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QUALITY OF LIFE IN PATIENTS WITH VITILIGO PRESENTING TO TERTIARY CARE HOSPITAL

Original Research

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ABSTRACT

Background: Vitiligo is a chronic depigmenting skin disorder characterized by the loss of melanocytes, resulting in progressive white patches that often carry psychological and social consequences. Although it poses no direct physical harm, vitiligo can significantly impair the quality of life (QoL), particularly when lesions are located on visible areas of the body. The emotional toll is often under-recognized, especially in resource-limited settings where psychosocial support may be lacking.

Objective: To evaluate the quality of life (QoL) in patients with vitiligo presenting to a tertiary care hospital.

Methods: This cross-sectional study was conducted at the Department of Dermatology, Khyber Teaching Hospital, Peshawar, from 11-August 2024 to 11-February 2025. A total of 95 patients aged 18 to 65 years with clinically diagnosed vitiligo were enrolled using non-probability consecutive sampling. Quality of life was assessed using the validated Dermatology Life Quality Index (DLQI). Demographic and clinical variables were documented through a structured proforma. Statistical analysis was performed using SPSS version 23. Frequencies, percentages, and means with standard deviations were calculated. Chi-square tests were applied to determine associations between QoL and independent variables, with significance set at $p < 0.05$.

Results: Among 95 participants, 35 (36.8%) were male and 60 (63.2%) female, with a mean age of 31.88 ± 12.04 years. Mean disease duration was 5.76 ± 1.46 years. DLQI scores revealed that 9 (9.5%) experienced no effect, 19 (20.0%) had a small effect, 25 (26.3%) a moderate effect, 31 (32.6%) a very large effect, and 11 (11.6%) an extremely large effect. Statistically significant associations were observed between QoL impairment and younger age ($p = 0.01$), female gender ($p = 0.03$), longer disease duration ($p = 0.04$), and involvement of exposed body sites ($p = 0.0001$).

Conclusion: Vitiligo significantly impairs quality of life, especially in young adults, females, and individuals with lesions on exposed areas. Integrating psychological support into dermatological care is essential for comprehensive management.

Keywords: Dermatology Life Quality Index, Psychological Impact, Quality of Life, Tertiary Care Hospital, Vitiligo, Skin Diseases, Stress Psychological.

INTRODUCTION

Vitiligo is a chronic dermatological condition characterized by the progressive loss of melanocytes, leading to well-demarcated depigmented patches on the skin due to a decline in melanin production (1). In recent years, considerable advancements have been made in understanding its complex pathophysiology. Once considered a purely cosmetic issue, vitiligo is now recognized as an autoimmune disease intricately linked with metabolic dysfunctions, oxidative stress, and cellular detachment mechanisms, compounded by environmental and genetic predispositions (2,3). These insights have shifted the narrative around vitiligo, highlighting its multifaceted biological underpinnings and challenging the misconception that it is a harmless skin anomaly. Despite its non-contagious nature, vitiligo can be emotionally and psychologically distressing, with profound impacts on patients' social lives and mental well-being (4). The visible alteration in skin pigmentation often subjects individuals to public scrutiny and societal stigma, which can severely affect their self-image. Skin color holds deep cultural and personal significance, and any pathological changes can undermine an individual's confidence, potentially leading to social withdrawal, low self-esteem, and even psychiatric comorbidities such as depression and anxiety (5,6). The lifelong and unpredictable nature of vitiligo further compounds these psychological burdens, especially in the absence of a definitive and universally effective treatment (7).

The psychosocial dimensions of vitiligo have gained increasing attention in recent literature. Studies suggest that a substantial proportion of patients with vitiligo experience diminished quality of life, with depression prevalence reported as high as 20% (8). One investigation highlighted varying degrees of quality-of-life impairment among patients: 28.24% reported a small effect, 31.76% experienced a moderate impact, 34.12% endured a very large effect, and 4.12% suffered from an extremely large effect on their daily functioning (9). These statistics underscore the pressing need for healthcare systems to address not only the physical but also the emotional aspects of this condition. However, in many low- and middle-income regions, there remains a notable gap in localized data on how vitiligo affects patients' quality of life. This limits the development of culturally appropriate and patient-centered care strategies (10). Given this context, the present study aims to assess the quality of life in patients with vitiligo presenting to a tertiary care hospital. Understanding their lived experiences through clinical inquiry can offer valuable insights into their coping mechanisms and help formulate targeted psychosocial and therapeutic interventions to improve their overall well-being and health-related outcomes.

