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Original Research Article

Quality of Life and Disease-Specific Psychosocial Impact in Patients with Vitiligo: A Prospective Observational Study

Shashikanth Patil[1], Sneha Bharathi S. Angadi[2], Vamshikrishna M. G.[3]

[1](MD General Medicine), Senior resident General Medicine, Rajiv Gandhi Super specialty Hospital (OPEC), (A unit of RIMS, Raichur), Raichur, Karnataka, India.

[2](MD Dermatology), Assistant Professor, Raichur Institute of Medical Sciences, Raichur, Karnataka, India

[3] Assistant Professor, Department of Orthopedic (TCC) RIMS, Raichur, Karnataka, India

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Corresponding author: Dr. Shashikanth Patil

Conflict of interest: Nil

Abstract

Background: Vitiligo is a chronic depigmenting disorder that may have little physical morbidity but may affect quality of life. The psychosocial consequences of vitiligo depend not only on the presence of the depigmentation but also on the duration of the disease, clinical activity, social circumstances and individual perception. Generic dermatology quality of life instruments do not adequately address disease-specific issues.

Objective: To evaluate the quality of life and disease-specific psychosocial effect of vitiligo and to correlate with duration of disease, clinical stability and selected demographic and clinical parameters.

Methodology: A prospective observational study was conducted from March 2021 to February 2022 in the dermatology outpatient department of Belagavi Institute of Medical Sciences in 125 consecutive patients in the age group of 18–70 years with a clinical diagnosis of vitiligo. Patients with pre-existing psychiatric disorders, chronic skin disease coexisting, or unwillingness to participate were excluded. Demographic and clinical data were collected. Quality of life was measured by the Dermatology Life Quality Index (DLQI) and vitiligo-specific psychosocial impact was measured by the Vitiligo Impact Scale-22 (VIS-22). Disease stability, duration, clinical type and exposed-site involvement were recorded. Categorical variables were compared using chi-square or Fisher's exact test as appropriate. A p value < 0.05 was considered statistically significant.

Results: The mean age of the study population was 39.65 ± 12.9 years and 65 (52.0%) patients were female. Stable vitiligo was observed in 62 (49.6%) patients and unstable vitiligo in 63 (50.4%) patients. Generalized vitiligo was the most common clinical type of vitiligo, with 55 (44.0%) patients. The mean DLQI was 1.62 ± 2.34 and the mean VIS-22 was 6.28 ± 2.89. Based on the DLQI, 98 (78.4%) patients experienced no impact of vitiligo on their quality of life, 20 (16.0%) experienced a small impact and 7 (5.6%) experienced a moderate impact. VIS-22 found that 62 patients (49.6%) reported no impact and 63 patients (50.4%) reported a small/mild impact. Impairment in quality of life was significantly associated with duration of disease. Among patients with disease duration <6 months, 40.0% had DLQI scores >1; among patients with disease duration 6 months–1 year, 11.1% had DLQI scores >1. DLQI impairment was also greater in unstable disease (p=0.012). No important association was found between quality of life and the other sociodemographic or disease-specific variables reported.

Conclusion: Most patients in this cohort had minimal impairment by DLQI, although about half had some disease-specific psychosocial impact by VIS-22. Impairment of quality of life was especially pronounced in patients with shorter disease duration and unstable disease. Using both generic and vitiligo-specific instruments for assessment may provide a more complete picture of the patient experience.

Keywords: Vitiligo; Quality of Life; DLQI; VIS-22; Psychosocial Burden; Disease Duration; Disease Stability; Dermatology.

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Introduction

Vitiligo is a chronic acquired depigmenting disorder that is characterized by loss of functional melanocytes and development of depigmented macules and patches.[1,2] Although vitiligo generally does not cause significant physical impairment, its visible nature can have major effects on self-perception, social interaction and mental health.[3,4] Thus, quality of life is an

important outcome in the management of vitiligo. Earlier research has shown that patients with vitiligo have differing levels of quality-of-life impairment, depending upon clinical features, social situations, cultural setting and personal view of the disease.[5-7] The psychological impact may be especially relevant in populations where visible skin disorders are associated with stigma or concerns about social and matrimonial acceptance.[8]

The Dermatology Life Quality Index (DLQI) is a commonly utilized tool to assess the impact of dermatological conditions on everyday life. However, a generic dermatology instrument may not include all concerns specific to vitiligo. The Vitiligo Impact Scale-22 (VIS-22) was developed to measure the psychosocial burden of vitiligo, including concerns related to social interaction, embarrassment, treatment, marriage and perceived discrimination.[9] Validation studies have shown the utility of VIS-22 in measuring disease-specific impact in Indian populations.[10]

The association between clinical characteristics and quality of life is complicated. Disease activity may contribute to uncertainty about progression, while patients with newly diagnosed disease may have more concern before adjusting to the condition. Conversely, a longer duration of disease may allow psychological adjustment in some patients. Previous studies have shown conflicting associations between disease duration, disease extent, lesion location and quality of life.[6,7,11] The present study was undertaken to assess quality of life and disease-specific psychosocial impact among patients with vitiligo using DLQI and VIS-22 and to study its relation with disease duration, clinical stability and selected demographic and clinical characteristics.

