ORIGINAL RESEARCH—OUTCOMES ASSESSMENT

# Psychometric Properties of the Iranian Version of the Sexual Quality of Life Scale among Women

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**ABSTRACT**

***Introduction.*** Female sexual dysfunction has a known impact on the quality of life.
***Aim.*** The purpose of this study was the translation and validation of an Iranian version of the Sexual Quality of Life questionnaire-Female (SQOL-F) in Iranian women.
***Methods.*** A population sample of N = 2,675 women aged 17–67 years from Qazvin City of Iran and two clinical population samples (women with sexual dysfunctions N = 295 and women with type 2 diabetes N = 449) participated in the study. A self-constructed demographic questionnaire, the SQOL-F, the Short Form Health Survey (SF-36), and the Female Sexual Function Index (FSFI) were used for data collection.
***Main Outcome Measures.*** Internal consistency and test–retest reliability were examined. Correlations between the SQOL-F, SF-36, and FSFI were assessed with convergent validity. Furthermore, known-groups comparison analysis was conducted to compare differences in SQOL-F scores between healthy women and those with sexual problems and diabetes. Confirmatory factor analysis assessed the factor structure of the SQOL-F.
***Results.*** Cronbach's alpha ranged from 0.84 to 0.98. Significant correlations between the SQOL-F, SF-36, and FSFI scores were found (ranging from $r = 0.4$ to $r = 0.72$). The SQOL-F scores were significantly different between women with and without a clinical condition ($P < 0.05$). A unifactorial model provided the best fit to the data.
***Conclusion.*** The questionnaire represents a suitable measure to assess sexuality-related quality of life to sexual function in healthy women, as well as in women suffering from a chronic medical condition. Application of the scale to other clinical samples needs to be further explored. **Pakpour AH, Zeidi IM, Saffari M, and Burri A. Psychometric properties of the Iranian version of the sexual quality of life scale among women. J Sex Med 2013;10:981–989.**

***Key Words.*** Sexual Quality of Life; Sexual Dysfunction; Iran; Validity

## Introduction

Health-related quality of life (HRQOL) is a broad and multidimensional concept that includes the domains of physical, social, emotional, and psychological health [1]. This concept could have an effect on many dimensions of human health [2]. Sexual health is one of these dimensions that, despite its considerable impact on health, is often neglected [1,3]. According to Greenhouse's simple definition of sexual health, it is "the enjoyment of sexual activity of one's choice, without causing or suffering physical or mental harm." [3] Similar to HRQOL, it therefore represents an influential concept that plays a decisive role in human health. Moreover, it has been proven that sexual life satisfaction is an important predictor of general life satisfaction [4]. Therefore, sexual health could be phenomenologically related to HRQOL.

Different biopsychological factors such as genes, other psychological and physiological diseases and conditions, psychosocial agents, and even medicinal drugs may lead to sexual dysfunctions [5,6]. Quite commonly, sexual problems create level of distress and interpersonal difficulty that again effect on sexual health and consequently HRQOL [2,7]. Studies on sexuality and sexual health demonstrate clear association between sexual dysfunction and lower QOL [8]. This association has further been confirmed in samples of patients with various disorders [9–11]. To quantify and recognize this relationship, the term "sexual QOL" (SQOL) has been coined. SQOL is composed of feelings about sexual attractiveness, which concern about participation in sexual intercourse including perceptions about sexual function [12]. Moreover, it is known that satisfaction and health benefits are specifically related to penile–vaginal intercourse and not to other sexual activities [13–15].

To date, many instruments measuring overall and condition-specific QOL have been developed, but there are only few scales measuring SQOL among women [16]. Moreover, most generic QOL measures do not consider sexual function as a specific dimension of overall QOL [17]. There are some specific sexuality-related QOL scales, but it is found that these measures cannot be applied across genders because of different sexual preferences and prevalences of health conditions among men and women [16,18]. For example, it is well known that psychological and interpersonal factors exert a bigger influence on female sexual functioning compared with men [19,20]. Furthermore, the generic QOL scales do not consider the implications of various populations and are not sensitive to changes [17].