METHODS

This descriptive cross-sectional study was carried out in the Department of Dermatology at Khyber Teaching Hospital, Peshawar, over a six-month period from 11th August 2024 to 11th February 2025. The aim was to assess the quality of life among patients with vitiligo. A total sample size of 95 participants was estimated using the OpenEpi sample size calculator. The calculation was based on an anticipated proportion of 4.12% (5,10), which represents the subgroup of vitiligo patients experiencing an “extremely large effect” on quality of life, as reported in previous literature. Although this figure reflects the most severely impacted category rather than the overall disease prevalence, it was deliberately selected to ensure adequate representation of patients at the most critical end of the psychosocial spectrum. This choice, while potentially underestimating the broader prevalence, allowed focused analysis on quality-of-life impairment, which was the core objective of the study. The margin of error was set at 4%, with a 95% confidence interval. Participants were enrolled through a non-probability consecutive sampling technique to allow the inclusion of all eligible individuals attending the dermatology outpatient clinic during the defined study period. Eligibility criteria included adult patients aged between 18 and 65 years who were clinically diagnosed with vitiligo, confirmed through Wood’s lamp examination by a trained dermatologist. Patients with pre-existing psychiatric illnesses, family history of mental disorders, or chronic comorbid conditions such as renal or hepatic diseases were excluded to reduce confounding effects on psychological assessment and quality-of-life interpretation (11). Prior to participation, each patient was informed about the nature and scope of the research, and written informed consent was obtained in accordance with the Declaration of Helsinki. The study protocol was reviewed and approved by the Institutional Review Board of Khyber Teaching Hospital, ensuring adherence to ethical standards governing clinical research.

Data collection was conducted using a structured proforma that included patient demographics, clinical characteristics, and disease duration. The Dermatology Life Quality Index (DLQI) was used as the principal instrument to assess quality of life. This validated questionnaire comprises 10 items addressing emotional, physical, and social dimensions affected by dermatological conditions, with scores ranging from 0 to 30. Higher scores indicated more significant impairment. The questionnaire was administered face-to-face by a board-certified dermatologist with over five years of clinical experience to minimize response bias and ensure consistency in evaluation. Statistical analysis was performed using SPSS version 23. Continuous variables such as age and duration of illness were expressed as means with standard deviations. Categorical variables including gender, lesion distribution, and DLQI score categories were presented as frequencies and percentages. Stratification was applied to control for effect modifiers such as age, gender, and duration of disease. Post-stratification associations were tested using the chi-square test, with a p-value of less than 0.05 considered statistically significant.

RESULTS

The study included a total of 95 patients with vitiligo, with a mean age of 31.88 ± 12.04 years and a mean disease duration of 5.76 ± 1.46 years. Among these, 35 participants (36.8%) were male and 60 (63.2%) were female. In terms of marital status, 44 patients (46.3%) were single while 51 (53.7%) were married. Employment status was almost evenly distributed, with 46 (48.4%) employed and 49 (51.6%) unemployed. Regarding educational background, 41 (43.2%) were literate while 54 (56.8%) were illiterate. Most participants belonged to the middle socio-economic class (52.6%), followed by the lower class (33.7%) and upper class (13.7%). The residential distribution showed a slight predominance of urban residents (51.6%) compared to rural (48.4%). Assessment of vitiligo involvement revealed that 52 patients (54.7%) had lesions on exposed body areas, while 43 (45.3%) had them on unexposed regions. Regarding the impact on quality of life, 9 patients (9.5%) experienced no effect, 19 (20.0%) reported a small effect, 25 (26.3%) had a moderate effect, 31 (32.6%) reported a very large effect, and 11 (11.6%) experienced an extremely large impact. Stratification by age revealed that among 63 participants aged 18 to 30 years, the majority of quality-of-life impairments were observed in this younger group: 8 (88.9%) reported no effect, 10 (52.6%) reported a small effect, 13 (52.0%) had a moderate effect, 23 (74.2%) experienced a very large effect, and 9 (81.8%) experienced an extremely large effect. These differences were statistically significant (P = 0.01). In relation to disease duration, out of 35 patients (36.8%) with vitiligo lasting 3 to 5 years, 5 (55.6%) experienced no effect, 12 (63.2%) had a small effect, 7 (28.0%) reported a moderate effect, 8 (25.8%) experienced a very large effect, and 3 (27.3%) reported an extremely large effect. The association between disease duration and quality-of-life impact was statistically significant (P = 0.04). Gender-wise comparison indicated that among males, 6 (66.7%) reported no effect, 10 (52.6%) had a small effect, 10 (40.0%) experienced a moderate effect, 6 (19.4%) had a very large effect, and 3 (27.3%) experienced an extremely large effect.

