

Correlation of Vulvar Quality of Life Index with Sociodemographic and Clinical Features in Patients with Vulvar Dermatoses

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Abstract

Background: Vulvar dermatoses encompass a spectrum of disorders affecting female genitalia, often causing significant physical discomfort and psychological distress. Social stigma and anatomical factors frequently delay presentation, impairing quality of life. The Vulvar Quality of Life Index is a validated tool to measure disease-specific impact.

Objectives: To assess socio demographic and clinical features of vulvar dermatoses and evaluate impact on quality of life using Vulvar Quality of Life Index.

Materials and Methods: In this cross-sectional study, 100 women presenting with vulvar complaints at tertiary hospital from July to December 2023 underwent clinical evaluation and completed the questionnaire. Associations between Vulvar Quality of Life Index scores and socio demographic/clinical variables were done.

Results: The mean score was 17.48 ± 8.3 , with 80% experiencing moderate impairment (score 14–23). Mean age was 42.8 ± 9.6 years; most participants were 41–50 years (31%). Age significantly correlated ($p = 0.003$), with women >50 years scoring higher (mean 19.24). Higher scores were observed in women with primary education (32%; CI 16.9–19.5; $p = 0.14$), married participants (84%; mean 17.9, CI 17.1–18.7; $p = 0.209$), housewives (69%; CI 17.3–19.1; $p = 0.05$), and rural residents (64%; CI 17.2–19.2; $p = 0.09$). Participants with diabetes or hypertension had a mean score of 18.8 (CI 13.3–24.3; $p = 0.031$). Infections were most common (61%; mean 17.2, CI 16.4–18.0), while immunobullous disorders had the highest burden (mean 22.3, CI 19.4–25.2; $p = 0.001$). Women with genital, skin, and oral lesions had higher scores (mean 21.0, CI 14.1–27.9; $p = 0.114$). ‘Activities of Daily Living’ was the most affected domain (51%; CI 17.63–19.37; $p = 0.07$). Limitation of the study were single-centre design and limited sample size, limiting generalizability.

Conclusion: Vulvar Quality of Life Index effectively captures the multidimensional burden of vulvar dermatoses on physical, emotional, and social domains. Routine incorporation into clinical practice can guide treatment, monitor progression and enhance patient-centered care.

Key words: Quality of life; Sociodemographic factors; Vulvar dermatoses; Vulvar Quality of Life Index

Introduction

Vulvar dermatoses are a diverse group of conditions affecting the skin and mucous membranes of

the female genitalia. Despite their high prevalence and well-documented symptom burden, they are

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frequently underdiagnosed and undertreated because of societal stigma, embarrassment and the multifaceted clinical presentation. Population and hospital-based studies report that vulvar conditions account for a measurable proportion of dermatology attendances.^{1,2} These disorders frequently result in symptoms and qualitative work confirms substantial psychosocial burden, including impacts on self-identity, sexual health and mental health.^{3,4}

The impact of vulvar disease on quality of life is under assessed because general dermatology tools (e.g., DLQI) lack sensitivity to vulvar-specific concerns such as psychosexual and relationship domains. Clinical reviews and outcome-measure papers emphasise the need for disease-specific, culturally validated tools to enable meaningful assessment of treatment outcomes and longitudinal monitoring.⁵ To address this, the Vulvar Quality of Life Index (VQLI) was developed and validated as a concise, disease-specific tool, and has been used to measure baseline burden and treatment response in recent clinic cohorts.⁶

Although the Vulvar Quality of Life Index (VQLI) is a promising disease-specific tool, its use in South Asia is limited to a few single-centre, clinic-based reports and there is no published evidence of comprehensive linguistic adaptation or psychometric validation for major regional languages. This raises concerns about the validity, responsiveness and generalizability of existing findings in South Asian settings. This study expands existing knowledge on vulvar dermatoses from an understudied South Asian population and aims to generate regional epidemiologic data, translate and validate the VQLI, is therefore needed to produce reliable local benchmarks and enable routine outcome measurement in the region. The study characterizes the socio demographic and clinical features of women with vulvar dermatoses and evaluates their impact using the VQLI. It underscores the influence of sociocultural context on perceived quality of life and highlights the need for culturally sensitive patient care and counselling in vulvar disorders.

Materials and Methods

This prospective, cross-sectional hospital based study was conducted over six months (July 1, 2023 – December 31, 2023) at the Department of

Dermatology, Venereology, and Leprosy, Shimoga Institute of Medical Sciences. The study protocol was approved by the Institutional Ethics Committee on 21/06/2023 and conducted in accordance with the Declaration of Helsinki. (IEC approval number: SIMS/IEC/842/2022-23). All participants provided written informed consent.