Objectives

Primary Objective: To evaluate the quality of life and disease-specific psychosocial impact for patients with vitiligo.

Secondary objectives

1. To assess the distribution of DLQI scores in vitiligo patients.
2. To describe the distribution of VIS-22 scores.
3. To compare quality of life impairment in stable versus unstable vitiligo.
4. To study the relation of disease duration to impairment of quality of life.
5. To find out the relationship between quality-of-life measures and demographic characteristics.
6. To evaluate the relationship between quality of life measures and clinical characteristics (e.g. clinical type and exposed-site involvement).

Materials and Methods

Study design and setting: This was a prospective observational study conducted in the Department of Dermatology, Venereology and Leprology at Belagavi Institute of Medical Sciences, Belagavi, and Karnataka, India.

The study was conducted from March 2021 to February 2022.

Study Participants: Patients aged 18–70 years with clinically diagnosed vitiligo attending the dermatology outpatient department were eligible.

Inclusion Criteria

- Age 18–70 years.
- Clinical diagnosis of vitiligo.

Exclusion Criteria

- Pre-existing clinically diagnosed psychiatric disorder.
- Coexisting chronic skin disease.
- Unwillingness to participate.

These criteria were specified in the original study protocol.

Sample Size: The minimum calculated sample size was 123. A total of 125 consecutive patients were included in the final study population.

Ethical Considerations: Institutional Ethics Committee approval was obtained before initiation of the study. Written informed consent was obtained from all participants.

Clinical Assessment: A structured proforma was used to record age, sex, and marital status, age at disease onset, disease duration, family history, treatment history, clinical type and distribution of vitiligo.

Clinical examination was performed to assess the morphology and sites of depigmentation and to categorize patients according to clinical stability.

Disease duration was categorized into:

- <6 months;
- 6 months–1 year; and
- 1 year.

The study population comprised 62 patients with stable disease and 63 with unstable disease.

Dermatology Life Quality Index: The DLQI was used to assess the effect of vitiligo on quality of life. The score ranges from 0 to 30, with higher scores indicating greater impairment.

The categories used were:

DLQI score	Interpretation
0–1	No effect
2–5	Small effect
6–10	Moderate effect
11–20	Very large effect
21–30	Extremely large effect

The thesis used the standard DLQI interpretation for analysis.

Vitiligo Impact Scale-22: The VIS-22 was used to assess vitiligo-specific psychosocial impact. The instrument contains 22 items addressing domains relevant to the experience of vitiligo, including social interaction, embarrassment, treatment concerns, marriage and perceived discrimination.[9,10]

The scoring categories used in the study were:

VIS-22 score	Interpretation
0–5	No impact
6–15	Small/mild impact
16–25	Moderate impact
26–40	Large impact
41–66	Very large impact

Statistical Analysis: Continuous variables were expressed as mean ± standard deviation and categorical variables as frequencies and percentages. Associations between categorical variables were assessed using the chi-square test or Fisher's exact test where appropriate.

Statistical significance was defined as $p<0.05$. Data analysis was performed using SPSS.

Results

Demographic Characteristics: A total of 125 patients were analyzed. The mean age was 39.65 ± 12.9 years.

The largest age category was ≤30 years, comprising 36 (28.8%) patients. There were 60 (48.0%) men and 65 (52.0%) women.

Most participants were married (102; 81.6%). A positive family history of vitiligo was reported in 21 (16.8%) patients.

Table 1: Demographic characteristics of the study population

Variable	n	%
Age group, years		
≤30	36	28.8
31–40	34	27.2
41–50	26	20.8
51–60	19	15.2
61–70	10	8.0
Sex		
Male	60	48.0
Female	65	52.0
Marital status		
Married	102	81.6
Unmarried	23	18.4
Family history		
Positive	21	16.8
Negative	104	83.2

Clinical Characteristics: Generalized vitiligo was the most common clinical type, observed in 55 (44.0%) patients, followed by focal vitiligo in 40 (32.0%), acral vitiligo in 20 (16.0%) and segmental vitiligo in 10 (8.0%). Stable disease was present in 62 (49.6%) and unstable disease in 63 (50.4%). The mean disease duration was 47.2 ± 63.01 months, with a range of 1 month to 30 years. Sixty-three (50.4%) patients had disease duration of 6 months to 1 year.

