

Validity and Reliability Test of Vitiligo Quality of Life Index (VitiQoL) Indonesian Version in Vitiligo Patients

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ABSTRACT

Background: Vitiligo is a multifactorial skin disorder that causes depigmentation. Vitiligo can affect a patient's quality of life due to aesthetic issue. The prevalence of vitiligo in the world is 0.5 – 1.0%. An instrument for measuring the quality of life that is specific to vitiligo patients in Indonesia is required. **Purpose:** This study aims to translate the Vitiligo Specific Quality of Life (VitiQoL) questionnaire into Indonesian: and assess the validity and reliability of the Indonesian language VitiQoL as a quality of life instrument. **Methods:** An observational method with analytical survey and cross-sectional approach was conducted on 48 vitiligo patients at Sardjito General Hospital Yogyakarta in May – September 2021. The research was carried out in 3 stages. The first stage was the translation of VitiQoL into Indonesian and then back into English. The second and third stages were measuring the validity and reliability of the VitiQoL Indonesian version. **Result:** The validity test using Pearson product moment showed that the average correlation coefficient for each question is 0.683. Reliability test using Cronbach's alpha of 0.924 VitiQoL. VitiQoL has 3 domains, namely limited participation, stigma, and behavior. The correlation of each domain has a value range of 0.756 - 0.918 with a variation of Cronbach's alpha value per item ranging from 0.808 - 0.89. The limited participation domain (84.2%) has the largest contribution to the value of quality of life. **Conclusion:** The Indonesian language VitiQoL as an instrument with good validity and reliability can be used to measure the quality of life of vitiligo patients in Indonesia.

Keywords: Vitiligo, quality of life VitiQoL validity, reliability.

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BACKGROUND

Vitiligo is a multifactorial skin disease characterized by white macula due to selective damage to the melanocytes.¹ Vitiligo prevalence in the world is 0.5-1%.² The prevalence of vitiligo patients in the dermatology and venereology clinic taken from the primary data of Sardjito General Hospital in January 2018- December 2019 was 2.3%. Based on the primary data of the electronic medical record of the Sardjito General Hospital in January 2020-December 2020, the prevalence of vitiligo patients in the dermatology and venereology clinic declined to 2.0%.

Vitiligo causes cosmetic disorders that can disturb the patient's social activities and interactions. These problems cause anxiety, depression, and insecurity that can worsen the quality of life of patients.^{3,4,5,6} Evaluation and improvement of the quality of life of the patient becomes one of the objectives in vitiligo management.^{6,7}

Quality of life is a broad and complex concept of physical health, psychological conditions, level of independence, social interactions, individual beliefs, and relationships with the environment.⁸ The

Dermatology Life Quality Index (DLQI) is a tool that is frequently used to assess the quality of life of vitiligo patients.⁹ This questionnaire has an Indonesian version that has been through a validity and reliability test so that its application in Indonesia is very easy.¹⁰ DLQI is not a specific instrument, so it does not describe psychosocial disorders experienced by vitiligo patients.

The Vitiligo Quality of Life Index (VitiQoL) is a specific life quality instrument for vitiligo patients, consisting of 15 questions, with the value of each question ranging 0 (never) up to 6 (all the time). VitiQoL has a value from 0 to 90. VitiQoL also presents a personal assessment of the severity of vitiligo, using a scale starting from 0 (no skin involvement) to 6 (worst). VitiQoL has good validity and reliability with a coefficient of correlation of 0.51 and the value of Cronbach's alpha is 0.935. External validity is indicated by a strong correlation between VitiQoL and Skindex 16 ($R = 0.82$), as well as DLQI ($R = 0.83$).¹¹

Transcultural adaptability is needed if used in different countries from the country's made questionnaire to ensure the right use of the terms in

different cultures without changes in validity and reliability.^{12,13} VitiQoL Indonesian version is needed by vitiligo patients in Indonesia, so the validity and reliability test needs to be done in Indonesia. Indonesian VitiQoL research aims to translate the VitiQoL questionnaire into Indonesian: and assess the validity and reliability of the Indonesian version of VitiQoL as an instrument to measure the quality of life of vitiligo patients in Indonesia.

