

Development and Psychometric Evaluation of a Sexual Quality of Life Scale Specific to Patients with a Stoma

Stomaya Özgü Cinsel Yaşam Kalitesi Ölçeğinin Geliştirilmesi ve Psikometrik Değerlendirilmesi

Seçil TAYLAN¹
İlknur ÖZKAN²
Selma ÖNCEL³
Ömer ALABAZ⁴



¹Akdeniz University, Kumluca Faculty of Health Sciences, Surgical Nursing Department, Antalya, Türkiye

²Akdeniz University, Kumluca Faculty of Health Sciences, Internal Medicine Nursing Department, Antalya, Türkiye

³Akdeniz University, Faculty of Nursing, Community Health Nursing Department, Antalya, Türkiye

⁴Çukurova University, Faculty of Medicine, Balcalı Hospital, Department of General Surgery, Adana, Türkiye



ABSTRACT

Objective: This study was conducted to develop a Sexual Quality of Life Scale Specific for Patients with a Stoma.

Methods: The study used a methodological design and involved 179 people with an intestinal stoma.

Results: Following exploratory factor analysis, the scale found that the scale to consist of four subdimensions (worries about spouse/partner, body image distortion, sexual dysfunction, and negative emotions) and 24 items explaining these dimensions. All factors together were found to explain 84.923% of the total variance. The confirmatory factor analysis model showed a good fit, with factor loadings ranging from 0.584 to 0.975. The subdimensions had high Cronbach's alpha values between 0.910 and 0.981, indicating high internal consistency.

Conclusion: As a result of the overall psychometric evaluation of the Stoma Sexual Quality of Life Scale, it was found to be a valid and reliable tool for assessing sexual quality of life in individuals with an intestinal stoma.

Keywords: Stoma, sexuality, sexual quality of life, scale, adaptation, validity, reliability

ÖZ

Amaç: Bu çalışma, stomaya özgü bir Cinsel Yaşam Kalitesi Ölçeği geliştirmek amacıyla yapılmıştır.

Yöntemler: Çalışma, metodolojik bir tasarım kullanılarak gerçekleştirilmiş ve bağırsak stomalı 179 kişiyi kapsamıştır.

Bulgular: Yapılan açıklayıcı faktör analizi sonucunda, ölçeğin dört alt boyuttan (eş/partnerle ilgili endişeler, beden imajında bozulma, cinsel işlev bozukluğu ve olumsuz duygular) ve bu boyutları açıklayan 24 maddeden oluştuğu tespit edilmiştir. Tüm faktörlerin birlikte toplam varyansın %84,923'ünü açıkladığı belirlenmiştir. Doğrulamalı faktör analizi modelinin iyi bir uyum gösterdiği ve faktör yüklerinin 0,584 ile 0,975 arasında değiştiği saptanmıştır. Alt boyutların Cronbach alfa değerlerinin 0,910 ile 0,981 arasında olduğu ve bu değerlerin yüksek iç tutarlılık gösterdiği bulunmuştur.

Sonuç: Stoma Cinsel Yaşam Kalitesi Ölçeği'nin genel psikometrik değerlendirmesi sonucunda, bağırsak stomalı bireylerin cinsel yaşam kalitesini belirlemek için geçerli ve güvenilir bir araç olduğu belirlenmiştir.

Anahtar Kelimeler: Stoma, cinsellik, cinsel yaşam kalitesi, ölçek, adaptasyon, geçerlilik, güvenilirlik.

Geliş Tarihi/Received 16.09.2024
Revizyon Talebi/Revision Requested 01.06.2025
Son Revizyon/Last Revision 01.09.2025
Kabul Tarihi/Accepted 06.08.2025
Yayın Tarihi/Publication Date 01.10.2025

Sorumlu Yazar/Corresponding author:

İlknur ÖZKAN

E-mail: ilknurozkan@akdeniz.edu.tr

Cite this article: Taylan S, Özkan İ, Öncel S, Alabaz Ö. Development and Psychometric Evaluation of a Sexual Quality of Life Scale Specific to Patients with a Stoma. *J Nursology*.
doi:10.17049/jnursology.1550819



Content of this journal is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

INTRODUCTION

Sexuality is part of human life.¹ In patients with a stoma, sexuality is affected significantly negatively in all aspects, and patients' quality of sex life decreases.²⁻⁴ Sexual dysfunction is one of the most important problems affecting the quality of sex life in patients with a stoma.^{3,5,6} The stoma may be affected by the patient's sexual dysfunction, the underlying condition, the surgery itself, or the type of treatment. For example, surgery to create an artificial anus has a significant impact on patients' sexual activity. This may cause problems, such as low sexual desire, vaginal dryness and pain during sex in women, and erectile dysfunction and retrograde ejaculation in men.^{3,7}

