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RESEARCH ARTICLE

Turkish Adaptation of the Stoma-Specific Quality of Life Questionnaire: A Validity and Reliability Study

Burcu Duluklu[1], Timuçin Erol[2], Serpil Şerife Altınok[3], Şule Şahin[3]

[1]Hacettepe University Faculty of Nursing, Ankara, Türkiye
[2]Independent Researcher, Ankara, Türkiye
[3]Hacettepe University Hospital, Department of General Surgery, Stoma and Wound Care Unit, Ankara, Türkiye

ABSTRACT

Aim: This methodological study aimed to evaluate the validity and reliability of the Turkish version of the Stoma-Specific Quality of Life (SQOL-TR) questionnaire, developed to assess the Quality of Life in individuals with enteral and urinary ostomies.

Method: The study was conducted with 125 patients with ostomies at the stoma therapy unit of a university hospital in Ankara. Data were collected using a demographic information form, the Quality-of-Life Scale for Individuals with an Ostomy (O-QOL), and the SQOL-TR. In the first stage, linguistic validation and a pilot test were conducted. In the second stage, construct validity was assessed using confirmatory factor analysis, and concurrent validity was evaluated through comparison with the O-QOL. Reliability was tested via Cronbach's alpha, composite reliability, and item analysis.

Results: Participants had a mean age of 59.66±12.70 years and an average ostomy duration of 16.47±21.86 months. Of these, 40.0% had colostomies, 29.6% ileostomies, and 26.4% urostomies. Psychometric analyses revealed a content validity index of 1.00. The questionnaire consisted of four subdimensions: elimination concerns, psychological impact, daily activities, and social relationships. It showed a strong positive correlation with the O-QOL ($r=0.78$, $p<0.001$) and a reliability coefficient of 0.964. All items demonstrated high discriminative power.

Conclusion: The SQOL-TR is a valid and reliable instrument for individuals with colostomies, ileostomies, or urostomies. Adapted into six cultures, it is suitable for use in multicenter and multinational research as well as clinical follow-up.

Keywords: Quality of Life, colostomy, ileostomy, reliability, urostomy, validity

Introduction

Cancers of the colon, rectum, small intestine, and bladder are major contributors to global cancer-related morbidity and mortality.[1,2] According to data from the International Agency for Research on Cancer, colorectal cancer ranks as the fourth most frequently diagnosed malignancy worldwide, whereas bladder cancer ranks eleventh.[3] Although cancers of the small intestine occur less frequently, they still represent a critical clinical concern. In Türkiye, according to 2019 data published in 2023 by the Ministry of Health, gastrointestinal cancers rank eighth among all malignancies.[4] The standard treatment modalities for these cancers include surgery, radiotherapy, and chemotherapy. Depending on the tumor site and extent, surgical resection may lead to the formation of either a temporary or permanent ostomy.[5,6] In colorectal and small bowel cancers, anastomosis or ostomy formation is often required. In cases of muscle-invasive or high-risk non-muscle-invasive bladder carcinoma unresponsive to intravesical Bacillus Calmette-Guérin therapy, radical cystectomy followed by continent or incontinent urinary diversion is employed to ensure urinary excretion.[7] An estimated 700,000 individuals in Europe live with an ostomy, including colostomy, ileostomy, and urostomy, with

Address for Correspondence: Burcu Duluklu PhD, Faculty of Nursing, Hacettepe University, Ankara, Türkiye
E-mail: duluklu@hacettepe.edu.tr **ORCID ID:** orcid.org/0000-0002-6955-2538
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prevalences of 0.12%, 0.07%, and 0.02%, respectively.[8,9] In Italy, over 70,000 individuals live with an ostomy,[10] whereas in the United States, this number reaches nearly one million.[11] In Türkiye, Yılmaz et al.[12] reported that 22,557 new ostomies were created nationally between 2017 and 2019.