METHOD

Validity and reliability research for Indonesian VitiQoL uses observational methods, analytical surveys and cross-sectional approaches. The validity and reliability research was conducted in 3 stages, namely the translation stage, the validity test stage, and the reliability test stage. The translation of VitiQoL from English to Indonesian was carried out by two independent sworn translators. The translation results were consulted and discussed with an Indonesian expert. VitiQoL was then translated back into the original language of questionnaire by two independent sworn translators who had never known or seen VitiQoL. The results of the back translation were examined again to ensure there are no significant differences in meaning. The Indonesian VitiQoL questionnaire was tested on 10 subjects of the pretest population so that difficulty in doing and understanding the language in the questionnaire could be known.

There were 48 respondents from the dermatology and venereology clinic in Sardjito General Hospital. The research was conducted in May - September 2021 after obtaining permission from the Medical Research Ethics Committee and Health Faculty of Medicine, Public Health, and Nursing of Gadjah Mada University. The inclusion criteria are ages 18 to 65 years old, diagnosed with vitiligo, understanding Indonesian language with the ability to speak, read, and write, willing to participate and sign the informed consent. Exclusion criteria for research subjects are diagnosed with other chronic diseases, pregnancy, and psychiatric disorders. Pretest population is also a vitiligo patient in the dermatology and venereology clinic in Sardjito General Hospital with the same inclusion and exclusion criteria but not included in the validity and reliability test. Construct validity for each item using Pearson product moment correlation test by correlating each item with the total value. The

reliability test was carried out by calculating internal consistency using Cronbach's alpha test.

RESULTS

Researchers have received permission from the original author to translate VitiQoL from English to Indonesian. The translation was carried out by independent sworn translators. The results of the translation were consulted and discussed with an Indonesian expert from the Indonesian Language Study Program at the Faculty of Culture, Gadjah Mada University. The results of the Indonesian version of VitiQoL required several language repairs so that respondents can easily understand the questionnaire.

The VitiQoL questionnaire that has been translated into Indonesian and repaired in its structure and grammar was translated back to English by two independent sworn translators who have never known or seen VitiQoL questionnaire. The results of the translation were then discussed and did not produce meaningful differences.

A pretest was conducted to find out the difficulties that arose during the use of the Indonesian version of VitiQoL. The pretest population sample consisted of 10 people, consisting of 6 women and 4 men, with a range of 20-54 years old. The difficulty in understanding and filling out the questionnaire was not found, so that the Indonesian version of VitiQoL was ready to be tested for validity and reliability.

There are 48 subjects, with the majority of subjects being women, approximately 26 respondents (54.2%). The age range of subjects is 19-65 years old, with a mean of 40.73 ± 12.16 years old. There are 34 subjects (70.8%) who were married. The education level varies with the majority of high school seniors as many as 20 respondents (41.7%). Vitiligo onset age ranges from 10 to 62 years old, with a mean of 35.86 ± 12.26 years old. The duration of vitiligo ranged from 6 months to 30 years with a mean of 5.01 ± 5.75 years. Generalized vitiligo is the most common type of vitiligo in this research. Demographic data of research subjects are contained in Table 1.

The coefficient correlation value of each question with the total value of the Indonesian VitiQoL ranges from 0.549 to 0.894 with a mean of 0.683. Based on these results, there is a strong to very strong relationship between each question and the total value of the Indonesian version of VitiQoL. The details of the correlation value for each question with the total value are listed in Table 2.

Table 1. Demographic Data of Research Subjects

Characteristics		Subjects (n=48)	Percentage (%)
Gender	Male	22	45.8%
	Female	26	54.2%
Married Status	Married	34	70.8%
	Not Married	14	29.2%
Educational Level	Junior High School	3	6.3%
	Senior High School	20	41.7%
	Undergraduate	14	29.2%
Vitiligo Types	Postgraduate	11	22.9%
	Segmental	10	20.83%
	Generalized	32	66.67%
	Acrofacial	6	12.50%
	Mean		Standard Deviation
Age		40,70	12.11
Age of Onset		35,86	12.26
Duration of Disease		5,01	5.74