Problems such as the existence of a stoma bag, fear of leaks, lack of control over leaking gas and faeces, and unpleasant odours lead to a deterioration in the patient's body image⁸, negative emotions such as disgust⁹, embarrassment⁹, anger⁸, anxiety⁸ and sadness⁸, a decrease in self-esteem and a deterioration in self-concept.^{8,9} All these psychological factors can cause avoidance of sexual intercourse, sexual reluctance, and sexual dysfunction by negatively affecting the sexual self-efficacy of patients with a stoma and their sexual quality of life.^{3,10}

Stoma also affects patients' close relationships with their partners. Disruption of the physiological bowel movement process after stoma surgery, deterioration of body image, and problems with sexual function are the main factors that disrupt the close relationships of patients with stoma. On the other hand, spouses who assume the role of caregivers may have difficulty perceiving themselves as a lover and may perceive themselves as a caregiver or a friend.^{3,4,11}

Sexuality is a multidimensional concept that includes physical, emotional, psychological, and social aspects. However, studies on sexuality in patients with a stoma generally focus only on physical sexual functions, which leads to the neglect of other important dimensions of sexuality. To evaluate the sexual life quality of patients with a stoma holistically, mental, emotional, and social components should be considered in addition to physical sexual functions. In studies on the evaluation of sexuality in patients with a stoma, the Golombok Rust Inventory of Sexual Satisfaction, the International Female Sexual Function Index, the International Index of Erectile Function, the Arizona Sexual Experiences Scale, the Rectal Cancer Female Sexuality Score, the Sexual Function Vaginal Changes Questionnaire have been used.^{2-4,11} The absence of general sexual quality of life scales in these studies

indicates that the sexual experiences of individuals with a stoma have not been addressed in a holistic manner, revealing a significant gap in the literature. These scales are not specific to assessing the quality of sex life of patients with a stoma and their physical sexual dysfunction. As far as we know, there is no sexual quality of life scale specific for patients with a stoma. The development of this tool will enable a more comprehensive assessment of the sexual quality of life in patients with a stoma, thereby supporting the identification of their specific needs and the planning of individualized care interventions. The scale developed in this study will be a useful tool for assessing sexuality and quality of life, which is a difficult topic to discuss between health professionals and ostomy patients.

AIM

This methodological study aimed to develop and validate the Stoma Sexual Quality of Life Scale (SSQoLS), designed to evaluate the sexual quality of life in individuals living with a stoma.

Research questions

- What are the psychometric properties (validity and reliability) of the newly developed SSQoLS?
- Can the SSQoLS be considered a valid and reliable tool for assessing sexual quality of life in stoma patients?

METHODS

Design of the study

This study was conducted as a methodological study.

Population and sample details

Participants in this research were individuals with an intestinal stoma, all of whom were members of the Ostomy Surgery Society. Methodological studies suggest having a sample size at least five times larger than the number of scale items.^{12,13} Given that the initial SSQoLS comprised 32 items, the research included 179 participants who had an intestinal stoma. Selection for the study was based on several criteria: the presence of an intestinal stoma, consent to participate, being 18 years or older, absence of communication difficulties, having a sexual partner, being sexually active prior to the surgery, having no medical conditions or medication use that could hinder sexual activity, and being post-operative by at least two months. This last criterion was based on evidence suggesting that stoma patients typically return to their pre-surgery sexual quality of life within two months post-operation.^{2,14,15} This stipulation was incorporated to mitigate the immediate impact of the surgical procedure and to consider the individual's adjustment to everyday life post-surgery.

Participants were reached through the Ostomy Surgery Society between October 12, 2021, and May 24, 2022. Data were collected through face-to-face interviews conducted in a private room at the association's meeting center, ensuring participant comfort and confidentiality. Before the interviews, verbal informed consent was obtained from each participant after providing detailed information about the purpose and procedure of the study. Data security was ensured by storing all forms in a locked cabinet and transferring electronic records to a password-protected computer accessible only by the researchers. Before inclusion in the study, participants were briefly evaluated to ensure they met all inclusion criteria, particularly regarding their health status, communication ability, and sexual history.

Ethical considerations

Before the study was initiated, the written permission of the Akdeniz University Faculty of Medicine Clinical Research Ethics Committee (KAEK-794/10.11.2021) and the Ostomy Surgery Society, and verbal consent of the individuals with an intestinal stoma who participated in the study were obtained.