The Sexual Quality of Life questionnaire-Female (SQOL-F) was initially developed for application in women suffering from sexual dysfunctions [16]. Soon after, the questionnaire has been adapted for use in men [19]. The measure is composed of 18 items asking about individual thoughts and feelings with regards to sexual life [16]. The psychometric property investigation of the English version of the scale indicated good discriminant and convergent validity [16,21]. However, the applicability of the SQOL-F among other cultures and different languages is unknown.

Female sexual dysfunction (FSD) has a known impact on QOL and is a problem of growing interest [1,8]. It seems to be a core component of sexual health and QOL because as the FSD is more serious, the level of QOL will be lower [22]. It is defined as difficulty during any phases of sexual activity that encompasses sexual desire, arousal, and resolution, which inhibits enjoyment from sexual act [23]. According to available data, this phenomenon is prevalent among women [22]. For example, in a recent study that was performed on a sample in the United Kingdom, the prevalence of lifelong FSD was estimated to be about 15.5% [24]. Also, there are other studies that suggest that this condition could be considerably high, and the rates of 40–60% have been reported [25,26]. Studies showed that about one-third of Iranian female populations may suffer from some types of sexual dysfunction [27,28]. This condition is related to disorders such as depression, anger, frustration, and anxiety among women [29,30]. In addition, studies showed that the FSD could be a reverse effect on sexual confidence and self-esteem as a sexual partner [31]. So, in women with FSD, sexual relationships may be a source of distress and upset [32]. Therefore, recognition and exploration of the risk factors in the field of sexual health and finally QOL by validated measures such as SQOL-F can prevent many complications and disorders related to FSD.

The purpose of the study was to examine the psychometric properties of a translated and culturally adapted Persian version of the SQOL questionnaire among population and clinical samples of Iranian women.

## Methods

### *Setting*

Qazvin is a city situated in the northwest of Iran, with a population of about 453,554. The city is located some 165 km northwest of Tehran. The socioeconomic level of the city is average compared with other Iranian cities. About 48.93% of the population is female.

### *Sampling*

The study included three different samples. Between October 2011 and March 2012, a total of N = 2,675 healthy women (17–67 years old) were recruited. The "healthy" general population sample was randomly selected on the basis of a list with postal codes. Once randomly selected, the correspondence addresses were drawn from the data bank registry at the Qazvin central post office. A total of 2,700 households were selected. Out of these 2,700 homes, 2,675 healthy women partici-

pated in the study. Criteria to be included in the healthy population group were as follows: married; able to read and understand Persian; not suffering from a chronic medical disease that could interfere with their sexual functioning (such as diabetes, cancer, kidney diseases, spinal cord injury, and cardiovascular diseases); and sexually active. Besides the healthy general population sample, two clinical samples were included in the study. The first sample consisted of women suffering from FSD. A total of N = 295 women with FSD were selected from four gynecology clinics in Qazvin (a total of N = 162 women) and from four clinics in Tehran (a total of N = 133 women). Only women with a verified diagnosis of FSD based on the Diagnostic and Statistical Manual of Mental Disorders [33] who, in addition, met the predefined inclusion criteria (married, able to read and understand Persian, and sexually active) were included in this sample.

The third sample consisted of women with diagnosed type 2 diabetes. Diabetic women were included in the study because of the sample availability and because of the known role of diabetes in the development of secondary sexual problems [34–37]. A total of N = 449 women with diabetes type 2 were recruited from two diabetes clinics in Qazvin (N = 147) and three clinics in Tehran (N = 302). The eligibility criteria for study inclusion were married, able to read and understand Persian, and not having any concurrent acute and/or chronic disease.

Approval for this study was obtained from the Ethics Committee of Qazvin University of Medical Sciences.

### Measures

#### *Demographic Information*

A self-constructed, 10-item questionnaire was used to obtain information on age, marital status, duration of marriage, educational status, husband's education, family income, occupational status, number of children, and menopausal status.

