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Original Research Article

Cultural and linguistic adaptation of Bangla version of vitiligo impact scale-22

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ABSTRACT

Background: Vitiligo is known to have a major psychosocial effect on sufferers. "Vitiligo impact scale 22 (VIS 22)" is a newly developed specific scale to measure the quality of life (QoL) in vitiligo patients. As a psychometric evaluation of the Bangla version of VIS-22 has not yet been in Bangladesh. This study aimed to develop a culturally adapted Bangla version of English VIS-22 in Bengali-speaking vitiligo patients of Bangladesh.
Methods: The original English version of the VIS-22 questionnaire was translated into Bangla following established cross-cultural procedures as recommended. The adapted Bangla version of VIS-22; and the Bangla version of SF-36 were administered and VASI was calculated.
Results: The scale demonstrated a good internal consistency (Cronbach's alpha=0.83) and significant test-retest reliability (by Pearson correlation 0.98 and by paired sample statistics 0.073). I-CVI for each item was 1. Construct validity assessing factor analysis-principal component analysis with the distribution of varimax rotation of VIS-22 Bangla ranged from 0.14 to 0.88 and six components were extracted. Criterion validity was assessed by comparing it with the VASI score which revealed Pearson correlation between VASI score and VIS-22 score was .30 which signifies a positive relationship. Correlation between the domains of SF-36 and VIS-22 Bangla was found between 0.45 to 0.60 in Pearson's measurement.
Conclusions: The adapted Bangla version of VIS-22 appears to be an acceptable, reliable, and valid instrument for measuring the QoL in Bengali-speaking patients of vitiligo.

Keywords: Vitiligo, QoL, VIS-22, VASI Score, SF-36

INTRODUCTION

Vitiligo is an acquired skin disease caused by the disappearance of pigment cells from the epidermis and results in well-defined white patches that are often symmetrically distributed.[1] Most countries have a prevalence of 0.5% to 1%, although some regions of India have a prevalence of above 8%.[2] Vitiligo affects both sexes equally, though women tend to complain earlier and more frequently. Although it can appear at any age, it typically does so before age 30.[3] Vitiligo, though considered a cosmetic problem, affects a person's emotional and

psychological well-being and has major consequences on a patient's life.[4] In addition to the physical effects of vitiligo, this condition exerts adverse psychological effects and causes social stigmatization. The effects of vitiligo may be more pronounced among people with darker skin due to the greater contrast between their normal skin color and their white-colored depigmented lesions.[5] Several studies using validated general and dermatology-specific health-related QoL scales have revealed that vitiligo has a significant impact on health-related QoL.[6] Many studies have revealed that people with vitiligo have a lower QoL. Some South Asian cultures find it particularly stigmatizing.[7] There are many QoL scales that are disease-specific, such as the vitiligo specific QoL instrument (VitiQoL), the VIS, the VIS 22, and the VIPs, and many others.[6-9] The VIS-22 performed dermatology life quality index (DLQI) among them in evaluating the QoL in vitiligo patients.[10]

There were 27 questions in the VIS, five of which were tailored specifically for married people and just one for unmarried. Equalized the number of questions in VIS 22 for married and unmarried patients to reduce the chance of discrepancy in final scoring between the two groups. The self-confidence, anxiety, depression, marriage, family concerns, social interactions, school/college-related, occupation-related, treatment- related, and attitude domains were covered by the VIS-22, which was made up of 22 items.[10] Health-related QoL measurement using the VIS-22 is valid, reliable, and responsive. Decisions on therapy, such as psychological intervention, can be guided by responses to individual VIS-22 items as well as the entire instrument.[7] The psychological effects of vitiligo increase the severity of the condition and could affect how well it responds to treatment.[9] Adults are the target recipient of the VIS-22 questionnaire. In the tick box method, each question is answered using one of four options: not at all, a little, a lot, or very much. The VIS-22 is determined by adding the results of each of the 22 questions. The more the QoL is impacted, the higher the score. Vitiligo may have different effects on patients' QoL depending on their location, social standing, education level, preexisting beliefs and taboos, and skin type.[11] India developed the VIS-22 in English, Hindi, and Kannada. Chinese, Arabic, and Urdu versions were developed in China, Egypt, and Pakistan, respectively. The effect of dermatological diseases on a patient's quality of life is a minimally addressed issue in Bangladesh where cultural values differ from other countries. However, the Bangla version of VIS-22 has not been formally validated in Bangladeshi patients with vitiligo. In Bangladesh's health-related quality of life studies, patients with vitiligo at a population level are limited. One of the main reasons is the lack of suitable instruments in Bangladesh. In this study, permission was sought and thereby given from the developers of the tool to create a Bangla version of VIS-22. Therefore, the aim of the study is to adapt and validate the Bangla version of VIS-22 in Bangladesh. This study will act as baseline research that will help in further research in this field.