Living with an ostomy can considerably impact a patient's Quality of Life (QoL) across physical, psychological, and social dimensions.[5,13,14] Patients frequently experience defecation or urinary control issues, odor, and skin irritation, along with psychological symptoms such as anxiety, depression, and social withdrawal.[13,14] These complications can lead to challenges in personal relationships, decreased intimacy, isolation, increased familial or social rejection, and even financial stress due to job loss or career changes.[5,13,14] Although QoL assessment tools have evolved over the years,[15,16] many studies continue to rely on general QoL instruments that are not tailored to ostomy-specific concerns.[7,17,18] A growing body of research has supported the use of ostomy-specific tools in recent years;[15,16] however, these often focus narrowly on selected QoL dimensions such as sexuality or social interactions.[19,20] Furthermore, most tools are validated only in individuals with enteral ostomies (colostomy, ileostomy)[13,16,19,21] or solely in urostomy populations.[7,17,20] This highlights the need for an inclusive, culturally validated tool capable of evaluating QoL in individuals with both enteral and urinary ostomies. In Türkiye, the only existing adapted instrument is the Quality-of-Life Scale for Individuals with an Ostomy (O-QOL), developed by Karadağ et al. in 2011.[22] Although the O-QOL has been accepted as a reliable measure, its scoring procedure is complex due to reverse-coded items and formula-based subscales. Furthermore, some items are irrelevant for patients without school or employment responsibilities, those without sexual partners, or individuals with urostomies.[22]

In response to these limitations, the Stoma-specific Quality of Life (SQOL) questionnaire was developed to comprehensively evaluate QoL in patients with ostomies. Unlike the O-QOL, it assesses sleep, sexual activity, family and social relationships, and broader psychosocial dimensions. Validated across multiple cultural contexts, including Italy, Spain, Brazil, Canada, and China, the SQOL has been shown to be appropriate for use in individuals with colostomy, ileostomy, and urostomy.[8,23-26] Although the original version did not include patients with urostomies, later studies emphasized the need to evaluate its reliability and validity in this group.[27]

Aim of the Study

There is a need for a culturally valid and reliable instrument tailored to the Turkish population to identify ostomy-related challenges, guide care practices, and assess the impact of clinical interventions aimed at improving QoL following ostomy surgery. Therefore, this study aims to examine the validity and reliability of the Turkish version of the SQOL (SQOL-TR) in individuals with enteral or urinary ostomies.

Research question: Is the SQOL questionnaire a valid and reliable tool for use among Turkish patients with ostomies?

Materials and Methods

Study Design and Sample

This methodological study followed standard cultural adaptation procedures and was conducted between February 2022 and February 2023 at the Stoma and Wound Care Unit of the Department of General Surgery, Hacettepe University Hospital. The study population included patients who had received ostomies at least 1 month prior and were being followed up in the same unit. In 2022, the unit monitored 132 patients with ostomies.

As stated by İlhan et al.[28], in methodological research, sample size calculations should consider the ratio of the sample size to the number of scale items. Various scholars made the following suggestions: Everitt (1975) proposed a minimum ratio of 5:1, Cattell (1978) recommended at least 6:1, and Nunnally (1978) suggested a ratio of at least 10:1.[28] Based on this data, the minimum sample size for the SQOL-TR, which consists of 20 items, was determined to be 100. The study was completed with 125 participants.

The inclusion criteria were as follows: voluntary participation, age 18 or older, having an ostomy for at least 1 month, literacy, and fluency in Turkish.

The exclusion criterion was as follows: any condition impairing communication (e.g., cognitive or neuropsychiatric disorders).

Data Collection Tools

Introductory Information Form

This form comprised 18 items designed to collect demographic information (e.g., age, gender, marital status, education level) and clinical characteristics related to the ostomy.

SQOL Questionnaire

Originally developed in English, the SQOL includes 20 items that evaluate the QoL in individuals living with an ostomy.[27] Its Cronbach's alpha (α) was reported as 0.92. The questionnaire targets four key domains: Sleep, Sexual Activity, Relations to Family and Close Friends, and Social Relations Outside Family and Close Friends. The original study confirmed a unidimensional structure for the questionnaire.

