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The Relationship Between the Severity of Vitiligo, Measured by the Vitiligo Area Scoring Index (VASI), and the Dermatology Life Quality Index (DLQI)

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Abstract

Vitiligo is a pigmentation disorder characterized by hypopigmented macules resulting from the chronic and progressive loss of epidermal melanocyte function. This condition creates a stark contrast between depigmented and normal skin, which can be distressing for patients, particularly from a cosmetic perspective. Consequently, individuals with vitiligo often face stigmatization and psychosocial challenges, making them more susceptible to depression, anxiety, and stress. The treatment of vitiligo should also address its emotional impact, ultimately facilitating better adaptation to the disease and improving the patient's quality of life. This study examines the relationship between vitiligo severity, measured using the Vitiligo Area Scoring Index (VASI), and the Dermatology Life Quality Index (DLQI). It employs an analytical cross-sectional approach involving 66 vitiligo patients treated at Bali Mandara General Hospital. Primary data were collected through clinical assessments of VASI scores, followed by completing the validated and reliable DLQI questionnaire. The results indicate that the degree of depigmentation in vitiligo (VASI) has a strong impact on patients' quality of life (DLQI). Further research is needed to assess changes in DLQI after vitiligo patients undergo phototherapy or topical treatment, as well as to identify other factors beyond VASI that influence DLQI.

Keywords: Vitiligo, Quality of Life, VASI.

INTRODUCTION

There are various causes of white patches appearing on the skin, one of which is vitiligo. Vitiligo is a depigmenting skin disorder characterized by white patches due to the progressive destruction of melanocytes (1,2). The causes of this destruction are multifactorial, including genetic predisposition, autoimmunity, and environmental factors (3). Vitiligo is relatively common, with a global prevalence of approximately 0.5%–2%. In Bali, based on data from the Dermatology and Venereology Clinic of Bali Mandara General Hospital in 2021–2022, there were 20 new cases of vitiligo (4). Several studies have shown no specific ethnic or gender predilection for vitiligo (5). The onset of vitiligo typically occurs in childhood or early adulthood, with about half to one-third of cases appearing before the age of 20, one-quarter of cases occurring before the age of 8, and an average onset of 4 to 5 years. Vitiligo patients are strongly advised to use sunscreen to prevent severe sunburn (6).

Currently, several scoring systems are available for assessing vitiligo, including the Vitiligo Area Scoring Index (VASI), the Vitiligo Disease Activity Score (VIDA), and the Vitiligo Extent Tensity Index (VETI). These scoring systems evaluate lesion area, disease activity, and residual pigmentation. The VASI score is a standardized and sensitive method for measuring the degree and percentage of depigmentation and repigmentation. It is considered the most effective and easily applicable method for assessing pigmentation lesions and measuring vitiligo extent and severity, both clinically and in research and clinical trials. Using the VASI score allows for the evaluation of vitiligo treatment outcomes (7).

Quality of life is an individual's perceived state of well-being within the context of their cultural and value systems, en-

compassing physical, social, and psychological health. Quality of life can be assessed using the Dermatology Life Quality Index (DLQI), a questionnaire consisting of ten items related to skin conditions. These questions cover disease symptoms, patient feelings, daily activities, recreation, work, school, personal relationships, and treatment. The DLQI questionnaire is designed for adults aged 18 and older. The questions are straightforward, require minimal time to complete, and can be filled out by patients without the need for detailed explanations (8).

Vitiligo treatment should also address the emotional impact of the disease, ultimately facilitating better adaptation and improving the patient's quality of life (9). Given the visible nature of vitiligo and its potential impact on various aspects of a patient's life, this study aims to investigate the relationship between the objective measure of disease severity (VASI) and the subjective experience of quality of life (DLQI) in vitiligo patients.

METHOD

This analytical observational study with a cross-sectional design was conducted at the Dermatology and Venereology Clinic of Bali Mandara General Hospital from August to October 2023. Spearman's rank test was used to analyze the correlation between VASI and DLQI. Primary data were collected through clinical assessments of vitiligo patients using the Vitiligo Area Scoring Index (VASI), followed by the completion of the validated and reliable Dermatology Life Quality Index (DLQI) questionnaire.