The scale development process

Step 1: Creation of the item pool

The literature suggests creating an item pool as the first step in tool development studies.^{16,17} A comprehensive literature review^{6,9,15} was conducted to create an item pool, and the "deductive method," which includes item creation based on pre-existing scales, was preferred. The draft scale consisted of a five-point Likert-type structure (strongly agree=5, agree=4, undecided=3, disagree=2, and strongly disagree=1) and 32 items.

Step 2: Theoretical analysis

In the theoretical analysis step, which is the second stage of the scale development process, the content validity of the new scale is evaluated. Content validity is achieved by making inferences based on the scale items in the first item pool. To achieve content validity, experts are consulted about the items of the draft scale.¹⁷ To determine the content validity of 32 items in the item pool, 12 experts were contacted via e-mail to get their opinions. Of these experts, eight (7 nursing academics with publications on stoma, and one stoma therapy nurse with a master's degree) responded. Adhering to the Davis method outlined in 1992, specialists were enlisted to assess the elements within the scale by assigning each a value ranging from 1 to 4. This numerical scale was designed with 1 denoting 'not relevant,' proceeding to 2 representing 'somewhat relevant,' 3 as 'very relevant,' and culminating with 4 symbolizing 'highly relevant.'¹⁸ During the evaluation

process, two of the 32 items were found to fall below the acceptable content validity threshold of 0.41 and were therefore excluded from the scale. The remaining 30 items demonstrated content validity indices ranging from 0.67 to 1.00. The overall Content Validity Index (CVI) of the scale was calculated as 0.96, indicating a high level of agreement among the experts. Based on the feedback provided by the experts, necessary revisions were made to the items, resulting in the finalized version of the scale.

The literature draws attention to the significance of target audience views as well as expert opinions for content analysis.^{6,9,15} A preliminary test or pilot study procedure helps determine participants' views about and responses to each item on the scale, allowing researchers to identify and eliminate potential problems with the scale before it is widely applied.^{16,17,19} A preliminary version of the scale, comprising 30 questions, was trialed on a group of 20 individuals who had an intestinal stoma. The patients included in the pilot study were reached through the Ostomy Surgery Society, of which they were members. Those who took part in this pilot phase were not considered part of the main study. Subsequently, slight modifications were implemented to enhance the clarity of the wording.

Psychometric analysis

During the final stage, the validity of the constructed scale and its reliability was evaluated.^{16,19,20} Analytical examinations of the results were processed through the statistical software packages IBM SPSS Statistics 22 and SPSS AMOS 22, which are managed by IBM SPSS in Turkey. The normal distribution of the dataset was verified using the Shapiro-Wilk normality test. For descriptive analysis, the mean, standard deviation, frequency, and percentage values of the data were calculated.

Construct validity is closely tied to the question of the particular construct an instrument purports to measure, and it evaluates the extent to which the instrument legitimately allows for inferences to be drawn about theoretical constructs. To assess construct validity, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were utilized.^{13,20-22} An EFA was initially carried out to inspect whether the scale faithfully captures the theoretical constructs it aims to gauge. Following this, a CFA was conducted to affirm the scale's content validity by ensuring the items adequately cover and represent the intended domain. Reflecting score consistency, reliability was examined through various methods. Cronbach's alpha was employed to evaluate internal consistency reliability, while Pearson's correlation analysis was applied to determine item-total score correlations.^{21,22} To further

ascertain reliability, a test-retest procedure was administered after a three-week interval to a sample of 20 participants, calculating the “Pearson Product Moment Correlation Coefficient” for this purpose.

RESULTS

Descriptive characteristics

The mean age of the participants ($n=179$) was 48.51 ± 14.58 years, with an age range of 27 to 60. It was determined that 61.5% of the participants were male and 58.7% were secondary school graduates. The mean duration since stoma surgery among the participants was 40.68 ± 25.72 months (range: 2–64 months). A total of 44.1% of the patients had been living with a stoma for 37–64 months. Additionally, 68.2% had a temporary stoma, 50.8% had an ileostomy, and 63.7% underwent stoma surgery due to a cancer diagnosis (Table 1).