Although adaptations in Canada, Italy, Brazil, and Spain also recognized these four domains as sub-dimensions, no consensus was reached on item-to-domain mapping.[23,29-31] In contrast, Shao et al.[32] restructured the Chinese version into four factors. Factor I, Social Relationship, merged items

regarding both close and extended social relations. Factor II, Psychological Impact, included items addressing discomfort, embarrassment, concealment, body image, and sexual attractiveness, and the original Sexual Activity dimension was incorporated here. Factor III, Defecation Concerns, included items related to leakage, odor, and toilet access. Factor IV, Daily Function, reflected core tasks such as sleep and dressing, largely aligning with the original Sleep domain.[32]

Shao et al.[32] reported Cronbach's α coefficients of 0.93 for the total questionnaire and 0.73-0.83 for the sub-dimensions. The Turkish version adopted this factor structure:

- Elimination concerns: Items 1-4
- Psychological impact: Items 5, 9, and 11-14
- Daily activities: Items 6-8 and 10
- Social relationships: Items 15-20

Each item is rated on a 4-point Likert scale (1= always, 4= never). The total score ranges from 20 to 80, with higher scores indicating better QoL.

QoL Scale for O-QOL

To evaluate norm-referenced reliability, the O-QOL developed by Baxter et al.[33] and validated in Turkish by Karadağ et al.[22] was used. It contains 21 items and has an overall Cronbach's α of 0.87. Subscales include Work/Social Life (6 items, α=0.77), Sexuality/Body Image (5 items, α=0.72), and Stoma Function (6 items, α=0.76). The first 2 items assess general satisfaction. The first part is scored 0-100, and the second part uses a 5-point Likert scale. The instrument also includes 2 single items addressing financial concerns and skin irritation. Subscale scores are calculated using specific formulas and range from 0 to 100, with higher scores reflecting greater QoL.[22]

Implementation of the Study

Linguistic Validation

To ensure linguistic validity, the original questionnaire was translated into Turkish by five bilingual experts with experience in ostomy care. These translations were synthesized into a single version and reviewed by another expert for accuracy. This Turkish version was then back-translated into English by a native-level speaker unfamiliar with the original questionnaire. The back-translation was compared with the original for semantic consistency, and necessary revisions were made. Finally, another bilingual expert evaluated both versions for conceptual equivalence, after which the final Turkish version was confirmed.

Content Validity

To evaluate the content validity of the linguistically adapted SQOL-TR, Davis's[34] technique was employed. In this method, each item in the questionnaire is assessed using a four-point structure: (a) appropriate, (b) needs revision, (c) needs major revision, and (d) not appropriate. The content validity index (CVI) for each item is calculated by dividing the number of experts selecting "a" or "b" by the total number of experts. A CVI greater than 0.80 indicates that the item is content-valid.[34,35] Accordingly, the evaluation form was reviewed by 10 doctoral-level experts in nursing with research experience in scale validation and ostomy care. Experts were also asked to provide suggestions regarding each item. Based on their feedback, items were scored on a 4-point scale: 4= very appropriate, 3= appropriate with minor revision, 2= requires modification, and 1= not appropriate. These evaluations were used to determine the appropriateness of each item.

Pilot Study of the Questionnaire

A pilot study was conducted with five participants to identify potential semantic or structural issues in the linguistically and content-validated the SQOL-TR. No modifications were required following the pilot phase. Participants involved in the pilot were excluded from the main data analysis.

Construct Validity

To assess the construct validity of the SQOL-TR, confirmatory factor analysis (CFA) was employed. The four-factor structure previously validated by Shao et al.[32] was tested. Factor loadings and model-data fit indices were used to determine whether this model was validated. The fit indices included chi-square to degrees of freedom ratio (χ^2/df), comparative fit index (CFI), non-normed fit index/Tucker-Lewis index (TLI), standardized root mean square residual (SRMR), and root mean square error of approximation (RMSEA).

Concurrent Validity

To assess concurrent validity, the SQOL-TR and the O-QOL were administered concurrently to 125 participants, and the correlation between the two instruments was calculated. Following the completion of validity analyses, reliability assessments were conducted.

Reliability Analyses

For the reliability assessment of the SQOL-TR, Cronbach's α was calculated for the total questionnaire and all sub-dimensions. Additionally, the composite reliability coefficient was evaluated using McDonald's omega, and item analysis was performed through a 27% sub-upper group comparison.

