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ORIGINAL ARTICLE

Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12): psychometric validation of the Iranian version

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Abstract
Introduction and hypothesis Sexual health is an important aspect of women's health. Women with urinary incontinence (UI) and pelvic organ prolapse (POP) have more complaints about sexual dysfunctions than do women without. In Iran, there is no questionnaire to assess sexual function in women who with UI; thus, this study aimed to translate the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12) and provide evidence for psychometric properties.
Methods This cross-sectional study was conducted from April 2012 to October 2012 in a sample of women who attended an urogynecology clinic. Participants were divided into two groups (incontinent with or without POP and normal). All types of UI were assessed. The PISQ-12 was translated into Iranian based on international standards, and its reliability was assessed using test/retest reliability and internal consistency. In addition, its validity was evaluated using face and content validity, comparison with known groups, and convergent validity. Both exploratory and confirmatory factor analyses were conducted.
Results Mean participant age was 47.52 years. Cronbach's alpha coefficient was 0.84 for PISQ-12 and 0.70–0.79 for all domains. Pearson's correlation coefficient between PISQ-12 and the Female Sexual Function Index (FSFI) was 0.73. Exploratory factor analysis loaded three factors; confirmatory factor analysis confirmed factor structures.
Discussion This study showed that the Iranian version of PISQ-12 was a short, useful, valid, reliable, and condition-specific instrument to assess sexual function in women with UI/POP.

Keywords Urinary incontinence · Prolapse · Sexual function · Validity · Reliability

Introduction

Pelvic floor disorders such as urinary incontinence (UI) and pelvic organ prolapse (POP) may have several adverse effects on sexual function [1, 2]. Both UI and sexual dysfunction might cause negative impacts on health-related quality of life (HR-QoL) [3, 4]. UI is associated with low libido, vaginal dryness, and dyspareunia [5] and is independent of age, race, and educational level [1]. Many women may be avoiding sexual intercourse due to fear or shame of incontinence during intercourse [6, 7]. In most societies like Iran, UI is a taboo, and women do not like to speak of it and its consequences, even with medical personnel [8, 9]. There are many different reasons, including shame, embarrassment [10], and lack of information on available treatment options [8]. Similarly, women have difficulty speaking about sexual dysfunction. In this regard, evidence suggests that despite their high prevalence, these problems remain undetected in health care clinics [11–13]. Therefore, a woman with concomitant UI and sexual dysfunction may have significant difficulty talking about her problems [14], which implies the need for finding ways to make it easier for every woman to receive the best possible care.

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According to an Iranian study, 35.8 % of women do not seek help for their sexual dysfunction, and this issue is neglected in clinical surveys [15]. Lack of time is reported by both patients and clinicians as being one of the most common causes of screening failure [15, 16]. In this regard, administration of short, specific questionnaires in gynecology clinics might help identify patients who experience or are at risk of sexual dysfunction [17]. We believe that a brief, effective, multidimensional, inexpensive measure easy to understand and complete may help clinicians and patients in this respect.

Several general questionnaires are designed to assess female sexual function. Although many of them are valid and reliable, general questionnaires may not be sensitive enough to detect significant changes in women with special conditions such as UI [18]. Currently, only the Pelvic Organ Prolapse/ Urinary Incontinence Sexual Questionnaire (PISQ-12) is condition specific and designed to assess sexual function in women with UI/ POP [19].

Rogers et al. developed the first self-report condition-specific questionnaire, known as PISQ [19]. The psychometric properties of PISQ-12 by Rogers and coworkers are well documented in many languages [20–22]; however, it is not available in Iran, and since many women in Iran, as in all countries, experience UI [23], there is a significant special need for a validated and reliable questionnaire. In fact, without condition-specific questionnaires, this problem will remain undetected in the clinical setting. Thus, this study aimed to translate and provide evidence for the psychometric properties of the Iranian version of PISQ-12 in order to use it in clinical settings and perhaps for research purposes.