Table 1. Sociodemographic and medical characteristics of the participants ($n=179$)

		n	%
Age	27-35 Age	51	28.5
	48.51± 14.58	78	43.6
	(min-max: 27-60)	50	27.9
Gender	Male	69	38.5
	Female	110	61.5
Education	Literate	8	4.5
	Primary school	5	2.8
	Secondary school	105	58.7
	High school	38	21.2
	University	23	12.8
Stoma status	Temporary	122	68.2
	Permanent	57	31.8
Stoma type	Colostomy	88	49.2
	Ileostomy	91	50.8
Reason for stoma creation	Intestinal Cancer	114	63.7
	Trauma	18	10.1
	Inflammatory	38	21.2
	Bowel Disease		
	Other	9	5.0
Stoma duration 40.68±25.72 (2-64)	2-6 months	19	10.6
	7-24 months	44	24.6
	25-36 months	37	20.7
	37-64 months	79	44.1

Kaiser-Meyer-Olkin and Bartlett's test of the Stoma Sexual Quality of Life Scale

To assess the factorability of the SSQoLS, the Kaiser-Meyer-Olkin (KMO) measure was used to evaluate sampling adequacy, and Bartlett's test of sphericity was conducted to determine the suitability of the data for factor analysis. The results indicated a KMO value of 0.857 and a statistically significant Bartlett's test result ($\chi^2 = 8,167.899$,

$df = 300$, $P < .001$). These findings confirm that the sample was adequate and the data were appropriate for factor analysis.

Exploratory factor analysis of the Stoma Sexual Quality of Life Scale

Using exploratory factor analysis (EFA) with a varimax rotation method allowed for an organized examination of factor structures. The EFA revealed overlapping and comparatively low factor loading for six items, suggesting redundancy. After their exclusion, the EFA on the remaining 24 items indicated a four-factor structure for the scale. The findings, presented in Table 2, depict the EFA results on these 24 items, delineating the factors identified and the rotated factor matrix associated with these items. The analysis elucidated that the first factor alone accounted for 39.281% of the variability in the data. When combined, the first and second factors explained 58.931% of the total variance, while the first three factors accounted for 75.391%. Altogether, the four factors captured 84.923% of the total variance within the dataset.

The items were grouped under the following sub-dimensions according to their subjects and contents: “concerns about spouse/partner (SPC)” (items 1-8); “body image distortion” (BID) (items 9-14); “sexual dysfunction” (SD) (items 15-19); “negative emotions” (NE) (items 20-24) (Table 2). The item-sub-dimension total indicated that the scale had high item correlations (Table 2).

A very high correlation was found between the test-retest applications performed with 20 participants to evaluate the time-dependent invariance of the scale (Table 3).

Confirmatory factor analysis

In the confirmatory factor analysis (CFA), the fit of the model tested was supported by several indices. The Chi-square test yielded a value of $\chi^2(243) = 659.182$, and when normalized by degrees of freedom, the Normed Chi-square (NC) came to 2.713. Other fit indices also indicated a good model fit, with the Comparative Fit Index (CFI) at 0.912, indicative of a strong correlation between the model and the observed data. Similarly, the Root Mean Square Error of Approximation (RMSEA) stood at 0.077, suggesting a reasonable error of approximation in the population. The Normed Fit Index (NFI) was recorded at 0.902, and the Goodness of Fit Index (GFI) at 0.904, both corroborating the adequacy of the model fit. The model that had been initially proposed by the exploratory factor analysis (EFA) was substantiated by the CFA. The confirmed model demonstrated an acceptable fit to the observed data, as visually represented in Figure 1 and further detailed in Table 4.

The reliability analysis of the Stoma Sexual Quality of Life Scale

Table 5 details both the score distributions across the full scope of the scale and its respective sub-dimensions, as well as the internal consistency measures, which assess the reliability of the scale's components. The results of the analysis showed that the final scale was composed of four subscales: "worries about spouse/partner" (8 items); "body image distortion" (6 items); "sexual dysfunction" (5 items); "negative emotions" (5 items). There were no

reversed items on the scale. High scores indicate a decreased quality of sex life. Sub-dimension scores are calculated by summing the item scores of a sub-dimension and dividing the result by the number of items on that sub-dimension. The total scale score is obtained by summing all the item scores and dividing the result by 24. Cronbach's alpha coefficients were found as 0.981, 0.910, 0.933, 0.936, and 0.921 for the concerns about spouse/partner, body image distortion, sexual dysfunction, negative emotions sub-dimensions, and the total scale, respectively (Table 5).