Statistical Analysis

Data were analyzed using the Statistical Package for the Social Sciences for Windows (version 23.0; IBM Corp., Armonk, NY, USA) and jamovi (version 2.6; the jamovi project, Sydney, Australia). Descriptive statistics (frequency, percentage, mean, and standard deviation) were applied. Pearson's correlation measured relationships. CFA was conducted in jamovi.

Normality was assessed via skewness and kurtosis, with ±1 considered acceptable.[36] Statistical significance was set at $p<0.05$.

Ethical Considerations

Permission was obtained from the original authors of the SQOL to conduct a validity and reliability study. Ethical approval was granted by the Hacettepe University Ethics Committee (GO21/1034), along with institutional permission. (approval number: 2021/20-02, dated: 05.10.2021). Informed consent was obtained from all participants, and the study was conducted in accordance with the principles of the Declaration of Helsinki.

Results

Participants had a mean age of 59.66 (±12.70) years and had lived with ostomies for an average of 16.47 (±21.86) months. Of the sample, 48.8% were men, 50.4% had permanent ostomies, and 48.0% reported income below expenses. Nearly half (45.6%) experienced at least one ostomy-related complication. Most participants (76.8%) contributed financially to ostomy supplies, and 32.0% were receiving chemotherapy. Preoperative ostomy site marking was performed by stoma and wound care nurses in 78.6% of applicable cases. Further demographic and clinical data are presented in Table 1.

Validity Analyses

Content Validity

The CVI for all items of the linguistically validated questionnaire was 1.00, indicating high content validity; therefore, no modifications were made to the items.

Construct Validity

Factor loadings ranged from 0.76 to 0.85 for Elimination Concerns, 0.55 to 0.81 for Psychological Impact, 0.71 to 0.82 for Daily Activities, and 0.78 to 0.93 for Social Relationships. Overall loadings ranged from 0.55 to 0.93, all exceeding the recommended threshold of 0.32 for construct validity.[37] The detailed factor structure and factor loadings of the SQOL-TR are given in Table 2.

CFA yielded acceptable fit indices: $\chi^2/df = 2.17$, CFI =0.92, TLI =0.90, SRMR =0.05, and RMSEA =0.09. These results confirm the construct validity of the SQOL-TR.[38] Details are presented in Table 3.

Concurrent Validity

Analysis revealed a significant positive correlation between the SQOL-TR and the O-QOL ($r=0.78$, $p<0.001$). This indicates that as QoL scores obtained from the SQOL-TR increased, O-QOL scores also increased, confirming the concurrent validity of the SQOL-TR. Following completion of the validity assessments, reliability analyses were conducted.

Table 1. Distribution of descriptive and clinical characteristics of the patients

Characteristics	$\bar{X}$ ± SD	
Age	59.66±12.70	
Duration of having an ostomy (month)	16.47±21.86	
Sex	**n**	**%**
Female	64	51.2
Male	61	48.8
Employment		
Working	13	10.4
Retired	59	47.2
Not working	53	42.4
Educational status		
Literate	5	4.0
Primary education	60	48.0
High school	35	28.0
Higher education and postgraduate	25	20.0
Socioeconomic status		
Income less than expenses	60	48.0
Income equal to expenses	46	36.8
Income higher than expenses	19	15.2
Marital status		
Single	14	11.2
Married	99	79.2
Separated from/deceased spouse	12	9.6
Cohabitants		
Lives alone	12	9.6
Spouse/child	108	86.4
Family/friend	5	4.0
Preoperative diagnosis		
Bladder cancer	35	28.0
Colon cancer	38	30.4
Rectal cancer	29	23.2
Other*	23	18.4
Type of ostomy		
Colostomy	50	40.0
Ileostomy	37	29.6
Urostomy	33	26.4
More than one ostomy‡	5	4.0
Who takes care of the stoma		
Oneself	44	35.2

Table 1. continued

Characteristics	$\bar{X}$ ± SD	
Family/caregiver	67	53.6
Oneself with relatives	14	11.2
Financial source of stoma care supplies		
Oneself only	24	19.2
Health insurance	5	4.0
Health insurance and supplementary payment	96	76.8
Stomal complications (n=64)		
Peristomal skin problems	45	70.3
Parastomal hernia	8	12.5
Prolapse	3	4.7
Peristomal bleeding	3	4.7
Other⁂	5	7.8
Bag-changing frequency		
Once every 1-3 days	64	51.2
Once every 4-7 days	54	43.2
Twice a day	7	5.6