A total of 100 women with vulvar dermatoses were enrolled in the study. The required sample size was calculated to detect a correlation coefficient (r) of 0.3 between VQLI score and socio demographic or clinical variables, with 80% power and a 5% level of significance. Using the formula: $n = [(Z\alpha/2 + Z\beta) / (0.5 \times \ln(1+r)/(1-r))]^2 + 3$

The estimated sample size was approximately 85. To account for possible non-response or incomplete data, a total of 100 participants were enrolled. Eligible women diagnosed with vulvar dermatoses were recruited using consecutive sampling method.

Inclusion criteria included women aged ≥ 18 years, presenting with vulvar complaints of at least one month duration. Exclusion criteria included pregnant women, patients with diagnosed psychiatric illnesses, systemic illnesses that might influence QOL assessment and refusal to participate

A detailed sociodemographic profile was obtained, including age, education, occupation, marital status and comorbidities. Clinical history and examination were performed.

Standard diagnostic procedures included routine blood tests, potassium hydroxide (KOH) mount for fungal elements, Gram stain, viral serology like HIV, HbsAg, HCV and skin biopsies in cases of vulvar lichen sclerosis were done free of cost by the institute. Although the VQLI has been validated internationally, this study included linguistic adaptation and preliminary validation of the questionnaire for the local language to ensure cultural relevance and content validity. The questionnaire was administered in a private setting, allowing patient themselves to complete it independently. Each item was scored on a 4-point scale (0-3). The total score ranged from 0 to 45, with higher scores indicating greater impairment. Scores were categorized as: 0–5 (minimal), 6–13 (mild), 14–23 (moderate), 24–37 (severe), and 38–45 (very severe impairment).

VQLI Questionnaire⁶:

THE VQLI QUESTIONNAIRE

1. Over the past month how itchy and/or painful and/or stinging and/or burning has your vulvar skin felt?

Very much A lot A Little Not at all

2. Over the past month, how often have you experienced any of the following: pain when urinating, heat intolerance, vaginal discharge, wetness?

Very much A lot A Little Not at all

3. Over the last month how embarrassed or self-conscious have you been because of your vulvar skin symptoms?

Very much A lot A Little Not at all

4. Over the past month how much has your vulvar skin impacted your body image or sense of self?

Very much A lot A Little Not at all

5. Over the last month how distressed or anxious have you felt because of your vulvar skin problem ?
 Very much A lot A Little Not at all
6. Over the last month how much has your vulvar skin problem influenced your choice of clothing (For instance underwear, jeans, gym)?
 Very much A lot A Little Not at all
7. Over the last month how much has your vulvar skin problem disturbed your sleep?
 Very much A lot A Little Not at all
8. Over the last month how much has your vulvar skin problem made it difficult for you to go shopping, look after yourself or your family, home?
 Very much A lot A Little Not at all
9. Over the last month how much has your vulvar skin problem made it difficult for you to attend social or leisure engagements?
 Very much A lot A Little Not at all
10. Over the last month how much has your vulvar skin problem interfered with your ability to concentrate on work or study?
 Very much A lot A Little Not at all / Not applicable
11. Over the last month how much has your vulvar skin problem created problems with a partner or precluded you from pursuing a romantic relationship?
 Very much A lot A Little Not at all / Not applicable
12. Over the last month how much has your vulvar skin problem interfered with your sex life?
 Very much A lot A Little Not at all / Not applicable
13. Over the last month how often have you felt distressed or worried about sex because of your vulvar skin?
 Very much A lot A Little Not at all / Not applicable
14. How often in the last month have you been worried about long-term health implications of your vulvar skin condition?
 Very much A lot A Little Not at all
15. Over the past month, how much of a problem has the treatment of your vulvar symptoms been?
 Very much A lot A Little Not at all / Not applicable

Statistical analysis was performed using SPSS version 28.0. Continuous variables were summarized as means ± standard deviations, and categorical variables as percentages. The Kruskal-Wallis and Mann-Whitney U tests were used for group comparisons. Correlation between age and VQLI scores was evaluated using Spearman’s rank correlation coefficient. A p-value <0.05 was considered statistically significant.