Methods

Questionnaire and scoring

The PISQ-12 is the only validated, condition-specific, self administered questionnaire to assess sexual function in woman with UI and POP. It is composed of 12 items in three different domains: behavioral–emotive (4 items), physical (5 items), and partner related (3 items). The behavioral–emotive domain comprises questions about sexual desire, orgasm, excitement, and satisfaction. The physical domain assesses pain episodes during intercourse, incontinency of urine during intercourse, avoiding sexual function due to prolapse, and fear of urine or stool incontinence. The partner-related domain measures erection disorder, early ejaculation, and orgasm. Questions are rated on a five-point Likert scale ranging from 0 to 4, indicating a worse to better condition. Reverse scoring is used for questions 1– 4. The score of each domain is calculated by adding the score of each question [24]

Translation procedures

Psychometric properties of the Iranian version of PISQ-12 were done according to international standards mentioned below [25]. The flowchart of the study process is shown in Fig. 1.

Permission was obtained from the PISQ author to translate and validate the questionnaire in Iran. Two independent professional translators fluent in English translated the questionnaire from English into Persian. After assessing the two translated versions, disagreement was resolved and one forward version of the questionnaire was provided. Then, two native-English-speaking translators fluent in Iranian (other than the first translators) translated the forward version back into English. These translations were then compared with the original questionnaire. Finally, a panel of experts comprising a gynecologist, a midwife, a psychologist, an expert in psychometrics, the research team, and the translators reviewed all processes and assessed the questionnaire for wording and grammar. After careful consideration, consensus was reached, and the penultimate version of the Iranian questionnaire was provided.

To evaluate quantitative content validity, two indexes were used: content validity ratio (CVR) and content validity index (CVI). To examine CVR, the questionnaire was given to ten experts who were asked to assess each item based on a three-point Likert scale (essential, useful but not essential, not necessary). Based on the Lawshe CVR, to determine the minimum CVR value, each item with CVR >0.62 was considered significant and was maintained [26]. Then, in order to evaluate CVI, the questionnaire was provided to ten experts who were asked to assess each item based on a four-point Likert scale for relevancy, clarity, and simplicity. The CVI was calculated for each item.

The face validity was tested on 20 incontinent women with or without POP. All patients had a thorough understanding of the Persian language. Average age, education, and UI duration in this sample were 38 years, secondary, and 6 years, respectively. In order to determine the face validity, the following procedure was used. First, a questionnaire was completed by each participant. Then, all participants were asked about the meaning of each question to make sure they understand the entire questionnaire. Their answers were collected and showed that all patients had full understanding of the Iranian version of the PISQ-12. Finally, some minor changes were applied, according to patient comments, to finalize the questionnaire.

Participants and data collection

This cross-sectional study was conducted from April to October 2012 in Imam Khomeini Hospital, a large teaching hospital affiliated with Tehran University of Medical