$\bar{X}$: mean, SD: standard deviation, *: small intestine tumor (n=4), inflammatory bowel disease (n=3), familial adenomatous polyposis (n=2), hidradenitis suppurativa (n=1), colovesical fistula (n=2), cervix/ovarian/uterus tumor (n=9), prostate tumor (n=1), bladder and colon tumor (n=1), ⁑: urostomy and temporary colostomy (n=2), urostomy and permanent colostomy (n=1), urostomy and temporary ileostomy (n=1), ⁂: stenosis (n=1), fistula (n=1), retraction (n=1), mucocutaneous separation (n=1), pyoderma gangrenosum (n=1)

Reliability Analyses

The SQOL-TR demonstrated excellent reliability, with a Cronbach's α of 0.964 and sub-dimension values ranging from 0.846 to 0.947. Composite reliability ranged from 0.852 to 0.949. Coefficients above 0.70 indicate strong reliability.[38] The results are presented in Table 4.

Item Analysis

To determine the discriminative power and total score prediction levels of the items, corrected item-total correlations and 27% sub-upper group comparisons were conducted. The t-values between the sub and upper groups ranged from 15.74 to 21.66 for Elimination Concerns, 9.02 to 25.53 for Psychological Impact, 10.73 to 13.29 for Daily Activities, and 17.04 to 30.52 for Social Relationships ($p<0.001$), indicating significant discriminative power.

Item-total correlations ranged from 0.72 to 0.85 for Elimination Concerns, 0.48 to 0.79 for Psychological Impact, 0.61 to 0.75 for Daily Activities, and 0.74 to 0.88 for Social Relationships.

Table 2. Factor structure and factor loads of the SQOL-TR questionnaire

Factor	Item no.	Statements	Factor loads
Factor 1. Elimination concerns	SQOL-TR_1	I become anxious when the pouch is full.	0.79
	SQOL-TR_2	I worry that the pouch will loosen.	0.81
	SQOL-TR_3	I feel the need to know where the nearest toilet is.	0.76
	SQOL-TR_4	I worry that the pouch may smell.	0.85
Factor 2. Psychological impact	SQOL-TR_5	I worry about noises from the stoma.	0.74
	SQOL-TR_9	My stoma makes me feel sexually unattractive.	0.55
	SQOL-TR_11	I worry that the pouch rustles.	0.79
	SQOL-TR_12	I feel embarrassed about my body because of my stoma.	0.81
	SQOL-TR_13	It would be difficult for me to stay away from home overnight.	0.80
	SQOL-TR_14	It is difficult to hide the fact that I wear a pouch.	0.81
Factor 3. Daily activities	SQOL-TR_6	I need to rest during the day.	0.82
	SQOL-TR_7	My stoma pouch limits the choice of clothes that I can wear.	0.73
	SQOL-TR_8	I feel tired during the day.	0.81
	SQOL-TR_10	I sleep badly during the night.	0.71
Factor 4. Social relationships	SQOL-TR_15	I worry that my condition is a burden to people close to me.	0.78
	SQOL-TR_16	I avoid close physical contact with my friends.	0.91
	SQOL-TR_17	My stoma makes it difficult for me to be with other people.	0.93
	SQOL-TR_18	I am afraid of meeting new people.	0.89
	SQOL-TR_19	I feel lonely even when I am with other people.	0.82
	SQOL-TR_20	I worry that my family feels awkward around me.	0.83

SQOL-TR: Turkish version of the Stoma-specific Quality of Life questionnaire

Table 3. Fit index values obtained from confirmatory factor analysis

Fit indexes examined	Fit indexes obtained	Recommended values for acceptable fit[37,38]	Result
χ^2/df	2.17	$2 \leq \chi^2/df \leq 3$	Acceptable Fit
CFI	0.92	0.90≤ CFI ≤0.95	Acceptable Fit
TLI (NNFI)	0.90	0.90≤ TLI (NNFI) ≤0.95	Acceptable Fit
SRMR	0.05	0.00≤ SRMR ≤0.05	Perfect Fit
RMSEA	0.09	<0.10	Acceptable Fit