#### *SQOL-F*

The SQOL-F is a self-report questionnaire used to assess the impact of sexual dysfunction on QOL in women [16]. More specifically, it measures sexual confidence, emotional well-being, and relationship issues. It consists of 18 items scoring on a six-point Likert-type scale (ranging from "agree completely" to "disagree completely"). The total score can be calculated by summing up all individual item scores. Items 1, 5, 9, 13, and 18 are inversely scored and have to be converted before computation of the total score. Higher questionnaire scores indicate better SQOL. In a series of validation studies conducted in the United Kingdom in a number of different population and clinical samples, the original English version of the SQOL-F was found to have high internal consistency and to be stable over time [16]. Furthermore, the questionnaire showed excellent construct validity [16].

#### *The Short Form Health Survey (SF-36)*

SF-36 is a well-established questionnaire that measures HRQOL [38]. The SF-36 has been extensively used to assess disease impact on QOL for various conditions including diabetes, FSD, dialysis, etc. [39–42]. Moreover, the instrument has been widely applied as a general outcome measure in healthy populations. The SF-36 consists of 36 items and eight scales including physical functioning (10 questions), role physical (4 questions), role emotional (3 questions), pain (2 questions), vitality (4 questions), general health (5 questions), social functioning (2 questions), and mental health (5 questions). Response options are on a five-point Likert-type scale. To calculate the eight subscale scores, as well the overall questionnaire score, the items are aggregated and then transformed into a 0–100 scale, with higher scores indicating better state of health. The SF-36 has been translated into several languages including Persian (Farsi) [43]. The validity and reliability of the SF-36 for the use in the Iranian population have been previously demonstrated by Montazeri et al. [43].

#### *Female Sexual Function Index (FSFI)*

The FSFI developed by Rosen et al. is a self-report questionnaire used to assess female sexual function and problems over the past 4 weeks [44]. The questionnaire consists of 19 items and a total of six subscales including sexual desire (two items), arousal (four items), lubrication (four items), orgasm (three items), satisfaction (three items), and pain (three items). The subscale scores range from 0 (or 1) to 5, with higher scores indicating better sexual functioning. In addition to the six subscales, the FSFI provides a total score that can be calculated by summing up all item scores. The FSFI has been translated into Persian (Farsi) and has been found to be a valid measure to assess the presence of sexual problems in Iranian women [45].

### Translation

Two bilingual translators, with expertise in test development and expert knowledge in research fields related to QOL, translated the original English version of the SQOL-F into Persian independently from each other. Next, the two translators and research project managers (A.H.P.) reviewed and compared the two forward translations in order to create a single interim translation. Afterward, the interim translated version was back-translated into English by two new independent translators who were bilingual (English–Persian) with English mother tongue. In order to ensure the adequacy of the translation, the translated version was piloted in three different Iranian samples: women with diabetes (N = 17), women with FSD (N = 10), and healthy women (N = 32). These samples were selected by convenience sampling. Women were asked to carefully read each item and its corresponding response options and to evaluate the comprehensiveness of the questionnaire. All of these women were excluded from the final study (i.e., field testing of the questionnaire). Next, the revised version was administrated to three large samples of Iranian women: a general population sample (N = 2,675), women with type 2 diabetes (N = 449), and women suffering from FSD (N = 295).

### Procedure

After agreeing to participate, women eligible for the study were asked to complete the demographic questionnaire, the FSFI, the SF-36, and the SQOL-F at baseline and, again, 2 weeks after first completion. The "healthy" general population sample completed all questionnaires at home (during baseline and follow-up), while women diagnosed with type 2 diabetes and FSD were asked to complete the baseline questionnaires directly at the clinic. For the follow-up assessment in the two clinical samples, however, the questionnaires were sent home. The administration, as well as the postal sending of the questionnaires, was supervised by research assistants from our research group.