Table 2: Clinical characteristics

Characteristic	n	%
Clinical type		
Generalized	55	44.0
Focal	40	32.0
Acral	20	16.0
Segmental	10	8.0
Clinical stability		
Stable	62	49.6
Unstable	63	50.4
Disease duration		
<6 months	35	28.0
6 months–1 year	63	50.4
>1 year	27	21.6

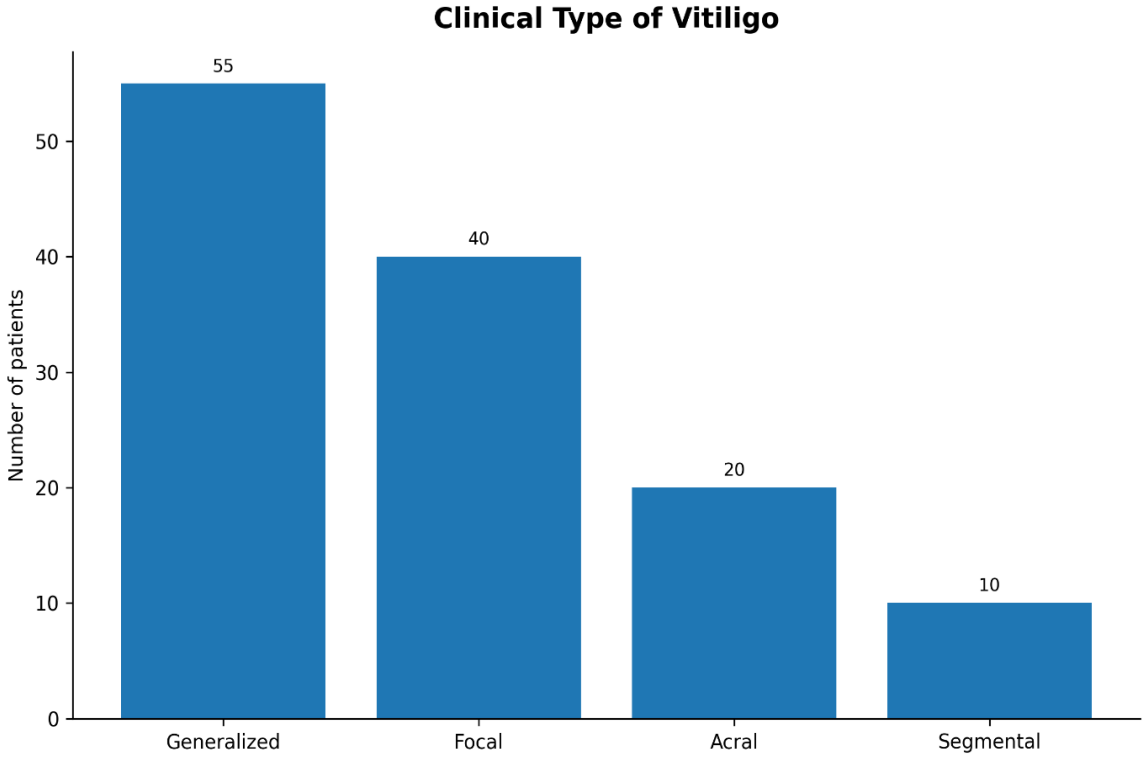

Figure 1: Clinical type of vitiligo

Dermatology Life Quality Index: The mean DLQI score was 1.62 ± 2.34. Most patients had no measurable effect on their quality of life according to the DLQI. Ninety-eight (78.4%) patients had DLQI scores of 0–1, 20 (16.0%) had scores of 2–5 and seven (5.6%) had scores of 6–10. No patient had a DLQI score >10.

Table 3: Distribution of DLQI scores

DLQI category	n	%
No effect (0–1)	98	78.4
Small effect (2–5)	20	16.0
Moderate effect (6–10)	7	5.6
Very large effect (11–20)	0	0
Extremely large effect (21–30)	0	0
Total	**125**	**100**