χ^2: Chi-square, df: Degrees of freedom, CFI: Comparative fit index, TLI (NNFI): Tucker–Lewis index (non-normed fit index), SRMR: Standardized root mean square residual, RMSEA: Root mean square error of approximation

Table 4. Reliability coefficients of the SQOL-TR questionnaire

Subscales	Cronbach's Alpha	McDonald's Omega
Elimination concerns	0.901	0.904
Psychological impact	0.887	0.892
Daily activities	0.846	0.852
Social relationships	0.947	0.949
SQOL-TR	**0.964**	**0.964**

SQOL-TR: Turkish version of the Stoma-specific Quality of Life questionnaire

Correlations above 0.30 are considered adequate for discriminative power. These findings confirm that all SQOL-TR items are sufficiently capable of distinguishing the quality being measured. Detailed results are presented in Table 5.

Interpretation of the SQOL-TR Questionnaire Scores

The SQOL-TR consists of 20 items; each is rated on a 4-point Likert-type scale ranging from always (1) to never (4). The questionnaire includes four sub-dimensions: Elimination Concerns (4 items), Psychological Impact (6 items), Daily Activities (4 items), and Social Relationships (6 items). No items were excluded from the final version.

Scores range from 4 to 16 for sub-dimensions with 4 items and from 6 to 24 for those with 6 items. Higher scores on each sub-dimension and the total questionnaire indicate better QoL among individuals with ostomies.

Discussion

This study aimed to evaluate the validity and reliability of the SQOL-TR among individuals with ostomies living in Türkiye. The factor loadings obtained for both the total questionnaire and its sub-dimensions were high. In comparison, the Chinese adaptation of this questionnaire reported overall factor loadings ranging from 0.48 to 0.81.[32] In the same study, factor loadings were 0.71-0.75 for Defecation Concerns, 0.52-0.71 for Psychological Impact, 0.48-0.78 for Daily Function, and 0.50-0.83 for Social Relationship.[32] The present study demonstrated even higher factor loadings across all sub-dimensions and the total questionnaire, indicating that the SQOL-TR has strong construct validity.

A key condition for establishing construct validity is ensuring model-data fit. In this study, CFA demonstrated fit indices ranging from acceptable to excellent, indicating that the hypothesized four-factor structure fits the data well. These findings are consistent with those from the Spanish[29], Canadian[31], and Chinese[32] adaptations of the questionnaire. Therefore, the structural model validated in the Turkish context is comparable with those observed in previous international adaptations.

Another essential step in cultural adaptation studies is to demonstrate concurrent validity by correlating the adapted scale with an instrument already accepted as valid and reliable within the same cultural context.[31] In this regard, the O-QOL, adapted to Turkish by Karadağ et al.[22], is a well-established tool for measuring QoL in Turkish patients with ostomies. The current study found a considerable positive correlation between the SQOL-TR and the O-QOL, supporting the claim that the SQOL-TR accurately measures QoL among patients with ostomies.

Internal consistency, measured through Cronbach's α and composite reliability, is one of the most frequently used techniques in scale validation.[22,23,37] In this study, the SQOL-TR demonstrated excellent reliability, with Cronbach's α and composite reliability values exceeding conventional thresholds. The internal consistency of the original English version was reported as 0.92[27], whereas the Italian[23], Spanish[29], Brazilian[30],

Table 5. Item analysis of the SQOL-TR questionnaire (factor 1 and factor 2)

Factor	Item no.	Cronbach's α if the item is deleted	Adjusted item total correlation	$\bar{X}$	SD	t	Analysis
Factor 1. Elimination concerns	SQOL-TR_1	0.859	0.813	2.50	1.14	-21.66	df =71 **p=0.000**
	SQOL-TR_2	0.846	0.851	2.52	1.10	-21.38	
	SQOL-TR_3	0.891	0.727	2.43	1.13	-15.74	
	SQOL-TR_4	0.891	0.727	2.72	1.14	-16.52	
Factor 2. Psychological impact	SQOL-TR_5	0.874	0.655	2.71	1.09	-12.98	df =66 **p=0.000**
	SQOL-TR_9	0.901	0.484	2.51	1.16	-9.02	
	SQOL-TR_11	0.855	0.780	3.06	1.09	-14.80	
	SQOL-TR_12	0.852	0.790	3.12	1.13	-16.27	
	SQOL-TR_13	0.860	0.742	2.67	1.24	-25.53	
	SQOL-TR_14	0.855	0.775	3.07	1.16	-18.08	