METHODS

A cross-sectional study department of dermatology and venereology at Bangladesh Medical University, Dhaka from March 2021 to September 2022. A total of 121 respondents were enrolled in the study. Adults, over 18 years of age, with vitiligo confirmed clinically and by Wood's lamp examination.

VIS-22

The VIS-22 consists of 22 items that measure self-confidence, anxiety, depression, marital satisfaction, family concerns, social interactions, school/college-related issues, occupation-related issues, treatment-related issues, and attitude. All items are rated on a 4-point scale, with responses of "not at all", "a little", "a lot" and "very much" scoring 0, 1, 2, and 3, respectively. Item scores are summed to yield a total score (range: 0-66) with a higher score indicating greater limitations experienced because of vitiligo.

Translation and cross-cultural adaptation of English VIS-22 into Bangla

The English version of the VIS-22 was systematically translated and culturally adapted into Bangla following internationally accepted guidelines to ensure linguistic accuracy, cultural relevance, and conceptual equivalence. In the forward translation phase, two bilingual translators, both native Bangla speakers, independently translated the original English questionnaire. One translator, with a medical background, focused on preserving conceptual meaning (FT-1), while the other, without medical training, emphasized natural and everyday language (FT-2). This dual approach helped capture both technical precision and cultural comprehensibility. Next, in the synthesis phase, both translators jointly reviewed and combined their versions into a single unified translation, referred to as T-12. All discrepancies were discussed and resolved in consultation with an expert panel. To improve patient understanding, simpler wording and clearer sentence structures were prioritized. Some culturally sensitive modifications were made-for instance, "patches" was replaced with "spots" to match local understanding of vitiligo symptoms, and vague expressions such as "because of the disease" were refined to "because of the skin disease" for better contextual accuracy. The back translation stage involved two different translators, blind to the original questionnaire, re-translating T-12 back into English. This ensured that the translated Bangla version accurately retained the content and intent of the original scale, without distortion or loss of meaning. An expert committee, comprising a methodologist, linguist, observer, and all translators, thoroughly compared the original, forward, backward, and synthesized versions. They verified semantic, idiomatic, experiential, and conceptual equivalence between both languages to confirm cross-cultural accuracy. Finally, a pre-final Bangla version was tested in two steps: first, a

comprehensibility test among children to ensure linguistic simplicity, and second, a pilot test among adult vitiligo patients to evaluate clarity, acceptability, and cultural appropriateness. The process confirmed the translated scale's reliability, validity, and suitability for Bangla-speaking populations.

Comprehensibility testing in children

As a general recommendation for questionnaires or tools that should be understood by 12 years old children (roughly grade 6 level of reading), the instrument was administered to 12 (twelve) years old children of class five to seven from different socio-cultural statuses. Among them 7 were male and 5 were female. Each of the items (except item no 20 and 21, which was not relevant for their age) was presented to them and they were asked to describe what they understood by the items and how would they answer if the conditions were present in them.

Assessment of validity and reliability of the Bangla version of VIS-22

Testing of the validity and reliability of the Bangla version of VIS-22 was carried out in the second phase. Convenient 121 patients with vitiligo fulfilling the inclusion criteria were recruited from both inpatient and outpatient departments of dermatology and venereology. After finishing the consultation with the prescribing doctor patients were interviewed at their convenient time maintaining proper privacy as much as possible with an explanation of the full procedure. Before proceedings for the actual data collection researcher, the respondents were offered informed written consent for the study. At first, the patient was asked their demographic questions using a semi- structured questionnaire. Then VASI score was calculated after clinically evaluating the patient. Then Bangla version of the VIS-22 and three subscales of the Bangla version of SF-36 (emotional health problem, social activities, mental health) were applied. It took 20-25 minutes to collect all data.

Test-retest reliability

The Bangla version of VIS-22 was reapplied to all the participants 7 to 10 days after the first interview, and the correlation between the test responses and the retest responses was analyzed. The test-retest reliability was assessed using the intraclass correlation coefficient. The acceptable ICC level varies as acceptable considered when ICC is >0.70. Other recommendation regarding ICC value is 0.00-0.10 virtually none, 0.11-0.40 slight, 0.41-0.60 fair, 0.61-0.80 moderate and 0.81-1.0 substantial.

