4] and one patient had porokeratosis (0.8%). About 26.5% of the patients had some sort of associated systemic diseases, among them 19 (14.4%) patients had diabetes mellitus, 13 (9.8%) patients had both diabetes and hypertension, 2 (1.5%) patients had anemia, and 1 (0.8%) patient had bronchial asthma.

Regarding DLQI, most of the patients that is, 69 cases (52.3%) had moderate effect on QOL and 20.5% had very large effect [Table 3]. Mean DLQI scores were high among the age group of 41–70 years and males, but it was not statistically significant. Regarding individual dermatoses, infestation (scabies) was having higher mean DLQI scores and it was statistically significant. There was statistically significant relationship of mean DLQI scores with duration of dermatoses [Table 4]. The mean DLQI

**Figure 1: Candidal Balanoposthitis****Figure 2: Lichen sclerosus et atrophicans****Figure 3: Pseudoepitheliomatous keratotic and micaceous balanitis**

scores were high among patients who had <1 month duration of the dermatoses.

Discussion

NVD of external genitalia includes a wide array of diseases with varied aetiology.^[5] Disorders of genitalia have proved

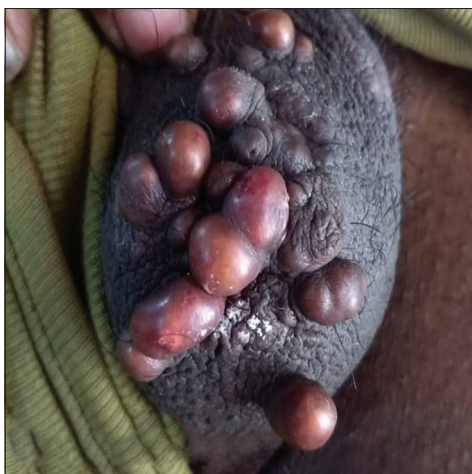


Figure 4: Scrotal calcinosis

confusing to various specialists involved in the diagnosis and treatment. The problem is confounded by the fact that the normal characteristics of common diseases at flexural sites are lost or modified, making the diagnosis difficult for even an experienced dermatologist.^[6] Genital dermatoses are usually associated with severe psychological trauma. It is also important to distinguish between venereal and NVD, as venereal diseases are of primary concern to the patient.^[7]

Age group and sex ratio

In this study, age of the patients with NVD was found to be between 2 and 69 years. Majority (44.7%) of them belonged to the age group of 21–40 years and mean age was 26.37. Most of the patients who were having the nonvenereal genital dermatoses in various studies^[2,6-13] were in the age group of 21–40 years that is mainly in the reproductive age group. Our study is also in concordance with other studies in this aspect.

The male-to-female ratio in our study was 1: 0.22 which is in concordance with few other studies.^[9,11] The higher male-to-female ratio in all the above mentioned studies may be explained by the facts such as unawareness about the condition, stigma and cultural taboos associated with such disorders, and also self-neglect among females.

Socioeconomic class

In our study, out of 132 patients, majority of the patients, that is 71 (53.8%) belonged to lower middle class, which is in concordance with Talamala *et al.*'s study.^[14] We can infer that these NVD are more common in the lower middle class which may be due to overcrowding and poor sanitary condition in the living and working environment.

Residence

Of the 132 patients, most of the patients were from the rural area (92.4%) and only 7.6% were from the urban area. This is similar to the findings of Singh *et al.*^[7] and Prasada Rao^[13] where most of the patients were from the rural area. However, in certain other studies,^[6,8,10,12,14] majority of the patients were from the urban area. This can be explained by the fact that our health-care facility is amidst villages and it serves for mainly rural population.

Marital status

Of the 132 patients, most of the patients were married (58%). This is similar to the findings of certain other studies^[6,7,9,10,12-14] where most of the patients were married. However, in Hogade and Mishra study,^[8] unmarried

Table 3: Distribution of dermatological life quality index in the study population

DLQI	Frequency (%)
Could not assess	1 (0.8)
No effect on patient's life	2 (1.5)
Small effect on patient's life	28 (21.2)
Moderate effect on patient's life	69 (52.3)
Very large effect on patient's life	27 (20.5)
Extremely large effect on patient's life	5 (3.8)
Total	132 (100)

DLQI=Dermtological life quality index

Table 4: Dermatological life quality index scores and various variables among the study group