These gender-based differences were statistically significant (P = 0.03). Site of vitiligo involvement had a pronounced association with quality of life. Among the 52 patients with exposed lesions, 2 (22.2%) experienced no effect, 4 (21.1%) had a small effect, 14 (56.0%) reported a moderate effect, 24 (77.4%) experienced a very large effect, and 8 (72.7%) reported an extremely large effect. This association was highly significant (P = 0.0001). Additional analysis of quality-of-life impairment across socio-demographic parameters revealed important trends. Among socio-economic groups, participants from the middle class experienced the most significant burden, with 15 individuals reporting a very large effect and 8 reporting an extremely large effect. Similarly, individuals from the lower economic class also showed considerable impact, with 11 participants experiencing a very large effect and 1 an extremely large effect, suggesting that economic constraints may exacerbate the psychosocial consequences of vitiligo. Educational status was also associated with differential outcomes; illiterate individuals reported higher levels of quality-of-life impairment, including 18 with a very large effect and 7 with an extremely large effect, compared to literate individuals, who reported 13 and 4 in the same categories respectively. In terms of residential background, rural participants demonstrated slightly higher levels of severe quality-of-life impact, with 16 reporting a very large effect and 6 an extremely large effect, compared to urban participants with 15 and 5 respectively. These findings suggest that lower socio-economic status, illiteracy, and rural residence may be linked with greater psychosocial burden in vitiligo patients and warrant further targeted support.

Table 1: Basic demographic details

Demographics		Frequency	Percentage
Gender	Male	35	36.8%
	Female	60	63.2%
Marital status	Single	44	46.3%
	Married	51	53.7%
Employment status	Employed	46	48.4%

Demographics		**Frequency**	**Percentage**
	Unemployed	49	51.6%
Education status	Literate	41	43.2%
	Illiterate	54	56.8%
Economic background	Upper-Class > 100000 Rs/Month	13	13.7%
	Middle-Class > 50000 Rs/Month	50	52.6%
	Lower Class < 50000 Rs/Month	32	33.7%
Residence area	Urban	49	51.6%
	Rural	46	48.4%

Table 2: Quality of life assessment

Quality of life	**Frequency**	**Percent**
No effect	9	9.5
Small effect	19	20.0
Moderate effect	25	26.3
Very large effect	31	32.6
Extremely large effect	11	11.6
Total	95	100.0

Table 3: Association between age and quality of life

		Age distribution (Years)			**Total**	**P value**
		18 to 30	**31 to 45**	**> 45**		
Quality of life	No effect	8	0	1	9	0.01
		88.9%	0.0%	11.1%	100.0%	
	Small effect	10	2	7	19	
		52.6%	10.5%	36.8%	100.0%	
	Moderate effect	13	8	4	25	
		52.0%	32.0%	16.0%	100.0%	
	Very large effect	23	7	1	31	
		74.2%	22.6%	3.2%	100.0%	
	Extremely large effect	9	2	0	11	
		81.8%	18.2%	0.0%	100.0%	
Total		63	19	13	95	
		66.3%	20.0%	13.7%	100.0%	

Table 4: Association between disease duration and quality of life

		Disease duration (Years)		**Total**	**P value**
		3 to 5	**> 5**		
Quality of life	No effect	5	4	9	0.04
		55.6%	44.4%	100.0%	
	Small effect	12	7	19	
		63.2%	36.8%	100.0%	
	Moderate effect	7	18	25	
		28.0%	72.0%	100.0%	
	Very large effect	8	23	31	

		Disease duration (Years)		**Total**	**P value**
		3 to 5	**> 5**		
		25.8%	74.2%	100.0%	
	Extremely large effect	3	8	11	
		27.3%	72.7%	100.0%	
Total		35	60	95	
		36.8%	63.2%	100.0%	

Table 5: Association between gender and quality of life

		Gender		**Total**	**P value**
		Male	**Female**		
Quality of life	No effect	6	3	9	0.03
		66.7%	33.3%	100.0%	
	Small effect	10	9	19	
		52.6%	47.4%	100.0%	
	Moderate effect	10	15	25	
		40.0%	60.0%	100.0%	
	Very large effect	6	25	31	
		19.4%	80.6%	100.0%	
	Extremely large effect	3	8	11	
		27.3%	72.7%	100.0%	
Total		35	60	95	
		36.8%	63.2%	100.0%	