Study procedure

The study was carried out in two phases. In the first phase, the original English version of VS-22 was translated into Bangla to make a pre-final questionnaire. Permission to create a Bangla version was obtained from the developer of the original VIS-22. Then comprehensibility was assessed in 12-year-old children and in 30 adult respondents to establish the final Bangla VIS-22. In the second phase, we assessed the reliability and validity of the final version of the questionnaire.

Data analysis

After collecting the data, it was checked and rechecked for omissions, inconsistencies, and improbabilities. Data were coded, modified, and entered into the computer. Data analysis would be performed by statistical package for social science (SPSS), version-16. Different statistical tests were performed and commanded as per the necessity and the built-in facility of the SPSS software.

RESULTS

A total of 121 respondents were enrolled in the study. Mean age 31.79 (SD=12.76). Age ranged from 18 to 68 years. The majority of the patients were in the 18-25 age group, which constitutes 42.1% of the study population; followed by 23.1% in the 26- 35 age group, 19.0% in the 36-45 age group, 9.1% in the 46-55 age group, 6.6% were in above 55-year age group. Out of 121 patients 55 (45.5%) were male and 66 (54.5%) were female. Among the 121 respondents most of the participants 46 (38%) were students, 27 (22.3%) housewife, 25 (20.7%) service holder, 23 (19.0%) others. The table shows that 66 (54.5%) were unmarried, and 55 (45.5) were married. The educational status of 49 (40.5%) patients was at bachelor/master's level, 32 (26.4%) at the higher secondary level 30 (24.8) at the secondary level, and 10 (8.3%) at the primary level.

Figure 1 reveals the distribution of types of vitiligo among the respondents. Among the types of vitiligo, the generalized vitiligo respondent's frequency was maximum of 74 (89.16%), acrofacial vitiligo 39 (32.2), localized or focal vitiligo 17 (14.0%), segmental vitiligo 1 (0.8%) and mucosal vitiligo 1 (0.8%).

Table 2 reveals the distribution of the patients according to the presence of evaluation of vitiligo among the respondents. In the majority of the patients, 106 (87.6%) were a length of stability/rapidity of progression, 19 (15.7%) were a family history, 8 (6.6%) were a history of trauma to the skin before appearing with vitiligo, 4 (3.3%) had frequent exposure to sunlight, 3 (2.5%) had drug history.

Table 3 reveals the characteristics of item-wise response which revealed the item mean, Standard deviation, and correlation. Q20 had a poor correlation. The mean VIS-22 Bangla score of individual items ranged from 0.45 to 2.07. The highest score was 2.04 for item 19. The lowest score was 0.45 for item 14. Correlation VIS-22 Bangla score of individual items ranged from 0.01 to 0.63. The highest score was 0.63 for item 20. The lowest score was 0.01 for item 21.

Table 5 reveals the test-retest reliability measured by Pearson correlation and it was found as 0.98.

Table 6 reveals the test-retest reliability measured by Paired samples statistics and it was found as 0.073.

Table 7 factor analysis-principal component analysis with the distribution of varimax rotation of Bangla VIS-22 ranged from 0.14 to 0.88. The highest score was 0.88 for item 22. The lowest score was 0.14 for item 21. Six components were extracted.