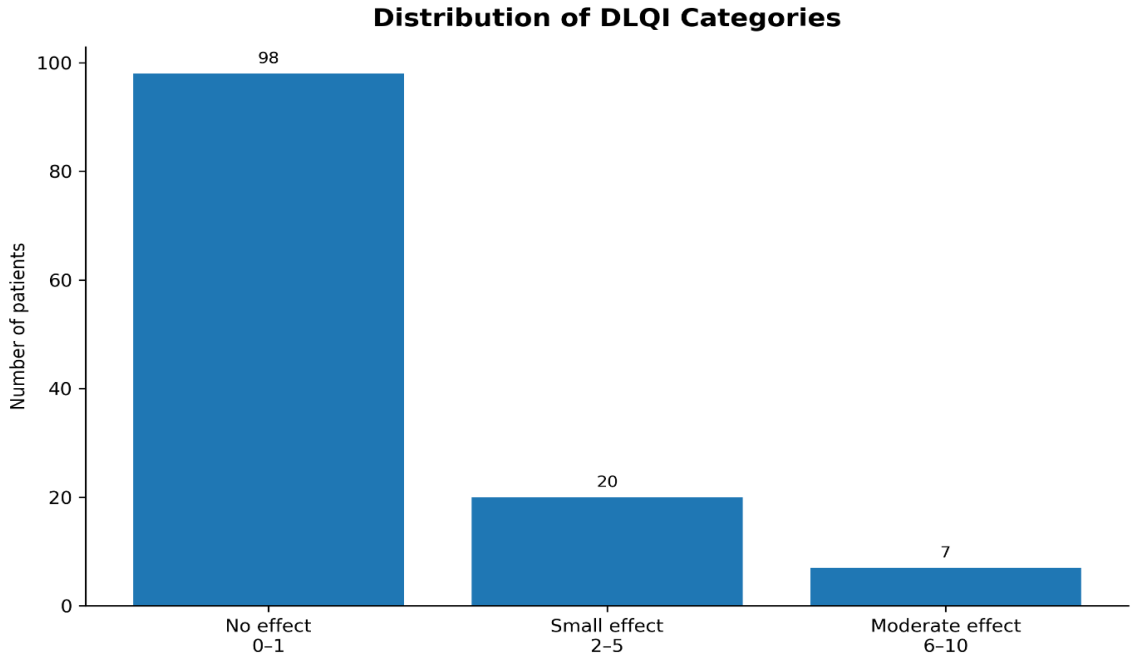

Figure 2: Distribution of DLQI categories

Vitiligo-Specific Psychosocial Impact: The mean VIS-22 score was 6.28 ± 2.89. Sixty-two (49.6%) patients had scores of 0–5, corresponding to no impact, whereas 63 (50.4%) had scores of 6–15, corresponding to small/mild impact.

Table 4: Distribution of VIS-22 scores

VIS-22 category	n	%
No impact (0–5)	62	49.6
Small/mild impact (6–15)	63	50.4
Moderate or greater impact (>15)	0*	0
Total	**125**	**100**

***No patient in the reported results was categorized above the 6–15 range.**

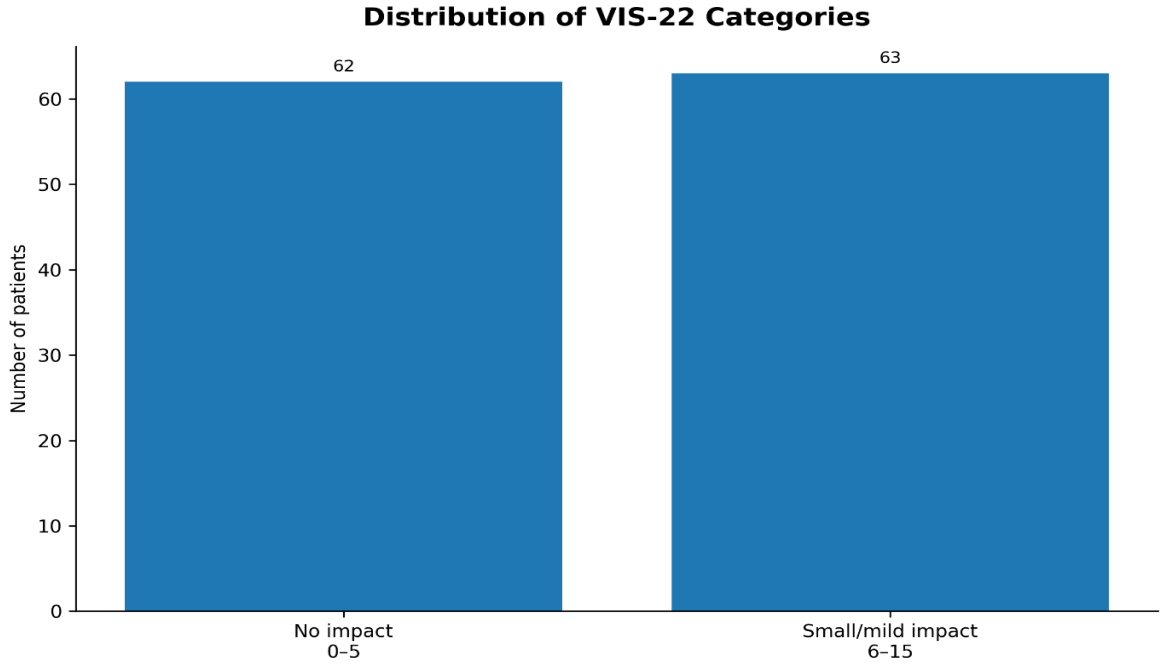

Figure 3: Distribution of VIS-22 Categories

Quality of Life According to Disease Stability: A significant relationship was observed between clinical stability and DLQI.

Among 62 patients with stable vitiligo, 54 (87.0%) had DLQI scores of 0–1, seven (11.0%) had scores of 2–5 and one (2.0%) had a score of 6–10. Among 63 patients with unstable vitiligo, 44 (69.84%) had scores of 0–1, 13 (20.63%) had scores of 2–5 and six (9.5%) had scores of 6–10. The association between disease stability and DLQI was statistically significant (p=0.012).