Parameter	Mean DLQI	SD	P
Age group (years)			
1-10	6.6	6.542	0.087
11-20	17.36	7.026	
21-40	17.72	11.226	
41-70	18.73	10.153	
Gender			
Male	17.89	10.107	0.423
Female	16.08	9.568	
Duration of disease			
<1 week	21.92	11.237	0.000012
1 week to 1 month	20.36	8.790	
1 month to 1 year	13.138	8.260	
>1 year	11.95	6.597	
Specific dermatoses			
Infectious dermatoses	16.94	8.299	
Infestations	19.84	8.602	0.003
Pigmentary disorders	13.041	5.187	

DLQI=Dermtological life quality index; SD=Standard deviation

people were more than married people. Even though it is nonvenereal genital dermatoses, we can infer from the above studies that it is more common among married people.

Site of dermatoses in genitalia

In our study, out of 108 male patients, most of the patients (36.1%) over penis which is similar to Talamala *et al.*,^[14] Puri and Puri,^[9] and Prasada Rao^[13] where penis was the most common affected site. However, in most studies,^[2,6,8,12] scrotum was most commonly involved. Regarding female patients in our study, Labia majora (41.7%) was the most commonly involved site which is in concordance with Puri and Puri,^[9] Singh *et al.*,^[7] and Muktamani *et al.*^[15]

Overall prevalence of most common nonvenereal dermatoses from comparable studies done elsewhere

The prevalence of NVD was found to be 10.2/1000 cases in our study, whereas some other studies^[2,11] showed a low prevalence in their study. A total of 22 different types of NVD were noted in our study. Table 5 shows the comparative analysis between our study and other studies. The differences in the prevalence and the variation in the dermatoses between our study and other studies may be explained by many factors such as lifestyle, geographic variation, personal and sexual hygiene, and access to health care.

Congenital conditions

Median raphe cyst

We observed 1 (0.8%) case of median raphe cyst in a 2-year-old boy and in Karthikeyan *et al.*'s study,^[2] 2 (2%)

Table 5: Overall prevalence of most common nonvenereal dermatoses from comparable studies done elsewhere

Researcher	Study population	Year	Sample	Prevalence	Total number of dermatoses	Sex	Findings (%)
Our study	Salem, South India	2018-2019	132	10.2 per 1000 cases	22	Male and female	1. Scabies (34.8) 2. Vitiligo (18.9) 3. Lichen simplex chronicus (8.3)
Karthikeyan et al. ^[2]	Pondicherry, South India	1997-1999	100	14.1 per 10,000 cases	25	Male	1. Vitiligo (15.3) 2. Sebaceous cyst (14) 3. Scrotal dermatitis (13)
Saraswat et al. ^[6]	Gwalior, Madhya Pradesh	2014	100	-	16	Male	1. Vitiligo (18) 2. Pearly penile papule (16) 3. Fixed drug eruption (12)
Hogade et al. ^[8]	Kalaburagi, Karnataka	2016-2017	50	-	14	Male	1. Vitiligo (20) 2. Fixed drug eruption (16) 3. Scabies (14)
Talamala et al. ^[9]	Vijayawada Andhra Pradesh	2014-2015	100	-	14	Male	1. Vitiligo (19) 2. Pearly penile papule (16) 3. Balanoposthitis (10)
Puri and Puri ^[10]	Punjab	2012	50	-	-	Male and female	Males: 1. Scrotal dermatitis (16.6) 2. Vitiligo (14.3) 3. Scabies (10), FDE (10) Females: 1. Lichen sclerosus (15) 2. Vitiligo (15) 3. Vulval candidiasis (15)
Nyati and Agarwal ^[11]	Kota, Rajasthan	2014-2016	355	-	23	Female	1. Tinea cruris and incognito (30.70) 2. Lichen simplex chronicus (27.04) 3. Lichen sclerosus (18.30)
Singh et al. ^[7]	Pondicherry, South India	2005-2007	120	-	19	Female	1. Lichen sclerosus (21.7) 2. Vitiligo (15.8) 3. Lichen simplex chronicus (13.3)
Babu et al. ^[12]	Coimbatore, South India	2013-2014	150	2.6 per 1000 cases	-	Male, female	1. Scabies (12.6) 2. Vitiligo (11.3) 3. Candidosis (8)
Muktamani et al. ^[13]	Kolar, Karnataka	2011-2013	150	-	26	Female	1. Folliculitis (16) 2. Lichen simplex chronicus (14) 2. Vitiligo (14)
Nassiri et al. ^[14]	Morocco	2017	50	-	9	Male	1. Dermatophytosis (26) 2. Sebaceous cyst (22) 3. Scrotal dermatitis (14)
Prasada Rao ^[15]	Srikakulam, Andhra Pradesh		120	-	15	Male	1. Pearly penile papules (21.66) 2. Scabies (18.33) 3. Candidal balanoposthitis (15)

cases of median raphe cyst were reported. We can infer that median raphe cyst was a rare condition.