SQOL-TR: Turkish version of the Stoma-specific Quality of Life questionnaire, SD: Standard deviation, df: Degrees of freedom, $\bar{X}$: Mean, t: Independent-samples t-test

Table 5 (Continue). Item analysis of the SQOL-TR questionnaire (factor 3 and factor 4)

Factor	Item no.	Cronbach's α if the item is deleted	Adjusted item total correlation	$\bar{X}$	SD	t	Analysis
Factor 3. Daily activities	SQOL-TR_6	0.785	0.730	2.39	0.99	-12.73	df =87 **p=0.000**
	SQOL-TR_7	0.825	0.644	2.44	1.11	-13.29	
	SQOL-TR_8	0.776	0.754	2.40	0.96	-12.86	
	SQOL-TR_10	0.832	0.617	2.53	1.02	-10.73	
	SQOL-TR_15	0.949	0.742	2.78	1.18	-24.96	
Factor 4. Social relationships	SQOL-TR_16	0.933	0.869	2.96	1.15	-25.36	df =78 **p=0.000**
	SQOL-TR_17	0.932	0.874	3.01	1.18	-30.52	
	SQOL-TR_18	0.932	0.880	3.24	1.07	-20.52	
	SQOL-TR_19	0.937	0.834	3.31	1.03	-17.04	
	SQOL-TR_20	0.937	0.841	3.28	1.02	-17.82	

SQOL-TR: Turkish version of the Stoma-specific Quality of Life questionnaire, SD: Standard deviation, df: Degrees of freedom, $\bar{X}$: Mean, t: Independent-samples t-test

Canadian[31], and Chinese[32] adaptations reported coefficients of 0.90, 0.86, 0.87, 0.93, and 0.93, respectively. Based on these findings, the SQOL-TR appears to exhibit the highest internal consistency among the culturally adapted versions of the questionnaire.

Although item discriminative power analysis is a commonly used method to evaluate reliability,[37, 38] it was not reported in the original development study or in most adaptation studies. However, the current study included item discriminative power analysis and found that all items in the SQOL-TR significantly differentiated between sub and upper scoring groups. These results support the instrument's ability to detect variation across different levels of perceived QoL, indicating that the items are also reliable at the item level.

Limitations and Strengths of the Study

This research has some limitations. First, this was a single-center study. Second, the psychological state of the patients during the interviews may have influenced the data obtained. The sample consisted of 125 participants, drawn from the 132 patients with ostomies followed up at the study center within 1 year.

Although limited by low survival rates, this sample size is notable compared with previous studies: 182 participants across four European countries in the original development[27], 251 from 73 centers in Italy[23], 125 in Spain[29], 111 in Brazil[30], and 120 in Canada[31]. Reaching this number in a single center within 1 year reflects a strength of this study.

Conclusion

The SQOL-TR is a user-friendly, multidimensional, and objective tool for healthcare professionals working with patients with ostomies (Supplementary file). This adaptation confirmed its validity and reliability for individuals with colostomy, ileostomy, or urostomy. It is recommended for use in clinical and multinational studies as a standardized QoL assessment instrument.

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Ethics

Ethics Committee Approval: Ethical approval was granted by the Hacettepe University Ethics Committee (GO21/1034), along with institutional permission (approval number: 2021/20-02, dated: 05.10.2021). **Informed Consent:** Informed consent was obtained from all participants, and the study was conducted in accordance with the principles of the Declaration of Helsinki.

Footnotes

Authorship Contributions

Surgical and Medical Practices: T.E., S.Ş.A., Ş.Ş., Concept: B.D., T.E., Design: B.D., T.E., Data Collection or Processing: B.D., S.Ş.A., Ş.Ş, Analysis or Interpretation: B.D., Literature Search: B.D., T.E., Writing: B.D., T.E., S.Ş.A., Ş.Ş.

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