Table 5: DLQI according to clinical stability

DLQI category	Stable n (%)	Unstable n (%)
0–1	54 (87.0)	44 (69.84)
2–5	7 (11.0)	13 (20.63)
6–10	1 (2.0)	6 (9.5)
Total	**62 (100)**	**63 (100)**

p=0.012

A similar directional difference was observed for VIS-22. Thirty-seven (59.7%) stable patients had VIS-22 scores of 0–5 compared with 25 (39.7%) unstable patients. Conversely, 25 (40.4%) stable and 38 (60.3%) unstable patients had VIS-22 scores of 6–15.

Table 6: VIS-22 according to clinical stability

VIS-22 category	Stable n (%)	Unstable n (%)
0–5	37 (59.7)	25 (39.7)
6–15	25 (40.4)	38 (60.3)
Total	**62 (100)**	**63 (100)**

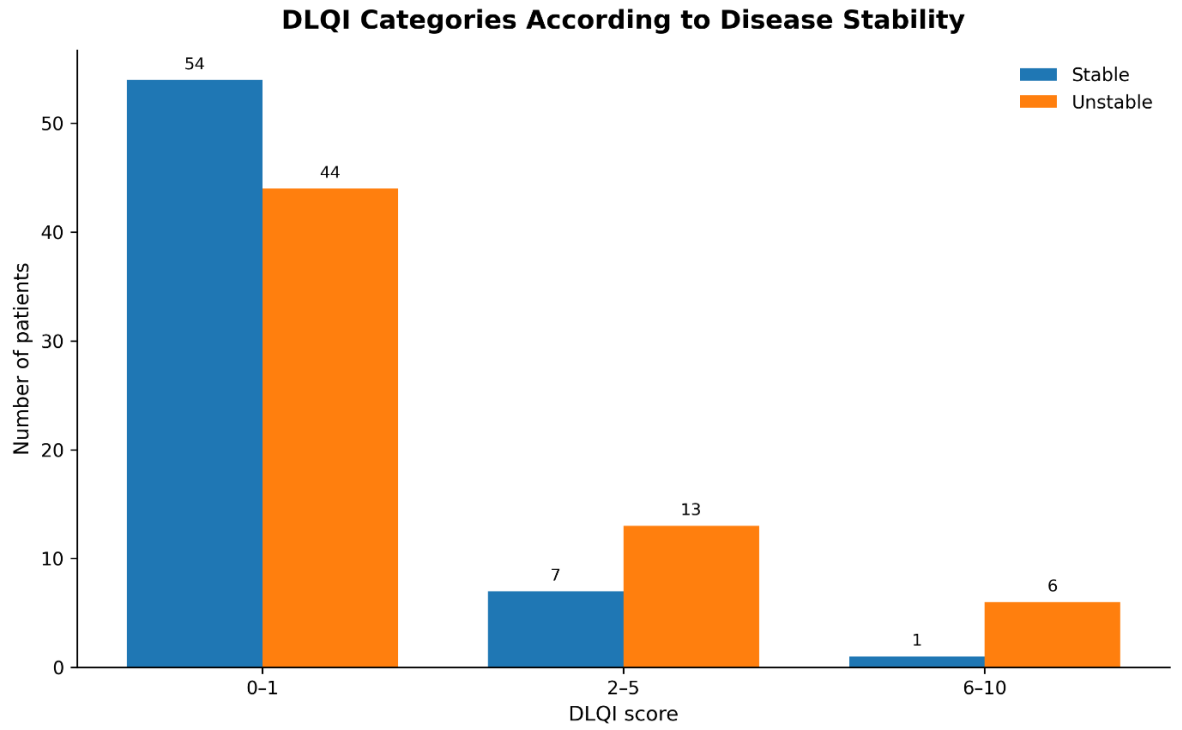

Figure 4: DLQI categories according to disease stability

Quality of Life According to Disease Duration: Disease duration was significantly associated with quality-of-life impact.

Among the 35 patients with disease duration <6 months, 21 (60.0%) had no DLQI impairment, nine (25.71%) had a small effect and five (14.29%) had a moderate effect. Among the 63 patients with disease duration 6 months–1 year, 56 (88.89%) had no effect, six (9.52%) had a small effect and one (1.59%) had a moderate effect. Among the 27 patients with disease duration >1 year, 21 (77.78%) had no effect, five (18.52%) had a small effect and one (3.70%) had a moderate effect.

Table 7: DLQI according to disease duration

DLQI category	<6 months n (%)	6 months–1 year n (%)	>1 year n (%)
0–1	21 (60.0)	56 (88.89)	21 (77.78)
2–5	9 (25.71)	6 (9.52)	5 (18.52)
6–10	5 (14.29)	1 (1.59)	1 (3.70)
Total	**35 (100)**	**63 (100)**	**27 (100)**

The thesis reports a statistically significant association between disease duration and quality-of-life impact.