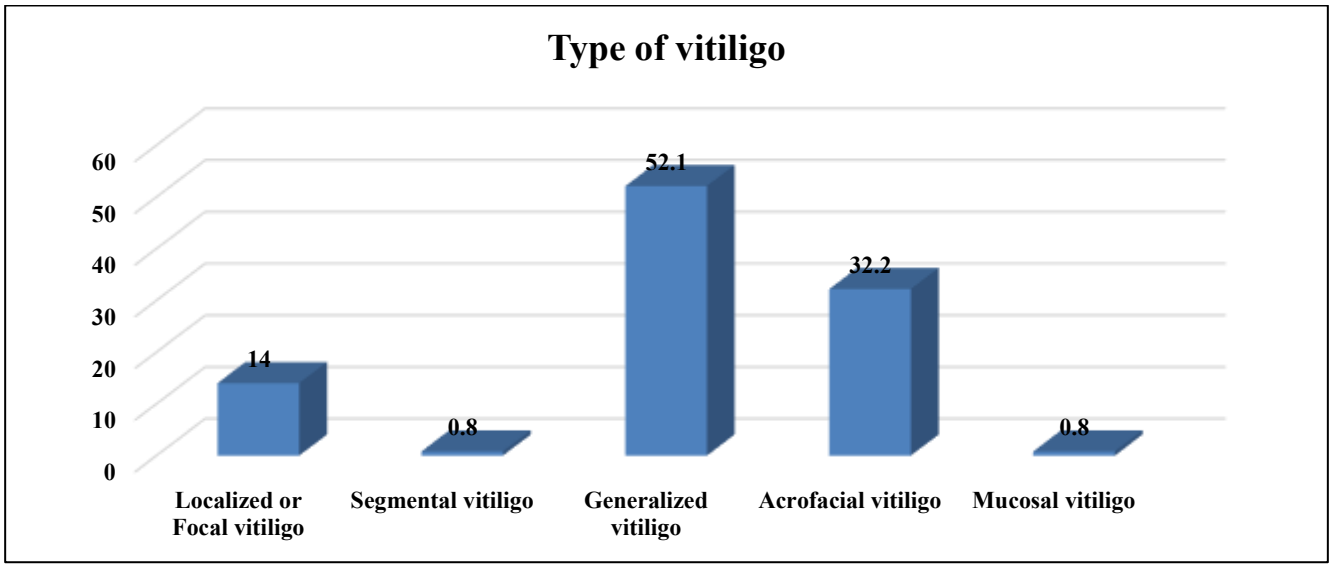

Figure 1: Types of vitiligo among the respondents, (n=121).

Table 1: Distribution of the patients according to socio-demographic variables, (n=121).

Variables	N	Percent (%)
Age (in year)		
18-25	51	42.1
26-35	28	23.1
36-45	23	19.0
46-55	11	9.1
>55	8	6.6
Mean±SD	31.79±12.76 (18-68)	
Sex		
Male	55	45.5
Female	66	54.5
Occupation		
Housewife	27	22.3
Service	25	20.7
Student	46	38.0
Others	23	19.0
Marital status		
Married	55	45.5
Unmarried	66	54.5
Education		
Primary	10	8.3
Secondary	30	24.8
Higher secondary	32	26.4
Bachelor/masters	49	40.5
Duration of disease (in year)		
Mean±SD	7.21±6.64 (0.10-30.00)	
VASI score		
Mean±SD	8.01±6.95 (0.12-32.25)	
Age of onset (in year)		
Mean±SD	24.42±13.78 (3-64)	

Table 2: Distribution of the patients according to the presence of evaluation of vitiligo, (n=121).

Variables	N	Percent (%)
Length of stability/rapidity of progression	106	87.6
Family history	19	15.7
Frequent exposure to sunlight	4	3.3
H/O trauma to the skin before appearing vitiligo	8	6.6
Drug history	3	2.5

Table 3: Distribution of the item characteristics of VIS-22 Bangla, (n=121).

Items	Mean	SD	Corrected item-total correlation	Cronbach's alpha if item deleted
q1	1.76	0.70	0.266	0.832
q2	1.39	0.99	0.413	0.827
q3	0.78	0.84	0.411	0.827
q4	0.60	0.77	0.180	0.836
q5	1.59	0.88	0.444	0.825
q6	1.67	0.66	0.440	0.826
q7	2.03	0.73	0.497	0.823
q8	1.44	1.06	0.436	0.826
q9	0.64	0.72	0.388	0.828
q10	1.69	0.65	0.477	0.825
q11	1.72	0.55	0.614	0.822
q12	1.64	0.83	0.534	0.821
q13	0.59	0.78	0.443	0.825
q14	0.45	0.68	0.333	0.830
q15	1.11	0.84	0.349	0.829
q16	1.69	0.68	0.469	0.825
q17	1.24	0.82	0.570	0.819
q18	2.03	0.73	0.557	0.821
q19	2.07	0.80	0.127	0.839
q20	1.67	0.81	0.637	0.816
q21	0.70	0.80	-0.012	0.844
q22	0.69	0.91	0.274	0.833

Table 4: Index of content validity (ICV) of the adapted Bangla version of VIS-22.