Table 2. Item-score for the Stoma Sexual Quality of Life Scale and distribution of Item-total correlations

Item No	Items	Mean±SD	Factor Loading	% of Variance	Cumulative %	r		
Concerns about spouse/partner								
1	I am worried that my spouse/partner will not like me.	2.16±1.429	.970	30.393	30.393	.982		
2	I am worried that my spouse/partner may leave me.	2.16±1.417	.946			.968		
3	I am worried that my spouse/partner may not want to have sex with me.	2.13±1.358	.943			.971		
4	I am worried that my spouse/partner may refuse my request for sex.	2.12±1.335	.970			.974		
5	I am worried that my spouse/partner may see my stoma during sex.	2.21±1.452	.688			.963		
6	I am worried that my spouse/partner may want to separate our bed.	2.07±1.418	.795			.960		
7	I am worried that I may not be able to have my spouse/partner get satisfied with sex.	2.11±1.208	.642			.895		
8	I am worried that my spouse/partner may feel disgusted during sex.	2.22±1.257	.925	20.551	50.945	.789		
Body image distortion								
9	I feel that my sex appeal is decreasing.	2.70±1.28	.975			.857		
10	I feel ugly.	2.51±1.32	.974			.892		
11	I am dissatisfied with my body.	2.70±1.27	.956			.847		
12	I feel less feminine/masculine.	3.22±1.38	.785			.819		
13	I don't want to see myself naked.	2.53±1.30	.665			.887		
14	I feel uncomfortable with my appearance during sex.	2.54±1.27	.584			.710		
Sexual dysfunction								
15	My sexual desire has decreased.	3.78±1.18	.857	17.035	67.980	.914		
16	I avoid sex.	3.64±1.377	.908			.938		
17	My sex life is blocked.	3.64±1.14	.904			.936		
18	I experience physical problems during sex (pain, erection problems, dryness)	3.93±1.18	.710			.843		
19	The frequency of my sexual intercourse has decreased	3.11±1.386	.780	16.943	84.923	.814		
Negative Emotions								
20	I am afraid of leakage during sex.	2.22±1.360	.925			.933		
21	I feel guilty during sex.	2.59±1.520	.931			.953		
22	I am disgusted during sex.	2.68±1.603	.896			.936		
23	I worry about smelling bad during sex.	2.62±1.597	.772			.879		
24	I am ashamed of the gas sound during sex.	2.19±1.524	.599			.768		
SD, Standard deviation; r, subdimension item-subdimension total correlation								

SD, Standard deviation; r, subdimension item-subdimension total correlation

Table 3. Test-retest analysis of the scale

	Items	n	Test Mean ± SD (min-max)	Test-retest Mean ± SD (min-max)	t-test P	r P
Concerns about spouse/partner	8	20	2.06±1.18	2.33±1.09 (1-5)	.889	.962
					.331	0.00
Body image distortion	6	20	2.63±.98	2.97±.93 (1-5)	.705	.928
					.443	.000
Sexual dysfunction	5	20	3.42±1.17	3.69±1.75 (1-5)	.562	.984
					.556	.000
Negative emotions	5	20	2.40±.80	2.46±.82 (1-5)	.558	.972
					.595	.000
Total scale	24	20	2.40±1.30	2.46±1.01 (1-5)	.939	.988
					.271	.000

t-Test, Paired Sample t Test; r, Correlation between two measurements; SD: Standard Deviation; Min: Minimum; Max: Maximum

Table 4. Criteria values of the fit indices and fit index values of the scale

	Fit indices criteria values	CFA Indeks
NC (χ^2/df)	≤ 3 = perfect	2.713
RMSEA	0.05-0.08 = adequate fit	0.077
CFI	≥ 0.90 good	0.912
NFI	1=perfect	0.902
GFI	≥ 0.90	0.904

RMSEA, Root Mean Square Error of Approximation; CFI, Comparative Fit Index; NFI, Normed Fit Index; GFI, Goodness of Fit Index; CFA, Confirmatory Factor Analysis; χ^2/df , Chi-square divided by degrees of freedom

Table 5. Scale sub-dimension scores and cronbach alpha values

	Cronbach's alpha	Mean \pm SD (Min-Max)
Concerns about spouse/partner	.981	2.15 \pm 1.28 (1-5)
Body image distortion	.910	2.70 \pm 1.08 (1-5)
Sexual dysfunction	.933	3.62 \pm 1.18 (1-5)
Negative emotions	.936	2.46 \pm 1.358 (1-5)
Total scale	.921	2.65 \pm .82 (1-5)

SD, Standard Deviation; Min, Minimum; Max, Maximum

DISCUSSION

A scale to assess the quality of sex life in stoma patients was developed for the first time in this study. Firstly, an item pool was constructed on the basis of the literature and then eight experts in the field were consulted on the content validity of the scale. Accordingly, the CVI was calculated to be 0.90. A CVI of 0.80 indicates an acceptable level.¹⁸

The EFA carried out in the study showed that the scale had a structure consisting of four factors and 24 items. The total explained variance ratio was 84.92%. When this value is greater than 50%, it is considered a moderate contribution.^{21,22} Therefore, the SSQoLS adequately explained the concepts necessary for quality of sexual life in patients with a stoma and its factorial validity was at an acceptable level.