Infections

Bacterial infection

In our study, we found four cases (3%) of furunculosis and it was seen only in male patients. In Karthikeyan et al.'s study,^[2] cellulitis was reported in 1% of the study population. In Muktamani et al.'s^[15] study, folliculitis (16%) was the most common dermatoses in their study. Streptococcal vulvitis,^[7,10] Fournier's gangrene,^[11] and leprosy^[2] were reported in various other studies, which was not seen in our study. These variations were mainly attributed to the geographic variations and living conditions.

Fungal infection

In our study, candidal balanoposthitis was seen in 7.6% of the study population which is in concurrence other studies,^[2,8,11] whereas in Prasada Rao^[13] study, it was around 15% of the study population. All our patients with balanoposthitis had diabetes mellitus, but phimosis was not seen in such patients. In Talamala et al.'s^[14] study, apart from candidal infection, they are attributing trauma, irritant topical application, and retained smegma due to poor hygiene as causative factors. Candidal vulvovaginitis was seen in 1.5% of the patients in our study which is more or less similar to few other studies.^[10,11] However, certain other

studies showed^[7,9,15] the increased prevalence of Candidal vulvovaginitis in their studies.

In our study, we found 2 (1.5%) cases of dermatophytosis involving the scrotum and groin. Our study is similar to other studies,^[2,11,15] whereas few other studies^[6-10,12-14] showed increased prevalence of dermatophytosis. Many patients are not consulting dermatologists due to the stigma of genital dermatosis. Nowadays, this is emerging as a devastating problem and such cases are becoming resistant to routine antifungal treatment.

Viral infections

Viral infections such as Bowenoid papulosis, Molluscum contagiosum (autoinoculated), and Herpes zoster have been reported in other studies.^[7,10,11] However, in our study, there were no viral infections and it may be due to the low prevalence of such infection in our population.

The mean DLQI score for infectious dermatoses was found to 16.94 be in this study.

Infestations

Scabies

In our study, scabies was the most common condition encountered (34.8%), and it is more common among males (28.7%). Our study shows more cases of scabies when compared to other studies.^[2,6,8,9,11-13,15,16] This may be due to more prevalence of scabies in our population. The

mean DLQI score for scabies was found to be 19.84 in this study.

Drug-induced conditions

Fixed drug eruptions

We found 5 cases (3.8%) of fixed drug eruption (FDE) in our study population. Among this five patients, cotrimoxazole was the reason in two patients, and in the remaining patients, analgesics and ciprofloxacin were the culprit. The prevalence of FDE in our study was in concurrence with few other studies^[2,14,15] However, in certain other studies,^[6,8,9,11,13] there were more number of cases of FDE. Like our study, sulfonamides was the common implicated drug in most studies.^[2,13,15]

Steven – Johnson syndrome

We encountered two patients (1.5%) with Steven – Johnson syndrome including a male and female with a history of intake of carbamazepine and gentamycin, respectively. Babu *et al.*^[11] and Muktamani *et al.*'s study also were in concordance with our study.^[15] The mean DLQI score was found to be 4.34 for drug-induced conditions.

Pigmentary disorders

Vitiligo

We found 25 cases (18.94%) of vitiligo which was found to be more common in males (13.64%) in the age group of 21–40 years (11.36%). The prevalence of vitiligo in our study was in concurrence with certain other studies.^[2,6-9,14,15] However, Nyati and Agarwal^[10] Babu *et al.*,^[11] Nassiri *et al.*,^[12] and Prasada Rao^[13] observed less cases of vitiligo. The mean DLQI score was found to be 13.041 for pigmentary disorders.

Inflammatory conditions

Lichen planus

In our study, we found two cases (1.5%) of genital lichen planus. The prevalence of lichen planus in our study was similar to certain other studies,^[2,7-8,10,13-15] whereas few other studies^[6,9,11,12] observed increased prevalence of lichen planus in their study population.