Table 2. Correlation Value for Each Question With The Total Value

Questions (Number)	Correlation Between Items	Correlation With The Total Value
1	0.100 – 0.792	0.587
2	0.089 – 0.597	0.646
3	0.046 – 0.578	0.549
4	0.346 – 0.710	0.813
5	0.132 – 0.715	0.791
6	0.132 – 0.602	0.664
7	0.121 – 0.792	0.729
8	0.195 – 0.678	0.712
9	0.317 – 0.792	0.782
10	0.405 – 0.792	0.894
11	0.302 – 0.696	0.759
12	0.046 – 0.684	0.581
13	0.089 – 0.684	0.635
14	0.100 – 0.609	0.560
15	0.089 – 0.750	0.565
16	0.163 – 0.715	0.671

The value of Cronbach's alpha in the Indonesian VitiQoL reliability test is 0.924, as well as the value of Cronbach's alpha per item, is lower than 0.924. Based on these results, a high consistency between each question was obtained so that all questions in the questionnaire were considered very reliable. The distribution of Cronbach's alpha values for each question is in Table 3.

The questions in the VitiQoL are classified into 3 domains, namely: participation limitation, stigma, and behavior. The participation limitation domain consists of 7 questions (numbers 3, 4, 6, 9, 10, 11, and 14) with

a maximum value of 42. The stigma domain is composed of 5 questions (numbers 1,2,5,7, and 15) with a maximum value of 30. The behavior domain consists of 3 questions (numbers 8, 12, and 13) with a maximum value of 18. The range of coefficient values for each domain from 0.756 to 0.918 shows a strong correlation between the value of each domain with the total value of VitiQoL. Variations of Cronbach's alpha values per item range from 0.808 to 0.894 shows high consistency. The amount of validity and reliability value for each domain is listed in Table 4.

Table 3. Cronbach's alpha Distribution

Questions (Number)	<i>Cronbach's alpha per item</i>	<i>Cronbach's alpha</i>
1	0.922	
2	0.921	
3	0.923	
4	0.915	
5	0.916	
6	0.920	
7	0.918	
8	0.919	0.924
9	0.916	
10	0.912	
11	0.917	
12	0.923	
13	0.921	
14	0.923	
15	0.922	
16	0.920	

Table 4. Validity and Reliability of Each Domain

Domains	Correlation With The Total Value	Cronbach's alpha peritem
Participation Limitation	0.918	0.894
Stigma	0.817	0.875
Behavior	0.756	0.808

The participation limitation domain (84.2%) has the greatest contribution to the value of quality of life in the validity and reliability test for Indonesian VitiQoL, while the behavior domain has the smallest contribution (57.1%). The stigma's domain in male

patients (75.5%) and the behavior domain (74.5%) both contribute nearly the same amount. The amount of contribution from each domain can be seen in Table 5, Table 6, and Table 7.

Tabel 5. Contribution of Three Domains Toward VitiQoL

Domains	Maximal Value on Subject	Mean	Standard Deviation	Percentage (%)
ParticipationLimitation	38	16.02	11.02	84.2
Stigma	30	18.72	7.95	66.7
Behavior	18	6.41	5.46	57.1

Tabel 6. Contribution of Three Domains in Male Patients

Domains	Maximal Value on Subject	Mean	Standard Deviation	Percentage (%)
Participation Limitation	38	18.36	11.48	91.2
Stigma	30	18.45	8.56	75.5
Behavior	18	6.95	5.94	74.5

Tabel 7. Contribution of Three Domains in Female Patients

Domains	Maximal Value on Subject	Mean	Standard Deviation	Percentage (%)
Participation Limitation	32	14.03	19.41	77.3
Stigma	30	18.96	7.95	61.1
Behavior	15	5.96	5.10	38.3

DISCUSSION

The high magnitude of vitiligo burden and prevalence that affect the quality of life support the development and validation of the specific quality of life instrument for vitiligo.^{12,13} Translation, validation, and reliability testing of Indonesian VitiQoL have been done to see the questionnaire's ability in assessing the quality of life of vitiligo patients. An instrument is said to be good if it has high validity and reliability. The data collection method for the VitiQoL is self-administered (questionnaires filled in by the respondent) or conducted through interviews.¹¹ The Indonesian version of VitiQoL in this research was filled in by respondents accompanied by researchers to avoid carelessness and bad random answers.