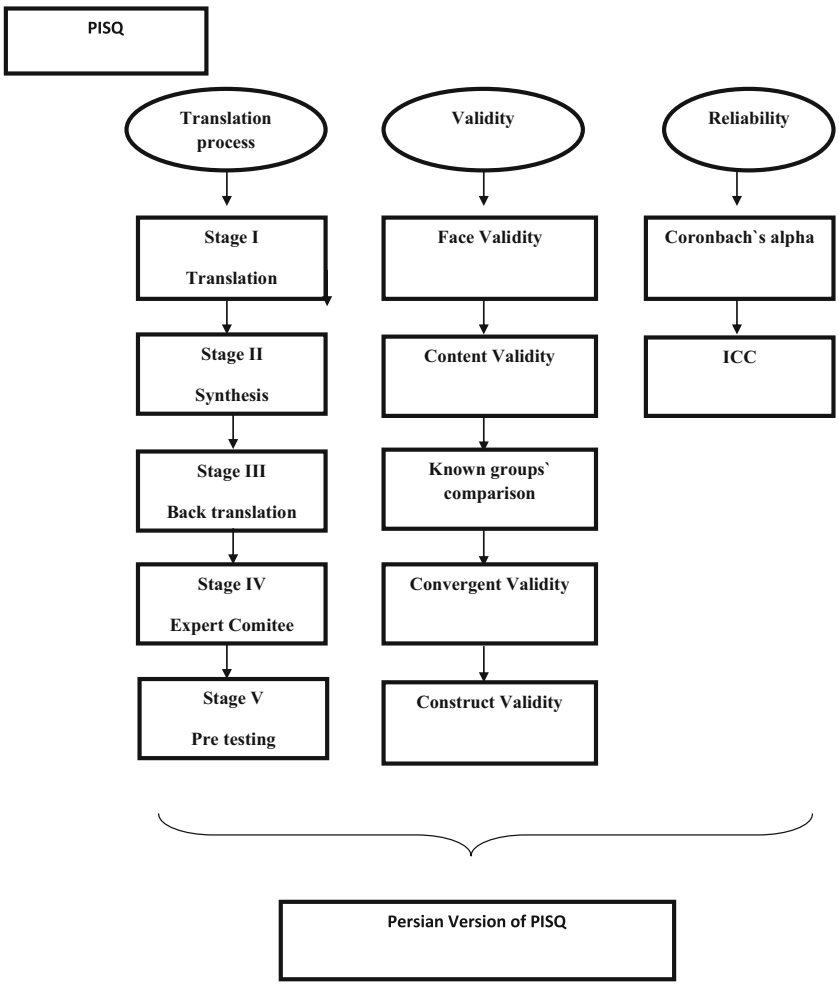

Fig. 1 Study process

Sciences. A consecutive sample of women attending the urogynecologic clinic of the hospital was recruited to participate. Participants were examined to determine whether they had UI (as confirmed by urodynamic studies), and any degree of POP confirmed by a clinician blinded to the research (UI/POP). For staging prolapse, the terminology of the International Urogynecological Association (IUGA)/International Continence Society (ICS) was used [27]. If participants had no complications (no UI or POP), they were also invited to take part in the study and complete the questionnaire. Only Iranian women at least 20 years old, married and sexually active, able to read and write, and not pregnant were included in the study. Women with reversible causes of UI, functional disability, mental disorder, or associated diseases were excluded.

Statistical analysis

Different statistical tests were used to assess the psychometric properties of the Iranian version of the PISQ-12. Data were examined for normality. Since data followed a normal distribution, parametric tests were used.

1. Validity: Known group comparisons were performed in order to examine whether the questionnaire could differentiate between subgroups of women who differed in continence or POP. Independent *t* test was used for comparison. We hypothesized that the normal group would score better than those with UI/POP. In addition, convergent validity was performed between PISQ-12 and the Female Sexual Function Index (FSFI; Iranian version), the psychometric properties of which are documented [28]. Pearson's correlation coefficient (r) between the two questionnaires was computed: $r \geq 0.70$ strong correlation, r 0.45–0.70 showed a moderate correlation, and $r \leq 0.45$ displayed a week correlation (divergent validity).
2. Reliability: For test–retest reliability, 20 patients completed the questionnaire twice, at a 2-week interval, and intraclass correlation coefficient (ICC) was calculated. Internal