Results

The mean VQLI score was 17.48 ± 8.3 (range 4–42). Impairment categories: 10% (n=10) had mild impairment, 80% (n=80) moderate, 10% (n=10) severe; none fell into the very severe category. (Table 1)

Table 1: Distribution of Quality of Life Impairment Based on Overall VQLI Score

VQLI Score Range	Level of Impact on Quality of Life	Frequency (%)
0–5	Minimal	0 (0%)
6–13	Mild	10 (10%)

14–23	Moderate	80 (80%)
24–37	Severe	10 (10%)
38–45	Very severe	0 (0%)

Of the 100 women evaluated, the mean age was 42.8 ± 9.6 years (range 18–65). The most affected age group was 41–50 years (31%), followed by 31–40 years (28%) and >50 years (20%). The majority were married (84%), homemakers (69%), and resided in rural areas (64%). Educationally, 32% of patients had completed primary education, 28% were illiterate, and 40% were educated beyond primary level.

Higher scores were observed among illiterate women (mean 18.4) compared to those with secondary or higher education. Housewives demonstrated higher mean VQLI scores (18.2), reflecting possible delayed presentation and impact on daily routines. Mean VQLI scores were relatively higher among subjects with diabetes and/or hypertension. (Table 2)

Table 2: Correlation of VQLI with Socio demographic Features

Category	Frequency (%)	Mean VQLI ± SD	Median VQLI	95% CI for Mean	P-value	Effect Size (95% CI)
Education					0.14	η ² = 0.028
– Graduation	16 (16%)	16.5 ± 3.18	16	14.9 – 18.1		
– Secondary	24 (24%)	17.1 ± 3.54	17	15.7 – 18.5		
– Primary	32 (32%)	18.2 ± 3.73	18	16.9 – 19.5		
– Illiterate	28 (28%)	18.4 ± 4.26	18	16.8 – 20.0		
Marital Status					0.209	d = 0.28
– Married	84 (84%)	17.9 ± 3.87	18	17.1 – 18.7		

- Unmarried	16 (16%)	16.9 ± 3.20	16	15.3 – 18.5		
Occupation					0.05	$\eta^2 = 0.045$
- Employee	26 (26%)	16.8 ± 3.6	16	15.4 – 18.2		
- Student	5 (5%)	15.8 ± 0.8	16	15.1 – 16.5		
- Housewife	69 (69%)	18.2 ± 3.8	18	17.3 – 19.1		
Environment					0.09	d = 0.36
- Rural	64 (64%)	18.2 ± 3.98	18	17.2 – 19.2		
- Urban	36 (36%)	16.9 ± 3.27	16	15.8 – 18.0		
Co-morbidities					0.031	$\eta^2 = 0.071$
-Diabetes	17 (17%)	19.1 ± 3.4	18	17.5 – 20.7		
-Hypertension	7 (7%)	19.7 ± 3.9	20	16.6 – 22.8		
-Diabetes + Hypertension	6 (6%)	18.8 ± 7.6	24	13.3 – 24.3		
-Hypothyroidism	4 (4%)	17.8 ± 3.4	17.5	13.3 – 22.3		
-Renal diseases	2 (2%)	16.5 ± 0.7	6.5	10.6 – 22.4		
No co-morbidities	64 (64%)	17.2 ± 3.6	17	16.3 – 18.1		

Significant positive correlation was found between age and VQLI score ($r=0.33$, $p=0.003$). Patients aged >50 years had a higher mean VQLI (19.24 ± 6.78). (Figure 1)