The CFA performed in the study supported the four-factor structure found by the EFA. When the goodness of fit values of the model was examined, the following values were found: NC = 2.713; RMSEA = 0.077; NFI = 0.902; GFI = 0.904; CFI = 0.912. According to the literature, $2 \leq NC \leq 3$; $0.05 \leq RMSEA \leq 0.08$; and $0.90 \leq CFI, GFI, NFI$ indicate that the model is within adequate limits of fit.^{12,13,22}

Factor 1 (concerns about spouse/partner) includes items related to worries about the negative effects on the relationship with the spouse/partner. Some qualitative studies have shown that patients are worried that their

spouses will be disgusted, not desire them, or leave them due to the presence of a stoma and that these concerns negatively affect their perception of sexuality.^{6,9,15} Stoma surgery causes a lot of problems for the sexual relationship of most patients and their spouses, leading to family conflicts such as sexual disharmony and affecting marital life.²³⁻²⁵ Many studies have indicated that stoma negatively affects the relationship between spouses, causes them to separate their rooms/beds, and reduces or ends sexual intercourse.^{5,8,15} For instance, one study of 390 individuals with a stoma found that 42.6% of patients had intimacy problems in their relationships.²⁶

Factor 2 (body image) includes items about body image. After the stoma surgery, the normal anatomy and functioning of the gastrointestinal tract change, and the intestinal content is discharged through the abdominal opening created in the small or large intestine. Stoma surgery causes deterioration in the body image with the change in both the external appearance and the excretory function of the person. Many studies have clearly shown that stoma patients experience a negative perception of body image.²⁷ Body image distortion may negatively affect their sexual quality of life by causing changes in their sexual identity and sexual self-perception.^{3,10,28}

Factor 3 (sexual dysfunction) includes items related to sexual dysfunction. Qualitative and quantitative studies have shown that after the stoma has been opened, patients have less number of sexual activities, avoid sexual intercourse, and experience problems with orgasm and satisfaction. Women can experience vaginal dryness and dyspareunia, and men can experience erectile dysfunction.^{3,4,11,28}

Factor 4 (negative emotions) consists of items about negative emotions that may affect the sexuality perceptions of patients with a stoma. Studies have revealed that individuals with a stoma experience psychosexual feeling, such as shame, guilt, tension, and disgust, because of a lack of control over their discharge, stool leakage, and odor and gas problems.^{6,8,11} In general, the sexual quality of life following a stoma surgery is affected due to sexual dysfunction, concerns about spouse/partner, negative body image, and negative emotions.^{3,10,29} In this context, the scale developed in this study can be a comprehensive tool to measure the quality of sexual life.

For instruments based on the Likert scale, assessing the internal consistency using the Cronbach's alpha reliability criterion is recommended. The evaluation of the scale's internal consistency in this research applied the Cronbach's

alpha coefficient. The resulting reliability coefficient for the overall SSSQoL was 0.981, with the individual subscales yielding values between 0.910 and 0.936, as detailed in Table 3. It is generally understood that the closer the Cronbach's alpha coefficient is to 1, the more desirable it is, as it reflects a higher consistency among the items of the scale.³⁰ A higher value for the Cronbach's alpha signifies a more reliable scale. Findings from this study reveal that the Cronbach's alpha for both the comprehensive scale and its respective subscales exceeded 0.90, highlighting their substantial reliability.

The test-retest reliability analysis was employed as a second method to test the reliability of the SSQoLS. Test-retest is the most widely used and recommended method for measuring reliability.^{13,22,30} According to the correlation analysis of the test-retest application performed on 20 stoma patients at a three-week interval, a positive, strong and significant correlation was observed between the first and second measurements. It was observed that the responses of patients with a stoma to scale items at two different times were consistent. Therefore, a high test-retest correlation was obtained in this study. The strong correlation between the measurements made at two different times shows that it is a reliable measurement tool and does not change over time.

Limitations

This research has several limitations. Given that the SSQoLS is a newly developed scale, the findings are restricted to the sample studied. In addition, performing confirmatory factor analysis on the same sample group is another limitation of the research, and therefore it is recommended that the developed scale be validated by performing CFA on different sample groups.

The Sexual Quality of Life Scale for Stoma Patients (SSSQoLS) is a newly developed measure aimed at evaluating the sexual life quality among stoma patients, and it has demonstrated satisfactory validity and reliability upon initial testing. This tool is applicable in both clinical practice and research contexts for assessing the sexual life quality of individuals with a stoma, thereby assisting in the creation of targeted interventions designed to enhance their sexual quality of life. It is advised that additional research be conducted to ascertain the scale's clinical value.