Psoriasis

We found three cases (2.3%) of psoriasis involving genitalia. Our study was in concordance with certain other studies.^[2,6,8,11] However, Puri and Puri,^[9] Singh *et al.*,^[7] Muktamani *et al.*,^[15] and Nassiri *et al.*^[12] showed more prevalence of psoriasis in their study, whereas few other studies^[10,13] showed less prevalence of psoriasis in their study. Genital appearance could be challenging to interpret, especially in uncircumcised individuals because a mucosal site is affected rather than keratinized skin.^[17]

Lichen simplex chronicus

We found 11 cases (8.3%) of LSC in our study and it was seen exclusively in males. LSC is usually bilateral, but sometimes may be unilateral determined by dominant hand.^[18] In our study, we found all cases with bilateral presentation. Few studies showed^[2,8,9,11] decreased prevalence of LSC, whereas some other studies^[7,10,15] showed increased prevalence of LSC in their study population.

Lichen sclerosus et atrophicans

Lichen sclerosus in females is a chronic inflammatory dermatosis associated with substantial discomfort and morbidity.^[19,20] We encountered 6 cases (4.5%) of LSA including 1 male and 5 females and majority of them belonged to the age group of 21–70 years. Some studies in the literature^[2,6,11,14,15] showed decreased prevalence of

LSA, whereas some other studies^[7,9,10] showed increased prevalence of LSA in their study population.

The mean DLQI score was found to be 7.23 for inflammatory dermatoses.

Immunobullous disorders

We encountered one case (0.8%) of pemphigus vulgaris with involvement of penis and scrotum which is similar to Talamala *et al.* (1%),^[14] Babu *et al.* (1.3%),^[11] and Muktamani *et al.*'s study (1%).^[15] In our study, two cases (1.5%) of bullous pemphigoid were seen, both the cases in male patients involving penis which is in concordance with Babu *et al.* (0.6%)^[11] and Muktamani *et al.*'s (2%)^[15] study.

Benign conditions

Sebaceous cyst

We reported two cases (1.5%) of sebaceous cyst over scrotum. Most of the studies^[2,6,9,11-14] showed increased prevalence of sebaceous cyst in their study population.

Pearly penile papules

Two (1.5%) cases of pearly penile papules were seen in our study, whereas in other studies,^[6,8,9,11,13,14] more number of cases of pearly penile papules were reported. They are frequently mistaken as warts and misdiagnosed with Tyson's gland or ectopic sebaceous gland of Fordyce.^[21]

Malignant conditions

Squamous cell carcinoma

We encountered one case (0.8%) of squamous cell carcinoma in our study which is in concordance with other studies.^[6-9,12,13]

Miscellaneous condition

Scrotal calcinosis

We found two cases of scrotal calcinosis (1.5%), whereas certain other studies^[2,11,14] reported more cases of scrotal calcinosis.

Dermatological life quality index

Mean DLQI scores were high among the age group of 41–70 years and males. It may be explained about the apprehension of any sort of genital dermatoses among males, whereas females were timid about it in our society. We have to address these issues among females even in the primary health care setup through grass root level workers who will be close to those people. Regarding individual dermatoses, infestation (scabies) was having higher mean DLQI scores and it was statistically significant which may be explained by the fact that itching was having more impact on the QOL. The mean DLQI scores were high among patients who had <1 month duration of the disease and it was statistically significant. This may be explained by the fact that duration of scabies fall within this category leading to the significance. A comprehensive understanding of the various clinical presentations of NVD and their etiology is therefore essential for the treating physician which is necessary to differentiate between venereal and nonvenereal genital dermatoses.

Conclusion

The prevalence of NVD was found to be 10.2/1000 cases in our study. Genital scabies (34.8%) were the common dermatoses followed by vitiligo (18.9%) and LSC (8.3%). There is a wide variation in the pattern of NVD reported from different parts of the world, even in same country due to factors such as genetic constitution, personal hygiene, climate, customs, sexual practices, religious taboo, standard

of living, occupation, and feasibility of medical care. Regarding DLQI, these nonvenereal genital dermatoses were having moderate effect on the DLQI of majority of the patients of our study population. Regarding individual dermatoses, infestation (scabies) was having higher mean DLQI scores and it was statistically significant. From DLQI, we can infer that these dermatoses are having impact on the QOL of a particular patient and its mainly attributed to the site of dermatoses and also due to the symptoms. Proper counseling about the nature of these disorders and prompt treatment were important, thereby improving the QOL of such patient.

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Conflicts of interest

There are no conflicts of interest.

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