The target population of this study comprised all vitiligo patients receiving treatment at the Dermatology and Venereology Clinic of Bali Mandara General Hospital. The accessible population included all vitiligo patients who underwent treatment at the same clinic. The sample was selected using a consecutive sampling technique, totalling 72 participants. The inclusion criteria were vitiligo patients aged over 18 years who were receiving regular treatment at the Dermatology and Venereology Clinic of Bali Mandara General Hospital and had provided informed consent to participate in the study. Patients with hemodynamically unstable conditions were excluded from the study.

VASI score, a standardized and sensitive method for measuring the degree and percentage of depigmentation and repigmentation. The VASI score for assessing vitiligo severity was calculated using the formula:

$$VASI = \sum(hu \times ds)$$

where hu is hand units dan in the dementation score.

The body was divided into six regions: hands, upper limbs (excluding hands), trunk, lower limbs (excluding feet), feet, and head-neck. The axillary folds were included in the upper limbs, while the groin and buttocks were categorized under the lower limbs. One hand unit, which includes the palm and the volar surface of the fingers, was estimated to represent 1% of the total body surface area. The degree of depigmentation was assessed based on lesion appearance and categorized into 0%, 10%, 25%, 50%, 75%, 90%, and 100%. The severity of vitiligo was classified into three categories: mild (VASI score <5), moderate (VASI score 5–10), and severe (VASI score >10).

DLQI score, obtained using a questionnaire consisting of ten questions related to skin conditions. These questions addressed disease symptoms, patient emotions, daily activities, recreation, work, school, personal relationships, and treatment. The DLQI questionnaire was designed for adults aged 18 years and older. Each question was scored from 0 to 3, yielding a total possible score ranging from 0 (indicating no impact of skin disease on quality of life) to 30 (indicating a maximum impact on quality of life). The DLQI scores were categorized as follows:

- 0–1 : No impact on the patient's life
- 2–5 : Small impact
- 6–10 : Moderate impact
- 11–20 : Very large impact
- 21–30 : Extremely large impact

RESULT

This study was conducted over three months, from August to October 2023. According to Table 1, a total of 66 ubjects were included in the study, with an average age of 31.13 years. Female participants predominated, accounting for 69.69% of the total subjects.

A total of 47 patients (71.2%) were classified as having mild vitiligo based on the Vitiligo Area Scoring Index (VASI), while 19 patients (28.8%) fell into the moderate VASI category, and none were classified as having severe vitiligo.

Regarding the Dermatology Life Quality Index (DLQI), 4 patients (6.1%) reported no impact on their lives, 43 patients (65.2%) experienced a mild impact, 17 patients (25.8%) experienced a moderate impact, and 2 patients (3%) reported a severe impact on their lives. No patients experienced a very severe impact on their quality of life.

Table 1. Characteristics of Research Subjects

Variable	N (%)
Sex	
Male	20 (30.30)
Female	46 (69.70)
Age	66 (100)
VASI	
Mild	47 (71.2)
Moderate	19 (28.8)
Severe	0 (0)
DLQI	
No impact on the patient's life.	4 (6.1)
Mild impact on the patient's life.	43 (65.2)
Moderate impact on the patient's life.	17 (25.8)
Severe impact on the patient's life.	2 (3)
Very severe impact on the patient's life.	0

The test results in Table 2 indicate a significant value of $p < 0.050$, suggesting a relationship between VASI and DLQI. The correlation coefficient is 0.933, indicating a strong relationship between the two variables.

Table 2. Rank Spearman Test

		VASI	IKHD
VASI	Correlation	1.000	.933**
	Sig. (2-tailed)	.	<.001
DLQI	Correlation	.933**	1.000
	Sig. (2-tailed)	<.001	.

DISCUSSION

In this study, 66 vitiligo patients who met the inclusion criteria at the Dermatology and Venereology Clinic of RSU Bali Mandara (January 2024 – February 2024) were included. The average age of the patients was 31.3 years, with females being the dominant gender (69.69%). This finding is consistent with the study conducted by Alfian et al. at RSUP Dr. Soetomo Surabaya (2018–2020), which reported that the most common age range for vitiligo occurrence was 10–40 years, with females being the predominant gender (10).