Table 1 Demographic characteristics of the study sample

	Total [*n* (%)]	UI±POP [*n* (%)]	Normal [*n* (%)]	*P* value
Age				0.23
Mean (SD)	47.52 (9.84)	47.77 (9.12)	47.28 (10.55)	
Education				
Elementary	71 (33.5)	44 (44)	27 (27)	0.99
Secondary	115 (57.5)	50 (50)	65 (65)	
Higher	14 (7)	6 (6)	8 (8)	
Employment				
Employed	42 (21)	10 (10)	32 (32)	<0.001
Housewife	158 (79)	90 (90)	68 (68)	
BMI				
<18.50	–	–	–	
18.50–24.99	77 (38.5)	32 (32)	45 (45)	<0.001
25–29.99	101 (50.5)	64 (64)	37 (37)	
≥30	22 (11)	4 (4)	18 (18)	
Menopause				
Yes	82 (41)	43 (43)	39 (39)	0.26
No	118 (59)	57 (57)	61 (61)	
Stage of POP				
Stage I	41 (20.5)	41 (41)	0 (0)	–
Stage II	40 (20)	40 (40)	0 (0)	
Stage III	19 (9.5)	19 (19)	0 (0)	
Delivery mode				
No delivery				0.44
NVD	2 (1)	–	2 (2)	
CS	153 (76.5)	79 (79)	74 (74)	
Both	30 (15)	14 (14)	16 (16)	
Multiple pregnancy	15 (7.5)	4 (4)	8 (8)	
Yes				<0.001
No	3 (1.5)	1 (1)	2 (2)	
	197 (98.5)	99 (99)	98 (98)	

SD standard deviation, *BMI* body mass index, *POP* pelvic organ prolapse, *NVD* natural vaginal delivery, *CS* cesarean section

consistency was assessed by Cronbach's alpha coefficient. Values ≥0.70 were considered significant [29].

3. Factor analysis: Both exploratory (EFA) and confirmatory (CFA) factor analyses were performed. EFA was conducted using SPSS version 16. In order to extract data, principal component analysis was used. Data reduction was performed with varimax using the Kaiser normalization method. Confirmatory factor analysis was performed using Lisrel.
4. Factor model of the Iranian version of PISQ-12 was assessed. Various fit indexes including goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), the root mean square error of approximation (RMSEA), normal fit index (NFI), and comparative fit index (CFI) were used to achieve model fitness.

Table 2 Known group comparisons

Domain	UI±POP, mean (SD)	Normal, mean (SD)	*P* value
Behavioral–emotive	8.65 (2.62)	11.45 (3.26)	<0.001
Physical	13.89 (3.53)	18.22 (1.13)	<0.001
Partner related	6.62 (1.50)	6.95 (1.28)	0.09
Total PISQ	29.16 (6.16)	37.62 (4.27)	<0.001

UI urinary incontinence, *POP* pelvic organ prolapse, *PISQ* Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire, *SD* standard deviation

Ethics

The Ethics Committee of Tehran University of Medical Sciences approved the study, and all participants completed

Table 3 Convergent validity

PISQ	FSFI						
	Desire	Excitement	Lubrication	Orgasm	Satisfaction	Pain	FSFI
Physical	0.38	0.51	0.43	0.49	0.30	0.52	
Behavioral–emotive	0.56	0.73	0.52	0.71	0.67	0.15	
Partner related	0.16	0.39	0.44	0.35	0.24	0.31	
PISQ							0.73

PISQ Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire, *FSFI* Female Sexual Function Index, *SD* standard deviation

an informed consent form before entering the study. A private environment was provided for participants to complete the questionnaire, and all participant information was kept confidential.

Results

Demographic characteristics of the study sample

In all, 200 women participated in this study: 100 in the normal group and 100 in the UI/POP group. No participant was excluded, and there were no missing items (0 %). Mean participant age was 47.52 [standard deviation (SD) 9.84; range 29–78] years. Most participants were housewives (79 %), and educational level of the majority was secondary school (57.5 %). There was no difference in age, educational level, menopausal status, and mode of infant delivery between groups ($P>0.05$). According to the international classification of adult body mass index (BMI), most participants were overweight. Demographic characteristics of the study samples are shown in Table 1.

Content validity

Results of quantitative CVR was 0.80 and CVI 0.70, indicating that all items were suitable.