Kaynaklar- ST, İÖ, SÖ, ÖA; Veri Toplanması ve/veya İşlemesi- ST; Analiz ve/veya Yorum- ST, İÖ; Literatür Taraması- İÖ, ST; Yazıyı Yazan- İÖ, ST; Eleştirel İnceleme- SÖ, ÖA

Çıkar Çatışması: Yazarlar, çıkar çatışması olmadığını beyan etmiştir.

Finansal Destek: Yazarlar, bu çalışma için finansal destek almadığını beyan etmiştir.

Ethics Committee Approval: Ethics committee approval was obtained from the Akdeniz University Faculty of Medicine Clinical Research Ethics Committee (Approval No: KAEK-794, Date: 10.11.2021)

Informed Consent: Written informed consent was obtained from all participants.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept - ST; Design- ST, İÖ; Supervision- SÖ, ÖA; Resources- ST, İÖ, SÖ, ÖA; Data Collection and/or Processing- ST; Analysis and/or Interpretation- ST, İÖ; Literature Search- İÖ, ST; Writing Manuscript- İÖ, ST; Critical Review- SÖ, ÖA; Other-

Conflict of Interest: The authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

REFERENCES

1. Bolin A, Whelehan P, Vernon M, Antoine K. Human sexuality: Biological, psychological, and cultural perspectives. 2nd ed. New York: Routledge; 2021.
2. Yilmaz E, Çelebi D, Kaya Y, et al. A descriptive, cross-sectional study to assess quality of life and sexuality in Turkish patients with a colostomy. *Ostomy Wound Manage.* 2017;63:22–29. <https://doi.org/10.25270/owm.2017.08.2229>
3. Paszyńska W, Zborowska K, Czajkowska M, et al. Quality of sex life in intestinal stoma patients—a literature review. *Int J Environ Res Public Health.* 2023;20(3):2660. <https://doi.org/10.3390/ijerph20032660>
4. Saracco C, Rastelli G, Roveron G, et al. Sexual function in patients with stoma and its consideration among their caregivers: A cross-sectional study. *Sex Disabil.* 2019;37:415–427. <https://doi.org/10.1007/s11195-019-09574-7>
5. Bahayi K, Attaallah W, Yardımcı S, et al. Depression, anxiety, sexual dysfunction and quality of life in patients with ileostomy or colostomy. *Turk J Colorectal Dis.* 2018;28:69–75. <https://go.gale.com/ps/i.do?id=GALE%7CA546068448>
6. Zhu X, Tang X, Chen Y, et al. Sexual experiences of Chinese patients living with an ostomy. *J Wound Ostomy Continence Nurs.* 2017;44:469–474. <https://doi.org/10.1097/WON.0000000000000357>
7. Sun V, Grant M, Wendel CS, et al. Sexual function and health-related quality of life in long-term rectal cancer survivors. *J Sex Med.* 2016;13:1071–1079. <https://doi.org/10.1016/j.jsxm.2016.05.005>
8. Ayaz-Alkaya S. Overview of psychosocial problems in individuals with stoma: a review of literature. *Int Wound J.* 2019;16:243–249. <https://doi.org/10.1111/iwj.13018>
9. Petersén C, Carlsson E. Life with a stoma—coping with daily life: Experiences from focus group interviews. *J Clin Nurs.* 2021;30:2309–2319. <https://doi.org/10.1111/jocn.15769>
10. Lin S, Yin G, Chen L. The sexuality experience of stoma patients: a meta-ethnography of qualitative research. *BMC*

Etik Komite Onayı: Bu çalışma için etik kurul onayı, Akdeniz Üniversitesi Tıp Fakültesi Klinik Araştırmalar Etik Kurulu'ndan alınmıştır (Karar No: KAEK-794, Tarih: 10.11.2021).

Bilgilendirilmiş Onam: Tüm katılımcılardan yazılı bilgilendirilmiş onam alınmıştır.

Hakem Değerlendirmesi: Dış bağımsız.