VIS-22 according to disease duration: The disease-specific impact demonstrated a similar pattern of greater burden in patients with recent disease. Among patients with disease duration <6 months, 11 (31.43%) had VIS-22 scores of 0–5 and 24 (68.57%) had scores of 6–15. Among those with disease duration 6 months–1 year, 41 (65.08%) had scores of 0–5 and 22 (34.92%) had scores of 6–15.

Among patients with disease duration >1 year, 10 (37.04%) had scores of 0–5 and 17 (62.96%) had scores of 6–15.

Table 8: VIS-22 according to disease duration

VIS-22 category	<6 months n (%)	6 months–1 year n (%)	>1 year n (%)
0–5	11 (31.43)	41 (65.08)	10 (37.04)
6–15	24 (68.57)	22 (34.92)	17 (62.96)
Total	**35 (100)**	**63 (100)**	**27 (100)**

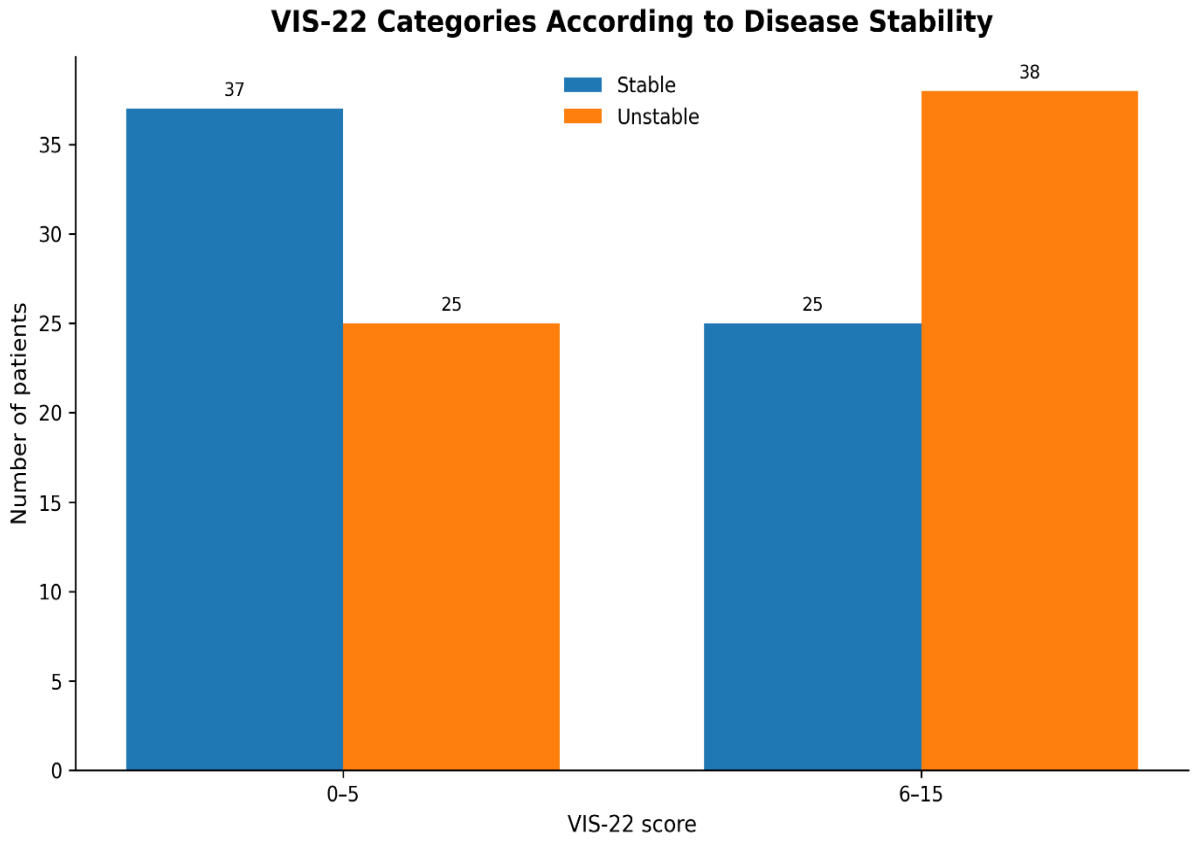

Figure 5: VIS-22 categories according to disease stability

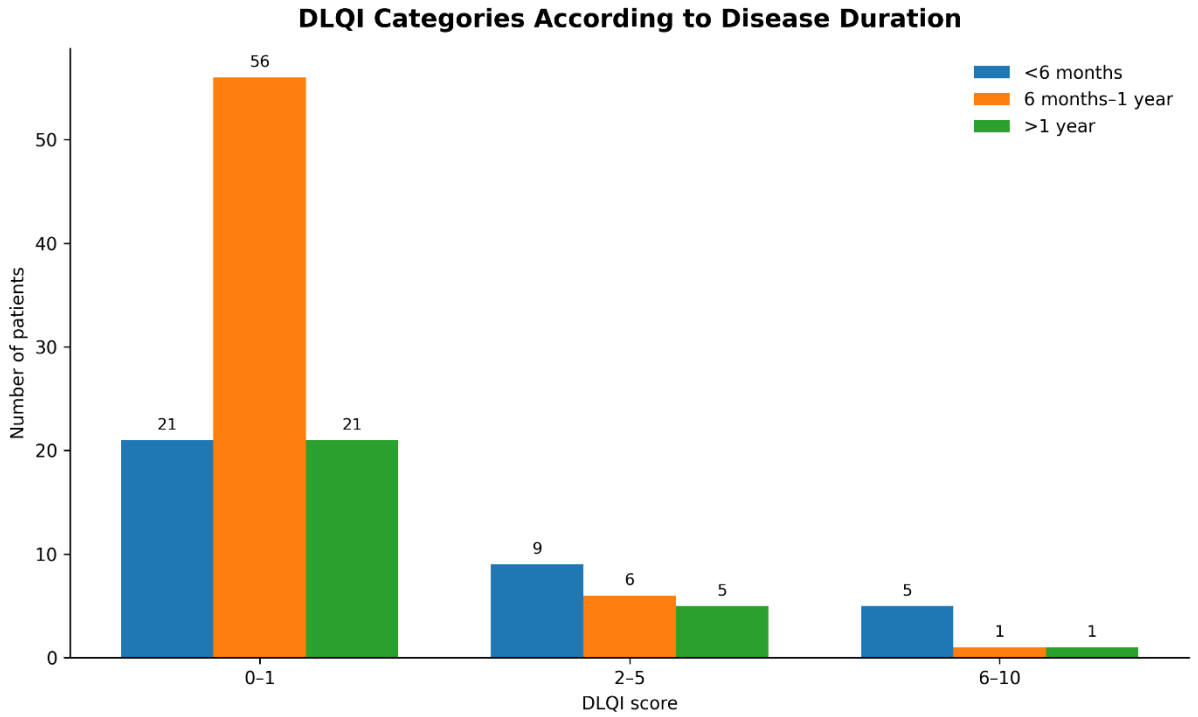

Figure 6: DLQI categories according to disease duration

Quality of Life and Exposed-Site Involvement: The thesis also assessed quality-of-life outcomes according to involvement of exposed body sites.

Among patients with exposed-site involvement, 78 (80.41%) had DLQI scores of 0–1, 14 (14.43%) had scores of 2–5 and five (5.16%) had scores of 6–10. Among those without exposed-site involvement, 20 (71.43%) had scores of 0–1, six (21.43%) had scores of 2–5 and two (7.14%) had scores of 6–10.

For VIS-22, 47 (48.4%) patients with exposed-site involvement and 16 (57.1%) without exposed-site involvement had scores of 6–15.

The thesis did not report a statistically significant association between overall quality of life and the other disease-specific variables evaluated.

Table 9: DLQI according to exposed-site involvement

DLQI category	Exposed-site involvement n (%)	No exposed-site involvement n (%)
0–1	78 (80.41)	20 (71.43)
2–5	14 (14.43)	6 (21.43)
6–10	5 (5.16)	2 (7.14)
Total	**97 (100)**	**28 (100)**

Discussion

This study evaluated the general quality of life related to dermatology and the specific psychosocial impact of vitiligo in 125 patients. The main findings were that the overall DLQI burden was relatively low, about half of patients had some disease-specific impact according to VIS-22 and quality-of-life impairment was significantly associated with disease duration and clinical stability.