Domains	Item	Score by			ICV
		Expert 1	Expert 2	Expert 3	
Attitude	Item 1	1	1	1	3/3
	Item 4	1	1	1	3/3
	Item 17	1	1	1	3/3
	Item 19	1	1	1	3/3
Anxiety	Item 2	1	1	1	3/3
	Item 11	1	1	1	3/3
Social interactions	Item 3	1	1	1	3/3
	Item 12	1	1	1	3/3
	Item 13	1	1	1	3/3
Self-confidence	Item 5	1	1	1	3/3
	Item 18	1	1	1	3/3
Depression	Item 6	1	1	1	3/3
	Item 9	1	1	1	3/3
	Item 10	1	1	1	3/3
Treatment	Item 7	1	1	1	3/3
	Item 15	1	1	1	3/3
	Item 16	1	1	1	3/3
	Item 14	1	1	1	3/3
Family worries	Item 8	1	1	1	3/3
Marriage	Item 20	1	1	1	3/3
Occupation-related	Item 21	1	1	1	3/3
School/college-related	Item 22	1	1	1	3/3

Table 5: Test-retest reliability measured by Pearson correlation.

Variables		First visit	Second visit
Test	Pearson correlation	1	0.985*
	P value		<0.001
	N	121	121
Retest	Pearson correlation	0.985*	1
	P value	<0.001	
	N	121	121

*Correlation is significant at the 0.01 level.

Table 6: Test-retest correlation by paired samples statistics.

Variables	Mean	N	SD	Std. error mean	P value
Test	29.4215	121	8.43085	0.76644	0.073
Retest	29.1818	121	8.28151	0.75286	

Table 7: Rotated component matrix-principal component analysis with distribution of varimax rotation of VIS-22 Bangla.

Variables	Component					
	1	1	1	1	1	1
q1	0.021	0.668	0.153	-0.002	-0.272	-0.045
q2	0.275	0.056	0.100	0.040	0.751	-0.191
q3	0.060	0.052	0.122	-0.005	0.786	0.356
q4	-0.056	0.038	0.230	0.180	-0.026	0.804
q5	0.774	0.108	-0.006	0.115	0.066	-0.064
q6	0.780	-0.109	0.173	-0.103	0.127	0.028
q7	0.248	0.347	0.314	-0.035	0.330	-0.139
q8	0.064	0.668	0.063	0.409	0.167	-0.015
q9	0.235	-0.014	0.728	0.021	-0.018	0.131
q10	0.840	0.004	0.100	0.032	0.041	0.045
q11	0.434	0.522	0.241	0.092	0.098	0.053
q12	0.471	0.637	-0.171	-0.092	0.179	0.065
q13	-0.165	0.643	0.303	-0.052	0.275	0.202
q14	0.166	-0.045	0.658	-0.021	0.233	-0.197
q15	-0.081	0.193	0.714	0.089	0.024	0.252
q16	0.378	0.312	-0.049	-0.143	0.288	0.478
q17	0.392	0.209	0.541	-0.011	0.127	0.187
q18	0.649	0.214	0.237	-0.006	0.136	-0.014
q19	0.001	0.478	-0.288	-0.039	0.005	0.233
q20	0.415	0.441	0.242	0.268	0.313	-0.140
q21	0.069	0.066	0.076	-0.909	0.141	-0.018
q22	0.110	0.151	0.129	0.888	0.149	0.124

*Extraction method: Principal component analysis. rotation method: Varimax with Kaiser Normalization

Table 8: Correlation between Bangla VIS-22 and SF-36 scores measured by Pearson's correlation.

Bengali VIS-22 SF-36	R value	P value
Emotional	-0.601	<0.001
Social	-0.455	<0.001
Mental health	-0.504	<0.001

The distribution of Varimax rotation of Bangla VIS-22 ranged from 0.45 to 0.60. Highest score was 0.60 for the item SF-36 emotional. Lowest score was 0.45 for the item-SF 36 social domain.

All the components showed moderate to strong correlation except the social domain which revealed a slightly mild correlation based on the interpretation statistics mentioned earlier.