## Statistical Analyses

### Reliability

Internal consistency was measured using Cronbach's alpha. A Cronbach's alpha coefficient ($\alpha$) that is equal or higher than 0.70 was considered acceptable [46]. Intraclass correlation coefficients (ICCs) were calculated for the assessment of the test–retest reliability using two assessment points, which were 2 weeks apart. Test–retest reliability was considered acceptable if ICCs were equal or higher than $r = 0.70$. Sixty-two healthy women, 12 women with FSD, and 24 women with diabetes type 2 did not complete the questionnaire in the follow-up. No significant differences in demographic characteristics between women who participated in the follow-up studies compared with women who only participated at baseline could be detected.

### Convergent Validity

Convergent validity was explored by computing the correlations between the SQOL-F score, the SF-36 domains, and the FSFI total score and the six subdomains.

### Known-Groups Validity

Known-groups comparison analyses adjusted for age and education were conducted using a general linear model for the SQOL-F scores between the three different samples (healthy women vs. women with FSD vs. women with diabetes type 2). The Benjamini–Hochberg (BH) procedure was used to account for multiple testing [47]. We hypothesized that women with type 2 diabetes and FSD would score lower on the SQOL-F compared with those not suffering from any of the two diseases.

### Factor Structure

To assess the factor structure of the SQOL-F, confirmatory factor analysis (CFA) was conducted using the robust maximum likelihood (RML) estimation. Mardia's test of multinormality [48] was further applied to assess normality before conducting RML. RML was chosen as an estimation method for non-normally distributed SQOL-F total and subscale scores. There are various fit indices to assess the model fit. In this study, the fit of CFA models was assessed using the following indices: the Satorra–Bentler scaled $\chi^2$ statistic [49,50], the Akaike information criterion, the robust comparative fit index (RCFI), the standardized root mean squared residual (SRMR), and the root mean squared error of approximation (RMSEA). Values greater than or equal to 0.90 for the RCFI were considered acceptable. An acceptable model fit was further indicated by an SRMR $\leq$ 0.08 and/or an RMSEA $\leq$ 0.08 [51]. To investigate factorial invariance, a series of multigroup confirmatory factor analyses was performed. According to Horn and McArdle [52], there are two hierarchical levels of measurement invariance:

configural invariance and metric invariance. Configural invariance assumes that the patterns of factor loadings are equal across the three samples. In other words, the configural invariance investigates whether the same factors and patterns of loadings are appropriate for the three samples. However, here the magnitude of these factor loadings is not restricted equally. The metric invariance on the other hand assumes that the magnitudes of the factor loadings for the particular items are invariant across the three samples. According to Cheung and Renswold, a measurement invariance exists if ΔRCFI between the different models is less than 0.01 [53].

## Results

The sociodemographic characteristics of the three samples are presented in Table 1. The mean age of healthy women was 29.4 years with most of them reporting a secondary education (59.4%). Women with FSD and type 2 diabetes were significantly older than the healthy population sample, with mean ages of 31.0 and 41.9 years, respectively. Similar to the healthy population, most women with FSD and type 2 diabetes reported secondary education (58.3% and 38.5%, respectively).

Internal consistency of the SQOL-F total score was found to be high across all three samples, with Cronbach's alpha being $\alpha = 0.84$ for women with FSD, $\alpha = 0.98$ for the healthy population sample, and $\alpha = 0.94$ for women with type 2 diabetes.

ICCs indicated that the SQOL-F total scores were remarkably consistent across the two measurement points in all three samples ($r = 84$ for the healthy population sample, $r = 0.98$ for women with FSD, and $r = 0.95$ for diabetic women), therefore indicating adequate test–retest reliability of the instrument.

The SQOL-F total score, the SF-36, and the FSFI scores showed moderate to high correlations in all three samples ($P < 0.05$ for all), with correlation coefficients ranging from $r = 0.40$ to $r = 0.72$ (Table 2).

Pairwise multiple comparisons including age and education as covariates and using the BH method to control for multiple testing further revealed that the SQOL-F total score discriminated well between women with different health status. The SQOL-F total score was significantly higher in healthy women (mean 85.72, standard deviation [SD] = 28.33) compared with women suffering from either FSD (mean 54.29, SD = 29.65) or diabetes (mean 60.03, SD = 36.71; $F = 509.74$, $P < 0.001$, $\eta^2 = 0.24$). The effects of age and education as covariates in the model were not significant, with $F = 2.92$, $P > 0.05$ and $F = 1.26$, $P > 0.05$, respectively.