Overall impact on quality of life: The mean DLQI in the present study was 1.62 ± 2.34. The 78.4% of participants reported no effect of vitiligo on quality of life by DLQI. This is a relatively low overall burden compared to the wide range of DLQI values reported in different vitiligo populations. Parsad et al. have shown the importance of evaluating patient reported outcome measures independently of the clinical severity of disease and the significant impact of vitiligo on quality of life.[5] Other studies have also shown wide variation in QoL impairment, suggesting that demographic and cultural factors may affect patients' experience of vitiligo.[6,7] The relatively low mean DLQI reported in this study could also be attributed to differences in patient characteristics, disease duration, treatment status and cultural adaptation. Importantly, the low generic DLQI score should not be taken to mean that there is no psychosocial burden.

Difference between DLQI and VIS-22: One major finding was the difference in the two quality-

of-life measures. The effect of vitiligo according to DLQI was none in 78.4% of patients' vs 49.6% according to VIS-22.

These results favour the use of disease-specific assessment in vitiligo. The DLQI measures the broad impact of dermatology on symptoms, daily activities, leisure, work, personal relationships and treatment. In contrast, the VIS-22 addresses issues that may be particularly relevant to patients suffering from vitiligo.[9,10]

VIS-22 was developed to assess the psychosocial burden of vitiligo and has been shown to be applicable in Indian populations. [9,10] The greater proportion of patients with some impact on VIS-22 than on DLQI suggests that disease-specific issues may be present even if daily life is not greatly disrupted overall.

Stability of disease and quality of life: There was a statistically significant association between DLQI and disease stability (p=0.012). Patients with unstable vitiligo were more likely to have some or moderate impairment than patients with stable disease.