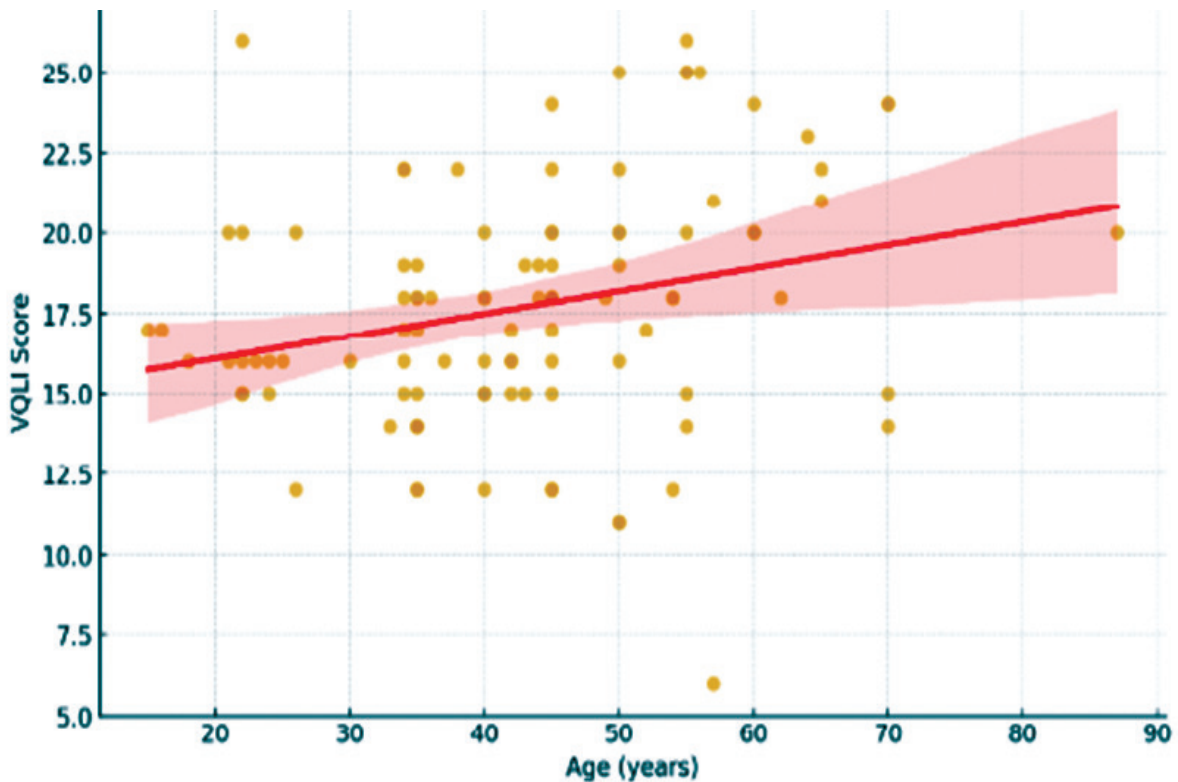


Figure 1: Positive correlation between VQLI scores and age.

This plot shows a statistically significant correlation ($r=0.33$, $p=0.003$), indicating that older women tend to have higher VQLI scores. Each point represents an individual patient. The red line is the regression line showing the positive trend. The shaded area represents the 95% confidence interval around the regression

The chief reported symptom was pruritus (63%), followed by burning sensation (11%), pain (9%), swelling (1%), and other complaints such as discharge. These symptoms were subjectively assessed. The clinical diagnosis revealed infections in 61 cases, predominantly fungal (49%), bacterial infections (7%), and scabies (5%). Inflammatory conditions, including lichen sclerosus (7%), psoriasis, and lichen planus,

were observed in 14 patients. Autoimmune blistering diseases such as pemphigus vulgaris accounted for 3%. Patients with immunobullous disorders recorded the highest mean VQLI (22.3 ± 5.6), significantly greater than other groups ($p=0.001$). Women with involvement of multiple sites (genital, oral, skin) had higher mean VQLI scores (21.0 ± 7.2). (Table 3)

Table 3: Correlation of VQLI with Clinical Features

Category	Frequency (%)	Mean VQLI \pm SD	Median VQLI	95% CI for Mean	P-value	Effect Size (95% CI)
Disease Type					0.001	$\eta^2 = 0.19$
Immunobullous	3 (3%)	22.3 ± 2.52	22	19.4 – 25.2		
• Pemphigus vulgaris	2 (2%)					
• Bullous pemphigoid	1 (1%)					
Infections	61 (61%)	17.2 ± 3.10	17	16.4 – 18.0		
• Bacterial	5 (5%)					
– Folliculitis	4 (4%)					
– Syphilis	1 (1%)					
• Viral	7 (7%)					
– Genital warts	5 (5%)					
– Herpes genitalis	1 (1%)					
– Molluscum contagiosum	1 (1%)					
• Fungal	49 (49%)					
– Tinea cruris	31 (31%)					
– Candidiasis	18 (18%)					
Inflammatory	14 (14%)	21.3 ± 3.10	20.5	19.6 – 23.0		
• Lichen sclerosus	7 (7%)					
• Lichen simplex chronicus	4 (4%)					
• Lichen planus	1 (1%)					
• Psoriasis	1 (1%)					
• Contact dermatitis	1 (1%)					
Pigmentary	5 (5%)	13.8 ± 1.79	14	12.3 – 15.3		
• Vitiligo	5 (5%)					
Others	14 (14%)	18.0 ± 1.68	18	17.1 – 18.9		
• Pruritus vulvae	11 (11%)					
• Hidradenitis suppurativa	1 (1%)					
• Lipoma	1 (1%)					
• Lymphangioma	1 (1%)					
Normal variants	3 (3%)	11.0 ± 4.58	12	5.9 – 16.1		
• Skin tags	3 (3%)					