To assess the factor structure of the SQOL-F, a series of CFA was performed. First, the original three-factor model was examined in all three samples. Multivariate normality, as assessed by means of Mardia's statistics [48], showed irreversible non-normality of the SQOL-F scores in all three samples (skewness values ranged from 334.04 to 346.48 and kurtosis values ranged from 562.56 to 581.93). Therefore, RML was chosen as an estimation method. The results indicated

**Table 1** Sample characteristics for women with and without FSD

| | Healthy population, N = 2,675 | Women with FSD, N = 295 | Women with type 2 diabetes, N = 449 |
|---|---|---|---|
| Characteristic | Mean, SD | | |
| Age | 29.14 (7.88) | 31.06 (8.19) | 41.89 (13.91) |
| Duration of marriage (years) | 7.76 (7.48) | 8.47 (6.01) | 10.40 (11.85) |
| | N (%) | | |
| Education | | | |
| Unlettered | 83 (3.1%) | 10 (3.4%) | 88 (19.6%) |
| Primary school | 294 (11.0%) | 24 (8.1%) | 135 (30.1%) |
| Secondary school | 1,590 (59.4%) | 172 (58.3%) | 173 (38.5%) |
| College school or above | 675 (25.2%) | 81 (27.5%) | 53 (11.8%) |
| Missing | 33 (1.2%) | 3 (2.7%) | — |
| Husband's education | | | |
| Unlettered | 34 (1.3%) | 3 (1.0%) | 24 (5.3%) |
| Primary school | 272 (10.2%) | 10 (3.4%) | 64 (14.3%) |
| Secondary school | 1,689 (63.1%) | 183 (62.0%) | 309 (68.8%) |
| College school or above | 618 (23.1%) | 96 (32.5%) | 39 (8.7%) |
| Missing | 62 (2.3%) | 3 (1.0%) | 13 (2.9%) |
| Family income ($) | | | |
| ≤800 | 556 (20.8%) | 77 (26.1%) | 165 (36.7%) |
| 800–1,500 | 1,344 (50.2%) | 158 (53.6%) | 196 (43.7) |
| ≥1,500 | 775 (29.0%) | 60 (20.3%) | 88 (19.6%) |
| Occupational status | | | |
| Housewife | 1,810 (67.7%) | 189 (64.1%) | 341 (75.9%) |
| Employee | 406 (15.2%) | 40 (13.6%) | 28 (6.2%) |
| Student | 421 (15.7%) | 66 (22.4%) | 80 (17.8%) |
| Missing | 38 (1.4%) | — | — |
| Having children | | | |
| Yes | 980 (36.6%) | 211 (71.5%) | 325 (72.4%) |
| No | 1,695 (63.4%) | 84 (28.5%) | 124 (27.6%) |
| Menstruation | | | |
| Regular | 1,994 (74.5%) | 179 (60.7%) | 181 (40.3%) |
| Irregular | 366 (13.7%) | 43 (14.6%) | 91 (20.3%) |
| Missing | 315 (11.8%) | 73 (24.7%) | 177 (39.4%) |
| Postmenopausal | | | |
| Yes | 298 (11.1%) | 65 (22.0%) | 169 (37.6%) |
| No | 2,377 (88.9%) | 230 (78.0%) | 280 (62.4%) |