Table 6: Association between involvement site and quality of life

		Involvement site		**Total**	**P value**
		Exposed	**Unexposed**		
Quality of life	No effect	2	7	9	0.0001
		22.2%	77.8%	100.0%	
	Small effect	4	15	19	
		21.1%	78.9%	100.0%	
	Moderate effect	14	11	25	
		56.0%	44.0%	100.0%	
	Very large effect	24	7	31	
		77.4%	22.6%	100.0%	
	Extremely large effect	8	3	11	
		72.7%	27.3%	100.0%	
Total		52	43	95	
		54.7%	45.3%	100.0%	

Table 7: Demographic Characteristics vs Quality of Life Impact

Type	**Category**	**Extremely large effect**	**Moderate effect**	**No effect**	**Small effect**	**Very large effect**
Education Status	Illiterate	7	13	4	12	18
	Literate	4	12	5	7	13
Residential Area	Rural	6	11	3	10	16
	Urban	5	14	6	9	15
Socioeconomic Class	Lower	1	10	3	7	11

Type	Category	Extremely large effect	Moderate effect	No effect	Small effect	Very large effect
	Middle	8	12	5	10	15
	Upper	2	3	1	2	5

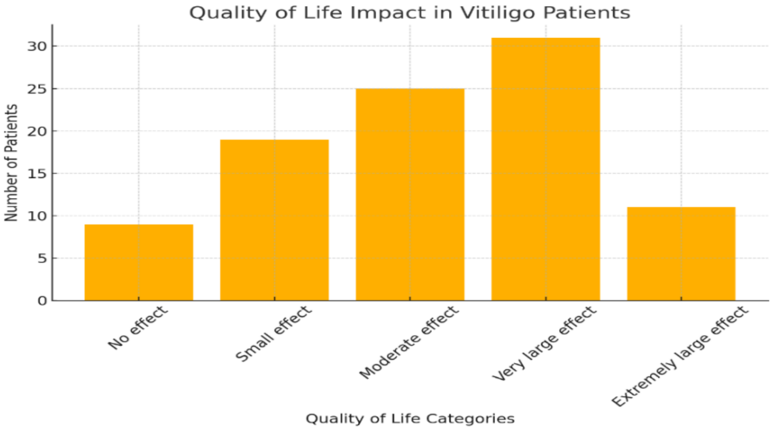

Figure 1 Quality of life Impact in Vitiligo Patients

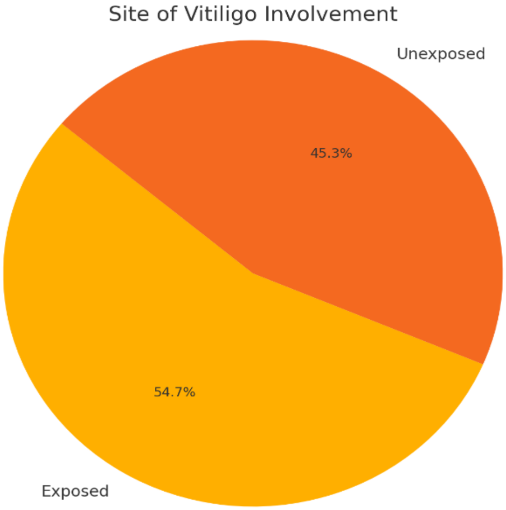

Figure 2 Site of Vitiligo Involvement

DISCUSSION

The present study revealed that the mean age of participants was 31.88 ± 12.04 years, with the average duration of vitiligo being 5.76 ± 1.46 years. These findings are in line with earlier studies suggesting that vitiligo most commonly manifests in early adulthood, particularly between the ages of 20 and 30 years (12). This stage of life coincides with critical periods of social, academic, and professional development, which may amplify the emotional and psychological burden associated with the disease. The chronic nature of vitiligo, coupled with its visible and unpredictable progression, adds to the distress, often resulting in long-term psychological implications for patients (13). These aspects underline the importance of psychosocial support in addition to dermatological care, particularly for young adults diagnosed with the condition. Gender differences in quality-of-life outcomes were clearly observable. A higher proportion of females reported impaired quality of life, a trend supported by previous research (14,15). Cultural and societal expectations related to appearance often place a disproportionate psychological burden on women, particularly in contexts where physical appearance is closely linked with self-worth and social acceptance. In conservative societies, such as Pakistan, this burden is further compounded by social stigmatization and limited coping resources, contributing to deeper emotional distress in affected females. The location of vitiligo lesions was another critical determinant of psychological wellbeing (16). Patients with lesions on exposed areas of the body experienced significantly greater impairment in quality of life. This aligns with existing literature, which consistently indicates that visibility of lesions correlates with increased psychosocial challenges, including stigma, discrimination, and reduced social participation (17). In sociocultural settings where body shaming and aesthetic judgments are prevalent, individuals with visibly affected skin are more vulnerable to isolation and self-consciousness, which directly impacts their emotional and functional wellbeing.