These results are further supported by a study conducted by Ennesta et al. (2019) at RSUP Dr. M. Djamil Padang, which found that, in research conducted from 2015 to 2016, the most common age range for vitiligo was 25–44 years, with females being the most affected group, showing a gender ratio of 4:1 (11). The higher prevalence of vitiligo in females may be attributed to their greater concern for appearance, particularly when vitiligo lesions appear on the face, leading them to seek medical treatment more frequently and promptly compared to males.

The VASI measurement results showed that 47 patients (71.2%) had mild VASI, 19 patients (28.8%) had moderate VASI, and no patients were classified as having severe VASI. These findings are supported by a study conducted by Ennesta et al. (2019) at RSUP Dr. M. Djamil Padang, which reported that in research con-

ducted between 2015 and 2016, mild VASI was the most dominant category (85.3%), followed by moderate VASI (14.7%), with no cases of severe VASI recorded (11).

Additionally, a study by Solak et al. (2017) in Turkey found that the average VASI score among vitiligo patients was 3.7, which falls into the mild VASI category (12). The high prevalence of mild VASI cases is likely since most patients seeking treatment at the clinic had already been undergoing therapy for over a year and had shown significant improvement. Moreover, vitiligo lesions in these patients involved only a small body surface area.

For the Dermatology Life Quality Index (DLQI), 4 patients (6.1%) were categorized as having no impact on their lives, 43 patients (65.2%) experienced a mild impact, 17 patients (25.8%) experienced a moderate impact, 2 patients (3%) experienced a severe impact, and none experienced a very severe impact. These findings align with the study by Mishra et al. (2014) in India, which analyzed vitiligo patients over 18 years and found that the DLQI scores predominantly fell into the mild impact category (13).

This result is likely because vitiligo lesions in these patients were located in areas covered by clothing, thereby minimizing the impact on their quality of life.
This study found a strong correlation between VASI and DLQI ($p < 0.050$, correlation value 0.933), indicating that an increase in VASI leads to an increase in DLQI. Similar findings were reported by Ennesta et al. (2019), who also identified a correlation between VASI and DLQI scores (11).

Additionally, a study conducted by Radtke et al. (2009) found that a larger affected vitiligo area (BSA% >10%) was significantly associated with a decreased quality of life ($p < 0.001$) (14). Since BSA is one of the key components in VASI calculation, these findings closely align with the present study, which also demonstrated a significant relationship between DLQI and VASI.

The results of this study indicate that the degree of depigmentation in vitiligo (VASI) strongly impacts the quality of life of affected individuals (DLQI). Therefore, this should be a concern for physicians, enabling them to provide better psychological support for vitiligo patients such as body image and self-esteem counselling, support group and peer connection, anxiety and depression management and family and relationship counseling. Ultimately, this support can aid in the overall treatment of vitiligo, promote better adaptation to the condition, and improve patients' quality of life.

In addition to the findings discussed above, it is important to highlight the strengths and limitations of this study to better contextualize its contributions and inform future research directions. This study presents a novel contribution by exploring the correlation between vitiligo severity (VASI) and quality of life (DLQI) in a Balinese population, which has been underrepresented in previous research. The use of validated and standardized instruments enhances the reliability of the findings. However, the study is limited by its cross-sectional design and single-center sampling, which may affect the generalizability of the results. Future multi-center studies are recommended to confirm these findings and to explore additional psychosocial factors influencing quality of life in vitiligo patients.

CONCLUSION

The findings of this study indicate that the severity of vitiligo, as measured by the Vitiligo Area Scoring Index (VASI), has a strong impact on patients' quality of life, as assessed by the Dermatology Life Quality Index (DLQI). A higher VASI score, reflecting greater extent and severity of depigmentation, corresponds to a lower quality of life, as indicated by a worse DLQI score. This suggests that the impact of vitiligo is not limited to physical aspects but also has significant psychosocial consequences.

Further research would be highly beneficial in gaining a deeper understanding, particularly regarding changes in DLQI after vitiligo patients undergo photo-

therapy or topical therapy. Additionally, it is important to explore other factors beyond VASI that influence DLQI, as well as the social characteristics of vitiligo patients, including employment status, marital status, and number of dependents, as these factors may also impact their quality of life.

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