FSD = female sexual dysfunction; SD = standard deviation

**Table 2** Correlation matrix between SQOL-F, SF-36, and FSFI among three samples of Iranian women

| | Desire | Arousal | Lubrication | Orgasm | Satisfaction | Pain | FSFI total score | PF | RP | BP | GH | VT | SF | RE | MH | PCS | MCS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SQOL-F total score (healthy population) | 0.54 | 0.62 | 0.53 | 0.55 | 0.58 | 0.65 | 0.52 | 0.66 | 0.56 | 0.53 | 0.56 | 0.61 | 0.50 | 0.42 | 0.53 | 0.46 | 0.58 |
| SQOL-F total score (women with FSD) | 0.46 | 0.51 | 0.61 | 0.48 | 0.45 | 0.50 | 0.43 | 0.51 | 0.40 | 0.43 | 0.52 | 0.49 | 0.42 | 0.54 | 0.62 | 0.53 | 0.55 |
| SQOL-F total score (diabetes type 2) | 0.72 | 0.66 | 0.58 | 0.45 | 0.50 | 0.46 | 0.69 | 0.42 | 0.53 | 0.64 | 0.48 | 0.58 | 0.54 | 0.70 | 0.58 | 0.59 | 0.63 |

PF = physical functioning; RP = role limitations due to physical health; BP = bodily pain; GH = general health perception; VT = vitality; SF = social functioning; RE = role limitations due to emotional problems; MH = mental health; PCS = physical component summary; MCS = mental component summary; FSD = female sexual dysfunction; FSFI = Female Sexual Function Index; SF-36 = Short Form Health Survey; SQOL-F = Sexual Quality of Life questionnaire-Female

**Table 3** Fit indices for the CFA models of the SQOL-F (best fitting models are highlighted in bold)

| Model | S-B$\chi^2$ | df | RCFI | SRMR | RMSEA | AIC |
|---|---|---|---|---|---|---|
| Three factor model | | | | | | |
| Healthy population | 387.20 | 130 | 0.96 | 0.14 | 0.10 | 469.20 |
| Women with FSD | 1,044.50 | 130 | 0.77 | 0.13 | 0.20 | 1,126.50 |
| Women with diabetes type 2 | 1,105.84 | 130 | 0.75 | 0.14 | 0.19 | 1,187.84 |
| Single factor | | | | | | |
| Healthy population | **396.60** | **135** | **0.96** | **0.03** | **0.08** | **468.60** |
| Women with FSD | **262.77** | **135** | **0.96** | **0.02** | **0.07** | **334.77** |
| Women with diabetes type 2 | **142.65** | **135** | **0.99** | **0.01** | **0.02** | **214.65** |

AIC = Akaike information criterion; CFA = confirmatory factor analysis; df = degree of freedom; FSD = female sexual dysfunction; RCFI = robust comparative fit index; RMSEA = root mean squared error of approximation; S-B$\chi^2$ = Satorra–Bentler scaled $\chi^2$ statistic; SQOL-F = Sexual Quality of Life questionnaire-Female; SRMR = standardized root mean squared residual

that the originally suggested three-factor model showed a very poor fit to the data, with very large $\chi^2$, SRMR, and RMSEA and low RCFI (Table 3). The results were comparable in all three samples. Next, we examined an empirical single-factor model. The results shown in Table 4 suggest that the single-factor model had a significantly better fit to the data in all three samples compared with the initially suggested three-factor model.

Table 4 presents the fit index values for the configural invariance model and the metric invariance model. The fit indices for both models suggest that the single-factor measurement model for the SQOL-F has an acceptable fit within women with different health status. In this study, RCFI differences between the configural invariance model and metric invariance model were <0.002. These findings suggest that both models are equivalent and that healthy women as well as women suffering from either FSD or diabetes perceived the SQOL-F items in a similar manner.

**Table 4** Invariance constraints on the SQOL across health status

| Model | S-B$\chi^2$ | df | RCFI | SRMR | RMSEA (95% CI) |
|---|---|---|---|---|---|
| A* | 445.89 | 228 | 0.98 | 0.03 | 0.059 (0.05–0.07) |
| B† | 462.64 | 305 | 0.980 | 0.03 | 0.057 (0.05–0.07) |

*Model A, configural invariance model
†Model B, metric invariance model
CI = confidence interval; df = degree of freedom; RCFI = robust comparative fit index; RMSEA = root mean squared error of approximation; S-B$\chi^2$ = Satorra–Bentler scaled $\chi^2$ statistic; SQOL = Sexual Quality of Life questionnaire; SRMR = standardized root mean squared residual

## Discussion

Sexuality-related QOL is an important aspect in people suffering from different health conditions. The purpose of the study was to validate a translated and culturally adapted version of the SQOL-F that allows assessment of sexuality-related QOL in Iranian women.