Disease duration was also associated with differential quality-of-life outcomes. Patients with longer-standing vitiligo, particularly beyond five years, reported a higher degree of psychological impairment. Although longer duration might allow time for the development of coping strategies in some cases, it may also signify persistent disease with unsatisfactory treatment response, leading to frustration, hopelessness, and emotional exhaustion. Previous research has similarly indicated that patients living with vitiligo for over five years tend to report higher levels of emotional burden and social withdrawal (18). While the initial diagnosis phase is often marked by acute emotional distress, prolonged exposure to societal stigma and lack of therapeutic breakthroughs can perpetuate this burden. Age-stratified analysis highlighted that, younger individuals, particularly those aged 18 to 30 years, experienced more profound effects on quality of life compared to older groups. This observation resonates with earlier studies that emphasized the greater psychological vulnerability of younger individuals to vitiligo (19). During early adulthood, concerns regarding self-image, peer acceptance, and social performance are heightened, making dermatological conditions more disruptive. The pressures of building careers, relationships, and academic success may exacerbate the psychological toll of visible skin disorders during this critical life stage.

Beyond these clinical and demographic factors, this study further explored the influence of educational background, socioeconomic status, and residential area on quality-of-life outcomes. Findings indicated that illiterate individuals, those from lower socioeconomic backgrounds, and rural residents experienced greater psychological burden. These findings suggest the role of health literacy, access to healthcare resources, and social support systems in shaping the lived experience of vitiligo. Lower education may limit understanding and acceptance of the disease, while poverty and geographical isolation can restrict access to both medical and psychological support services (20). This study's strengths include its use of a validated quality-of-life assessment tool (DLQI), structured data collection by experienced clinicians, and a focus on a tertiary-care patient population, which increases the reliability of clinical diagnosis and data consistency. However, limitations exist. The cross-sectional nature of the study restricts causal interpretations, and the use of non-probability sampling may limit generalizability to the wider vitiligo population. Additionally, psychosocial variables such as anxiety, depression, and coping mechanisms were not formally assessed using standardized psychiatric tools, which could have added more depth to the psychological profiling of participants. Future research should consider longitudinal designs to track the evolving psychosocial burden of vitiligo over time and integrate psychiatric evaluations to capture co-existing mental health disorders. Interventional studies focusing on psychological counseling, support group engagement, and public awareness campaigns are also warranted. Emphasis should be placed on developing culturally sensitive, community-based mental health programs to address the unique needs of vulnerable subgroups, particularly young adults, females, and those from disadvantaged backgrounds. In conclusion, this study reinforces that vitiligo extends far beyond a skin-deep issue, profoundly affecting emotional, social, and psychological well-being. A multidisciplinary, patient-centered approach that addresses both medical and psychosocial domains is essential to improve quality of life and long-term outcomes for individuals living with vitiligo.

CONCLUSION

In conclusion, this study highlights the profound impact vitiligo has on the quality of life of affected individuals, particularly among young adults, females, and those with lesions on visible body parts. The findings emphasize that vitiligo is not merely a cosmetic concern but a condition with significant psychological and social consequences. Addressing these challenges requires a comprehensive and empathetic treatment approach that goes beyond dermatological care to include psychological support and community awareness. By recognizing the multifaceted burden of vitiligo, healthcare professionals can develop more holistic strategies to improve patient well-being and promote inclusive care tailored to the needs of those most affected.

Author Contribution

Author	**Contribution**
Fareeha Azmat*	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Mehran Khan	Substantial Contribution to study design, interpretation of Data Critical Review Has given Final Approval of the version to be published
Irfan Ullah Afridi	Review of literature, and Input
Soaiba Naeem	Review of literature
Hajira Amin	Review of literature
Sara Pervez	Review of literature

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