Site of Involvement					0.114	d = 0.31
– Genital only	65 (65%)	17.9 ± 3.80	18	17.0 – 18.8		
– Genital + skin	31 (31%)	16.8 ± 3.19	16	15.7 – 17.9		
– Genital + skin + oral	4 (4%)	21.0 ± 6.16	23.5	14.1 – 27.9		

The highest scoring domain was 'Activities of Daily Living', contributing to 51% of the total impairment, including limitations in dressing, sleeping, personal hygiene, and social engagements. 'Feelings and Emotions' was the next significant domain, with 15%, indicating anxiety, embarrassment, and decreased self-esteem. (Table 4)

Table 4: Correlation of VQLI with Domains of Daily Life

Domain	Frequency (%)	Mean VQLI ± SD	Median VQLI	P-Value	95% CI	Effect Size
(95% CI)						
Activities of Daily Living	51 (51%)	18.5 ± 3.09	18	0.07	17.63 – 19.37	d = 0.21
Feelings and Emotions	15 (15%)	17.1 ± 3.93	17		14.92 – 19.28	d = 0.17
Future Health Concerns	5 (5%)	15.0 ± 7.28	15		5.96 – 24.04	d = 0.74
Sexual Function	8 (8%)	15.4 ± 2.0	15		13.73 – 17.07	d = 0.63
Symptoms	14 (14%)	18.4 ± 4.9	20	0.17	15.57 – 21.23	d = 0.18
Treatment	7 (7%)	16.6 ± 2.1	18		14.66 – 18.54	d = 0.30

Note: The p-values suggest no statistically significant difference across domains, although Activities of Daily Living had a trend toward significance.

Discussion

This study underscores the significant impact of vulvar dermatoses on women's quality of life, a facet often underappreciated in clinical practice. Our findings reveal that the majority of patients experience moderate impairment, with an average VQLI score of 17.48, aligning with previous studies emphasizing the profound psychosocial and functional burden associated with vulvar skin diseases.

A notable finding in our study was the positive correlation between age and VQLI scores, with women over 50 years experiencing greater impairment. The mean age of participants was 42.8 years, and the majority (31%) were in the 41–50 year age group. This trend highlights that post-menopausal hormonal changes, decreased genital tissue elasticity, and comorbidities may predispose older women to more severe symptoms and psychosocial distress.

In comparison, Singh G et al.⁷ (mean age 34.9 years) and Gokdemir G et al.⁸ (mean age 32.64 years) reported higher prevalence in younger cohorts, suggesting regional differences in healthcare-seeking behaviour and disease awareness. In South Asian societies, sociocultural inhibitions, stigma around genital symptoms and limited gynaecological or dermatological access may delay consultation among older women, thereby amplifying disease severity and its quality-of-life impact.

When we evaluated the patients' demographic statistics, majority were married (84%) and housewives (69%), consistent with the findings of Pathak D et

al.⁹ Educational attainment appeared slightly higher in our population, with 32% completing primary education, unlike Singh G et al.⁷ (42.85%) and Shaik et al.¹⁰ (49.61%) who reported a predominance of illiteracy. This educational difference may reflect regional variability in literacy rates and public health awareness. Education likely equips women with better hygiene practices and symptom recognition, facilitating earlier presentation and potentially reducing disease burden. In contrast, studies from rural and resource-limited areas show delayed care-seeking and higher disease chronicity, reinforcing the influence of social determinants on health outcomes.

In concordance with previous research, vulvar itching was the most common symptom (63%), though our findings contrast with Harlow et al.¹¹ who reported vulvar pain as predominant. The predominance of fungal infections (49%) mirrors the findings of Pathak D et al.⁹ and reflects climatic, cultural and hygienic influences in tropical regions where warm, humid weather, synthetic clothing and prolonged moisture exposure promote infection. Conversely, Western studies such as Cheung et al.¹² reported lichen sclerosis as the most frequent diagnosis, reflecting differences in demographic profiles, possibly genetic and autoimmune predispositions. Inflammatory disorders, including lichen sclerosis (7%), followed infections in frequency in our study.