DISCUSSION

Vitiligo is known to cause a great psychosocial impact on affected patients. Bangladeshi peoples are particularly susceptible to vitiligo-related psychological morbidity due to their darker skin shade producing a strong contrast. It is associated with an enormous social stigma, and psychological distress, and affects interpersonal relationships. Many vitiligo patients feel that they are the victims of impolite remarks, ridicule, and discrimination because of their abnormal skin color. These feelings are more among the young and active group of patients. Bangladeshi women probably have the greatest impairment of quality of life as compared to men because of the prevalent custom of gender discrimination in society. In this study, a total of 121 respondents were enrolled in the study. The mean age was 31.79 (SD=12.76) and the participant's ages was ranging from 18 to 68 years. Out of 121 patients 55 (45.5%) were male and 66 (54.5%) were female. Most of the respondents were unmarried (54.5%). In the South Indian Kannada version, the mean age of patients was 31.24 years and a higher proportion of patients were females than males (54.2% vs. 45.8%).[11] In North Indian patients with vitiligo, the mean age of patients was 29.8 years with 97 male and 64 female and most of the respondents were unmarried (54.0%).[7] In Chinese patients with vitiligo, the mean age of patients was 38.88 years with 413 males and 471 females, and most of the respondents were married (77.6%).[12] In this current study, among the types of vitiligo, the generalized vitiligo respondent's frequency was a maximum of 74 (89.16%), acrofacial vitiligo 39 (32.2), localized or focal vitiligo 17 (14.0%), segmental vitiligo 1 (0.8%) and mucosal vitiligo1 (0.8%). In the South Indian Kannada version, the most common clinical type of vitiligo was vitiligo vulgaris (68.62%), followed by focal vitiligo (16.63%), acral vitiligo (9.08%), segmental vitiligo (4.57%) and acrofacial vitiligo (0.65%).[13] In this study, the distribution of the patients according to the presence of evaluation of vitiligo among the respondents. In the majority of the patients, 106 (87.6%) were a length of stability/rapidity of progression, 19 (15.7%) were family history, 8 (6.6%) history of trauma to the skin before appearing with vitiligo 4 (3.3%) had frequent exposure to sunlight, 3 (2.5%) drug history.[14] In this study the mean VIS-22 Bangla score of individual items ranged from 0.45 to 2.07. The highest score was 2.04 for item 19. The lowest score was 0.45 for item 14. Correlation VIS-22 Bangla score of individual items ranged from 0.01 to 0.63. The highest score was 0.63 for item 20. The lowest score was 0.01 for item 21.[15] The test-retest reliability was measured by Pearson correlation and paired samples statistics. By Pearson correlation it was found as 0.98 and by paired samples statistics it was found as 0.073. The interval between test and retest varied in different studies across the globe and the measures also varied differently based on the researchers' choice and the feasibility of the study. In the South Indian Kannada version, the test-retest reliability of VIS-22 (r=0.957) at baseline and 2nd visit showed a strong correlation (p<0.001) Shivaswamy et al which was comparable to the study results of Gupta et al with high reliability of 0.9053 for English version of VIS-22.[7,11] In Hindi version, the test- retest reliability of VIS-22 (r=0.91) at baseline and 2nd visit showed a strong correlation (p<0.001). However, in the Hindi version, the VIS-22 was administered to 69 patients at an interval of two weeks and showed a high correlation (r=0.91, p=0.049).[16] In this current study, factor analysis-principal component analysis with the distribution of varimax rotation of VIS-22 Bangla ranged from 0.14 to 0.88. The highest score was 0.88 for item 22. The lowest score was 0.14 for item 21. Six components were extracted which proved its multidimensionality.[17] In this study, the distribution of varimax rotation of VIS-22 Bangla ranged from 0.45 to 0.60. The highest score was 0.60 for item SF 36 emotional. The lowest score was 0.45 for the item- SF 36 social domain. In the South Indian Kannada version, the convergent validity in the population was evident by a strong correlation of VIS-22 with DLQI and Skindex-16 (p<0.001). The total scores of VIS-22 showed a poor correlation with the symptom domain of Skindex-16 (r=0.462), while there was a strong correlation with emotion and social functioning domains (r=0.713 and 0.702, respectively) at baseline.[11] Similar observations were made by Gupta et al where the convergent validity was evident by the strong correlation of VIS-22 with DLQI and Skindex-16 (p<0.001).[7] The total scores of VIS-22 showed a poor correlation with the symptom domain of Skindex-16 (r=0.36), but a moderate-to-strong correlation with emotion and social functioning domains (r=0.63 and 0.74, respectively).[7] In Hindi version of VIS-22 was found to have good convergent validity (strong correlation with DLQI, r=0.71-0.78, p<0.001; skindex-16, r=0.72-0.79, p<0.001).[16]

CONCLUSION

The Bangla version of the VIS-22 was developed following the standard procedure as recommended by Beaton et al published in 2000. The adapted Bangla version of the VIS-22 questionnaire was found to be a reliable and valid measure for evaluating the quality of life for Bangladeshi patients with vitiligo which demonstrates good internal consistency and significant test-retest reliability. All the validity measuring parameters were satisfactory fulfilling the criteria of a valid tool.

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