Yazar Katkıları: Fikir- ST; Tasarım- ST, İÖ; Denetleme- SÖ, ÖA;

- Health Serv Res.* 2023;23:489. <https://doi.org/10.1186/s12913-023-09532-2>
11. Kaya Ö, Aygin D. Stomanın cinsel yaşam üzerindeki etkileri. *Androl Bul.* 2020;22:194–198. <https://doi.org/10.24898/tandro.2020.68984>
 12. Erkorkmaz ÜEİ, Demir O, Özdamar K, Sanisoğlu SY. Doğrulamalı faktör analizi ve uyum indeksleri. *Türk Klin J Med Sci.* 2013;33:2010–2223. <https://doi.org/10.5336/medsci.2011-26747>
 13. Secer I. Psikolojik test geliştirme ve uyarlama süreci: SPSS ve LISREL uygulamaları. Ankara: Anı yayıncılık.; 2015.
 14. Symms MR, Rawl SM, Grant M, et al. Sexual health and quality of life among male veterans with intestinal ostomies. *Clin Nurse Spec.* 2008;22:30–40. <https://doi.org/10.1097/01.NUR.0000304181.36568.a7>
 15. Vural F, Harputlu D, Karayurt O, et al. The impact of an ostomy on the sexual lives of persons with stomas: a phenomenological study. *J Wound Ostomy Continence Nurs.* 2016;43:381–384. <https://doi.org/10.1097/WON.0000000000000236>
 16. DeVellis RF, Thorpe CT. Scale development: Theory and applications. 5th ed. Los Angeles: SAGE Publications; 2021.
 17. Morgado FFdR, Campana ANNB, Tavares MdCGCF. Development and validation of the self-acceptance scale for persons with early blindness: the SAS-EB. *PLoS One* 2014;9:e106848. <https://doi.org/10.1371/journal.pone.0106848>
 18. Davis LL. Instrument review: Getting the most from a panel of experts. *Appl Nurs Res.* 1992;5:194–197. [https://doi.org/10.1016/S0897-1897\(05\)80008-4](https://doi.org/10.1016/S0897-1897(05)80008-4)
 19. Bastos JL, Celeste RK, Faerstein E, et al. Racial discrimination and health: a systematic review of scales with a focus on their psychometric properties. *Soc Sci Med.* 2010;70:1091–1099. <https://doi.org/10.1016/j.socscimed.2009.12.020>
 20. Morgado FF, Meireles JF, Neves CM, et al. Scale development: ten main limitations and recommendations to improve future research practices. *Psicol Reflex Crit.* 2017;30(3):1–20. <https://doi.org/10.1186/s41155-016-0057-1>
 21. Çolakoğlu ÖM, Büyükekşi C. Evaluation of factors effecting exploratory factor analysis process. *Karaelmas J Educ Sci.* 2014;2:58–64. <https://dergipark.org.tr/en/download/article-file/2160889>
 22. Karakoç AGDFY, Dönmez L. Fundamental principles in scale development studies. *Tıp Eğitimi Dünyası* 2014;13:39–49. <https://dergipark.org.tr/en/download/article-file/199275>
 23. Burch J. Intimacy for patients with a stoma. *Br J Nurs.* 2016;25:S26. <https://doi.org/10.12968/bjon.2016.25.17.S26>
 24. Silva ALD, Faustino AM, Sousa JB, et al. Marital interactions in partners of ostomized patients. *J Coloproctol (Rio J).* 2014;34:210–215. <https://doi.org/10.1016/j.jcol.2014.08.005>
 25. Sutsunbuloglu E, Vural F. Evaluation of sexual satisfaction and function in patients following stoma surgery: a descriptive study. *Sex Disabil.* 2018;36:349–361. <https://doi.org/10.1007/s11195-018-9544-x>
 26. Du X, Wang D, Du H, et al. The correlation between intimate relationship, self-disclosure, and adaptability among colorectal cancer enterostomy patients. *Medicine (Baltimore).* 2021;100(31):e25904. <https://doi.org/10.1097/MD.00000000000025904>
 27. Hueso-Montoro C, Bonill-de-Las-Nieves C, Celdrán-Mañas M, et al. Experiences and coping with the altered body image in digestive stoma patients. *Rev Lat Am Enfermagem.* 2016;24:e2840. <https://doi.org/10.1590/1518-8345.1276.2840>
 28. Gozuyesil E, Taylan S, Manav AI, et al. The evaluation of self-esteem and sexual satisfaction of patients with bowel stoma in Turkey: Self-esteem sexual satisfaction in patients with bowel stoma. *Sex Disabil.* 2017;35:157–169. <https://doi.org/10.1007/s11195-016-9473-5>
 29. Albaugh JA, Tenfelde S, Hayden DM. Sexual dysfunction and intimacy for ostomates. *Clin Colon Rectal Surg.* 2017;30:201–206. <https://doi.org/10.1055/s-0037-1598161>
 30. Sü Sürücü L, Maslakçı A. Validity and reliability in quantitative research. *Bus Manag Stud Int J.* 2020;8:2694–2726. <https://doi.org/10.15295/bmij.v8i3.1540>