Table 4 Reliability of Iranian version of the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ)

	Cronbach's alpha	ICC
Physical	0.79	0.96
Behavioral–emotive	0.78	0.93
Partner related	0.70	0.95
PISQ	0.84	0.95

Known group comparisons

Table 2 presents the comparison of sexual function between normal and UI/POP groups. There was a statistically significant difference in PISQ-12 between groups and behavioral–emotive and physical domains ($P<0.001$). Differences in the

Table 5 Results of exploratory factor analysis

Item	Factor 1	Factor 2	Factor 3
How frequently do you feel sexual desire?	.773	.182	.067
Do you climax (have an orgasm) when having sexual intercourse with your partner?	.470	.256	.384
Do you feel sexually excited (turned on) when having sexual activity with your partner?	.761	.249	−.009
How satisfied are you with the variety of sexual activities in your current sex life?	.744	.226	.020
Do you feel pain during sexual intercourse?	−.103	.508	.458
Are you incontinent of urine with sexual activity?	.309	.848	.044
Does fear of incontinence (either stool or urine) restrict your sexual activity?	.230	.871	.101
Do you avoid sexual intercourse because of bulging in the vagina (either the bladder, rectum, or vagina falling out)?	.242	.695	.105
When you have sex with your partner, do you have negative emotional reactions such as fear, disgust, shame, or guilt?	.066	.506	.431
Does your partner have a problem with erections that affects your sexual activity?	.442	.212	.530
Does your partner have a problem with premature ejaculation that affects your sexual activity?	.080	.026	.861
Compared with orgasms you have had in the past, how intense are the orgasms you have had in the past 6 months?	.772	−.031	.207

partner-related domain were not significant between groups (P=0.09).

Convergent validity

Convergent validity of the PISQ-12 is shown in Table 3. Pearson's correlation coefficient showed that correlation between the physical domain and the excitement and pain domain was strong ($r \geq 0.70$). For the FSFI, apart from the pain domain, the correlation between the behavioral–emotive domain and all domains was strong ($r \geq 0.70$). In the partner-related domain, the correlation with desire and satisfaction was week ($r \leq 0.45$), indicating divergent validity.

Reliability

Cronbach's alpha coefficient of the questionnaire was 0.84, and alpha for the entire subscale ranged from 0.70 to 0.79. In addition, ICC was 0.95 and ranged from 0.93 to 0.96 for all subscales. Results are shown in Table 4.

Factor analysis

Results of exploratory factor analysis are shown in Table 5. The calculated Kaiser–Meyer–Olkin (KMO) was 0.80, and Bartlett's test of sphericity was significant (P<0.001). Results of confirmatory factor analysis showed that the patterns of the three domains had good fit indexes (GFI=0.88, RMSEA=0.10, AGFI=0.82, NFI=0.90, CFI=0.93).

Discussion

The aim of this study was to validate the Iranian version of the PISQ-12. The results indicated it is a valid and reliable measure to assess sexual function in women with UI and POP and has appropriate psychometric properties.

Results showed the satisfactory reproducibility of the Iranian version of the PISQ-12: Cronbach's alpha coefficient for all domains was perfect, indicating excellent reproducibility. CVI and CVR showed high content validity. A strong correlation was observed with FSFI. Known group comparison analysis showed it can discriminate between clinically different patients, i.e., continent and incontinent women. There was a three-factor solution for this questionnaire that was similar to its original language. Exploratory factor analysis indicated that items 1, 2, 3, 4, and 12 loaded in the behavioral–emotive domain; items 5, 6, 7, 8, and 9 loaded in the physical domain; and items 10 and 11 loaded in the partner-related domain. Several factors, such as cultural differences, can cause this difference. These findings can be explained by the fact participants in the study experienced orgasmic intensity as a behavioral–emotive component. Therefore, item no 12 was located in a different domain.

Our study had some limitations that need to be addressed. Although it was conducted in a tertiary referral center, patients with UI who attend the urogynecology clinic may differ from the entire UI population, so findings may not be generalizable. In addition, patients attending other centers may differ in terms of sociocultural conditions, so studies in different centers with larger samples are needed.

Conclusion

Psychometric assessment of the Iranian version of the PISQ-12 suggests it is a short, useful, valid, reliable, condition-specific instrument to assess sexual function in women with UI/POP.

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Conflicts of interest None.

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