This finding is clinically relevant as unstable disease may be associated with ongoing changes in appearance and uncertainty about progression. Active disease can therefore be both a psychological concern and therapeutic challenge.

However, the study design does not allow us to determine whether disease instability is a direct cause of impairment of quality of life. Psychological burden may itself influence perception of disease activity, treatment seeking behavior, and reporting of quality-of-life concerns. One would need longitudinal studies to clarify temporal relationship.

The corresponding VIS-22 analysis was in the same direction, with 60.3% of unstable patients scoring 6–15 compared to 40.4% of stable patients. This supports the view that disease stability is important for generic as well as disease-specific patient-reported outcomes.

Quality of life and duration of illness: The duration of the disease was significantly associated with the impairment of quality-of-life. The highest proportion of DLQI impairment (40% with scores >1) was seen in patients with disease duration <6 months. With VIS-22 scores of 6-15 (68.57%) being the highest. These findings suggest that the period shortly after onset of disease may be a period of psychosocial vulnerability. There are a number of possible explanations for this. Patients newly diagnosed may feel uncertain about diagnosis, prognosis, progression and treatment. Concerns about appearance may also be more salient before adaptation. Furthermore, patients with new disease might be more likely to seek medical care because of distress from newly occurring lesions.

Alternatively, patients with longer disease duration may have developed ways to cope or adapted to their appearance. These explanations cannot be verified by the present observational study, and should therefore be considered as hypotheses for future studies.

Site involvement: Visible lesions are generally thought to have more psychosocial consequences because they are easily seen by others. The present study, however, did not show a clear statistically significant association between exposed-site involvement and quality-of-life measures.

This finding supports the idea that the psychosocial burden in vitiligo is multidimensional. Objective visibility of the lesion may be important, but the impact of visible disease may be modified by individual perception, stigma, social support, cultural expectations and coping mechanisms. [6,8]

Clinicians should therefore not estimate psychosocial burden from an anatomical distribution alone.

Comparison with earlier Indian studies: The Indian literature shows considerable variation in quality-of-life outcomes in patients with vitiligo. Mishra et al. reported dermatology-specific QoL impairment in a hospital-based population and emphasized the influence of clinical and demographic variables.[6] Sangma et al., in a teaching hospital population from Northeast India, reported both quality-of-life impairment and psychological morbidity among patients with vitiligo.[17]

The relatively modest DLQI burden in the present study may reflect differences in patient population, disease characteristics, measurement instruments and sociocultural environment. These differences reinforce the need for locally relevant assessment rather than assuming that psychosocial burden is uniform across populations.

Clinical significance: The findings suggest that quality-of-life assessment can provide information that is not readily apparent from routine clinical examination. In particular, patients with recently diagnosed and clinically unstable disease may warrant greater attention to psychosocial concerns.

A combined approach using DLQI and VIS-22 may be particularly useful. DLQI provides a broad measure of dermatology-related quality of life, whereas VIS-22 identifies concerns specific to living with vitiligo.

Strengths: Strengths of this study include:

1. Consecutive patients recruited prospectively.

2. Both stable and unstable Vitiligo.
3. Measurement of generic and disease-specific quality of life.
4. Application of a vitiligo-specific instrument validated in Indian population.[10]
5. Assessment of disease duration, clinical type and exposed-site involvement.
6. Standardized patient-reported outcome measures collected.

Limitations

The following limitations are to be acknowledged.

- First, this was a single-center study in a tertiary-care dermatology setting; therefore, the findings may not be generalizable to all vitiligo patients.
- Secondly, the sample size was comparatively small, especially after sub-division according to disease duration and clinical type.
- Third, the design of the observation allows us to identify associations but not to establish causality.
- Fourth, quality of life was assessed by patient-reported questionnaires and thus may be impacted by individual perception, coping style and social circumstances.
- Fifth, the study had no healthy control group or patients with other chronic dermatological disorders.
- Sixth, although a variety of clinical and demographic variables were assessed, the analysis available did not include a multivariable regression analysis to identify independent predictors of QoL impairment.
- Finally, the study was carried out over a defined one-year period and longitudinal changes in DLQI or VIS-22 could not be assessed.

Conclusion

This prospective observational study shows that the psychosocial impact of vitiligo cannot be fully captured by a generic dermatology quality-of-life instrument alone. Most patients had little impairment according to DLQI but approximately half demonstrated some vitiligo-specific impact on VIS-22. The quality-of-life burden was associated with disease duration and clinical stability. Patients with disease duration <6 months had the highest proportion of DLQI and VIS-22 impairment, while unstable vitiligo was associated with significantly greater DLQI impairment than stable disease.

Results support the incorporation of patient-reported quality-of-life assessment in routine vitiligo care. Both DLQI and VIS-22 might provide a more complete assessment of the patients' experience and may help clinicians to identify those individuals who require additional psychosocial support.

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