Pruritus vulvae, observed in 11% of our patients (mostly elderly), was less frequent than in Pathak D et

al.9 (36.2%), where it predominantly affected younger women. Such disparity may be attributed to differences in sample characteristics, environmental exposure or genital hygiene practices. Patients should be advised to avoid irritants, to use unscented soaps and emollients, to wear cotton clothes, and to apply emollients when necessary.

A majority (65%) of our patients had isolated genital involvement, comparable to Shaik et al.¹⁰ (78.8%). However, those with multisite (vaginal, cutaneous, or oral) involvement exhibited higher VQLI scores (21.0), reflecting greater physical limitation and psychological strain. Immunobullous disorders showed the highest impairment (mean VQLI 22.3), consistent with their chronic nature and therapeutic challenges. In contrast, Saunderson et al.⁶ reported the highest impact in vulvodynia (VQLI 20.3), underscoring that while disease types differ regionally, chronic pain and visibility-related distress consistently predict poor quality of life.

These findings highlight the need for region specific management strategies particularly integrated dermatology–psychiatry approaches addressing both medical and emotional wellbeing. The ‘Activities of Daily Living’ domain contributed over half of the total impairment score (51%), illustrating how vulvar discomfort hampers routine tasks such as dressing, sleeping, and social interactions. Furthermore, the ‘Feelings and Emotions’ domain also showed significant impairment (15%), indicating that psychological sequelae like embarrassment, anxiety, and reduced self-esteem are pervasive and warrant appropriate mental health interventions, where as in a study done by Dr. Michelle Wu et al., the highest scoring domains were ‘Sexual activities’ for chronic vulvovaginal candidiasis and ‘Future Healthcare Concerns’ for vulval lichen planus and lichen sclerosus.¹³ In contrary, a web based survey done by Dr.Sydney Rivera et al., USA recruited females with Vulvar and Non Vulvar Inflammatory Dermatoses. Results revealed a correlation between reduced genital self-image and poorer sexual function, quality of life, and overall physical and mental health in patients with vulvar inflammatory dermatoses.¹⁴ Subsequent study by Wijaya M et al., demonstrated that women with untreated vulvar lichen sclerosus experience a marked reduction in quality of life across all VQLI domains.¹⁵

Such cross-cultural variations likely arise from disparities in sexual health literacy, cultural attitudes and access to supportive healthcare services. In conservative societies, sociocultural taboos surrounding genital health may contribute to under reporting of psychological distress and sexual dysfunction. In contrast, populations in Western settings, where sexual health is more open and normalized, tend to report greater impairment in domains related to sexual activity

and genital self-image, underscoring the influence of cultural context on quality of life perceptions.

The utilization of the VQLI in this study highlights its value as a disease-specific measure that captures the nuanced impact of vulvar dermatoses on quality of life. Routine use of the VQLI can aid in the early identification of patients experiencing significant psychosocial distress, enabling timely psychological support and individualized treatment planning. Dermatologists can employ the VQLI at baseline and follow-up visits to monitor therapeutic response and guide counselling. Gynaecologists can integrate it into routine pelvic examinations to identify dermatologic causes of chronic vulvar symptoms, while primary care physicians can use it as a screening tool to prompt early referral and multidisciplinary coordination. The significant impairment observed in daily functioning further underscores the need for comprehensive and collaborative management to optimize holistic care.

This study’s limitations include its single-center design and limited sample size, which may restrict the extrapolation of findings to broader populations. The recruitment of participants from a tertiary care hospital could have introduced selection bias, as individuals seeking specialist care may represent more severe cases. The use of a self-reported questionnaire may be subject to recall bias. The absence of “very severe” cases may indicate referral bias or cultural hesitation to seek medical care until later stages of the condition. Additionally, cultural factors influencing patients’ willingness to disclose symptoms or emotional concerns might have introduced reporting bias. The cross-sectional design precludes assessment of temporal changes or treatment-related improvements in quality of life. Future studies should incorporate multicentre recruitment, larger and more diverse cohorts, and longitudinal follow-up to evaluate intervention outcomes and validate the VQLI across different cultural and clinical settings, and enhance its utility in global context.

Conclusion:

Vulvar dermatoses exert a profound impact on women’s physical, emotional, and psychosocial wellbeing. The Vulvar Quality of Life Index (VQLI) serves as a validated and sensitive tool for quantifying this burden and facilitating individualized patient management. Routine implementation of the VQLI in vulvar clinics may enhance clinical decision-making and promote holistic, patient-centered care. Further multicentric and longitudinal studies are recommended to validate these findings across broader populations and to evaluate quality-of-life changes over time with therapeutic interventions.

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