All women included in this study found the questionnaire to be clear and easy to understand. The internal consistency reliability of the SQOL-F was satisfactory in all three samples. Our results are therefore consistent with the findings of previous SQOL-F validation studies [16]. However, Cronbach's alpha for the healthy population sample was higher in comparison with the two clinical samples of women suffering from diabetes type 2 and FSD. A potential reason for this discrepancy might be the difference in sample size as Cronbach's alpha, as a measure of internal consistency, is known to increase with bigger sample size [54]. Test–retest reliabilities were greater than

0.70 in all three samples, therefore consistent with the findings of the original English SQOL-F validation study ($r = 0.85$) [16].

As expected, the SQOL-F total scores were significantly correlated with the FSFI subscales in all three samples ($r$ ranged from 0.40 to 0.72). However, the correlations were moderate, indicating that the two questionnaires measure different albeit related concepts. Again, these results are in accordance with the findings of the original SQOL-F validation study ($r$ ranged from 0.28 to 0.66) [16]. To the best of our knowledge, no study has so far investigated the correlations between the SQOL-F and the SF-36. Our findings indicate a strong correlation between the SQOL-F and the generic measure of QOL, reflecting good convergent validity of the questionnaires ($r$ ranged from 0.40 to 0.66).

As hypothesized, the SQOL-F total scores differed substantially across the three samples. Women suffering from either type 2 diabetes or FSD reported poor sexuality-related QOL in comparison with our "healthy" general population sample. Women with the FSD reported the lowest scores in the SQOL-F compared with the other two samples (i.e., general population and diabetic women) even when the scores were adjusted for age and education. This fact reflects the nature of the disease as well as the sensitivity of the tool in measuring sexual functioning and sexuality-related QOL in patients with sexual problems. Similar to the observations from previous study, the SQOL-F was able to discriminate well between women with and without FSD [16].

The factor structure of the SQOL-F was examined using CFA. Contrary to the original findings of a best fitting three-factor model, we report a single-factor solution to provide the best fit in all three samples. This is in accordance with the results from a validation study using the original English version of the SQOL-F, and we also found a unidimensional structure to provide the best fit to the data [16].

Overall, these findings indicate that the SQOL-F items are highly intercorrelated and that sexuality-related QOL should be assessed using the total questionnaire score rather than relying on the subscales.

There are several study limitations that need to be addressed. First, the study was conducted in samples of Persian-speaking Iranian women. There is a need for additional studies targeting Iranian peoples who speak Azeri, Balochi, Gilaki, Kurdish, Lori, Mazandarani, and Turkmen. Furthermore, the representativeness of our three study samples might be limited due to the fact that a high proportion of our respondents were young women (with a mean age of 29.14 ranging from 16 to 67 for healthy population women, mean age of 31.06 ranging from 19 to 65 for women with FSD, and a mean age of 41.89 ranging from 20 to 72 for women with type 2 diabetes). Thus, the findings from the study may not be generalizable to older populations.

Further studies should assess the responsiveness of the SQOL-F in a clinical trial design to explicitly investigate the sensitivity of the instrument in assessing treatment effects. Moreover, validation of the SQOL-F should be conducted in various populations and cultures to ensure cross-cultural comparison of the instrument.

In conclusion, the results of this study show that the Iranian version of the SQOL-F has adequate psychometric properties. Therefore, the SQOL-F is a useful instrument in measuring sexuality-related QOL among Persian-speaking female populations in Iran. Health workers and gynecologist are encouraged to administrate the SQOL-F to assess the impact of sexual problems on women's QOL.

### Details of Ethics Approval

Written informed consent was obtained from the women. The Ethics Committee of the Qazvin University of Medical Sciences approved the study on September 2011.

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*Conflict of Interest:* The authors report no conflicts of interest.

### Statement of Authorship

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