The validity test aims to determine the accuracy of the instrument as a measuring tool. Testing the construct validity of the Indonesian VitiQoL was carried out using the Pearson product moment correlation test. The VitiQoL questionnaire has 16 questions with answer options, and all questions have been validated. The correlation coefficient value of 0.10-0.29 is considered weak, 0.30-0.49 is considered moderate, and 0.50-1.00 is considered strong. The minimum correlation coefficient value that is considered valid is 0.30. The coefficient correlation value of each question with the total value of the Indonesian version of VitiQoL ranges from 0.549 - 0.894 with a mean of 0.683. Based on these results, the correlation between each question and the total value of the Indonesian version of VitiQoL is strong.

The reliability test aims to determine the level of trust, consistency, and stability of an instrument. The reliability test for Indonesian VitiQoL was carried out by measuring Cronbach's alpha. Several reasons underlie the use of Cronbach's alpha test. First, this reliability test is the most frequently used method and the best method for assessing internal reliability.^{14,15} Second, inconsistent indicators are detected by performing Cronbach's alpha test.¹⁶ Third, Cronbach's alpha test can be used to test multipoint questionnaires scales and only requires one-time data collection.^{14,17} Cronbach's alpha test is measured using a scale from 0 to 1. The greater the value of Cronbach's alpha which is close to 1, the higher the internal consistency of the questionnaire.^{14,16} A value of 0.7 or more is considered to have good inter-item correlation and consistency.^{11,14,16} Cronbach's alpha value in this research was 0.924, which indicates high internal consistency.

The correlation coefficient in the English version of VitiQoL ranges from 0.52 to 0.80 with Cronbach's alpha value of 0.935.¹¹ In the Portuguese-Brazilian version of the VitiQoL study, a high correlation

coefficient value of between 0.86 and 0.98 with a Cronbach's alpha value of 0.944 is shown.¹² The VitiQoL research in Iran showed a lower correlation coefficient, between 0.463 – 0.847, with Cronbach's alpha 0.914.¹³

The questions in the VitiQoL questionnaire are classified into 3 domains, namely: participation limitation, stigma, and behavior. The participation limitation domain is a domain of the obstacles or difficulties experienced by individuals when participating in daily activities and social interactions. The stigma domain is the domain of perspective or giving negative attributes to individuals. The behaviour domain is a domain regarding individual reactions or responses to the surrounding circumstances. An analysis of each domain can be done if all the questions in the domain are answered. The correlation of each domain in the Indonesian version of VitiQoL shows a strong correlation with a range of values between 0.756 - 0.918 because it is in the range of 0.50 - 1.00. The variation of Cronbach's alpha value per item ranges from 0.808 to 0.894, indicating very good reliability because it is close to number 1. The participation limitation domain has the largest contribution to the quality of life value in the validity and reliability test for the Indonesian version of VitiQoL, which is 84.2%. The smallest contribution was shown by the behaviour domain (57.1%). Psychological disorders can occur in male and female vitiligo patients because their aesthetic appearance is affected. Disorders of aesthetic appearance cause emotional burden and low self-confidence. Aesthetic appearance is an important factor for acceptance and respect in the work and social environment.^{13, 18, 19} Opportunities to get a job, make new friends, and get married are felt to have been reduced. Shame, fear, anxiety, and depression are experienced by stigmatized male and female vitiligo patients.⁶ Domains of stigma (75.5%) and behaviour (74.5%) in the validity and reliability research for the Indonesian version of VitiQoL have contributed, which is almost the same in men. This can be since men are expected to be the backbone of the family and can improve the family's social status in the community.²⁰ Knowledge and understanding of the patient's illness, types of pleasant and unpleasant situations, as well as the ability to prevent and overcome unpleasant situations, affect the behaviour of patients with chronic diseases to adapt to the conditions experienced in the long term and have a high fighting spirit so that their quality of life remains good.^{21,22}

The limitations of this research are that there is no test and retest that can increase validity and reliability, and it is only carried out at one hospital, so it may not represent every level of society in Indonesia.

The Indonesian version of VitiQoL is a valid instrument with an average correlation coefficient of 0.683. The Indonesian version of the VitiQoL is a reliable instrument with Cronbach's alpha reliability test results of 0.924. The VitiQoL questionnaire, which has been translated into Indonesian, is a quality of life instrument with good validity and reliability for vitiligo patients in Indonesia. The participation limitation domain has the greatest contribution to the quality of life in the validity and reliability test for Indonesian version of VitiQoL. Further research on the comparison of the Indonesian version of VitiQoL with other quality of life instrument, such as the DLQI, needs to be carried out for an external validity test.

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