



Original Article

Development and psychometric properties of a questionnaire to assess the female quality of sexual lifeRaziyeh Maasoumi^{1,2*}, Morteza Nazifi³, Zahra Mokhtarinia⁴, Lorann Stallones⁵¹Nursing and Midwifery Care Research Center, School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran²Department of Reproductive Health, School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran³Department of Psychology, University of Bojnord, Bojnord, Iran⁴Department of Sociology, Islamic Azad University Science and Research Branch, Tehran, Iran⁵Colorado Injury Control Research Center, Department of Psychology, Colorado State University, USA

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ABSTRACT

Background & Aim: Proper assessment of the quality of sexual life requires having access to psychometrically sound instruments. The present study aimed to develop an instrument to assess Iranian women's quality of sexual life.**Methods & Materials:** This was a mixed-method study with exploratory design; at first, the Iranian women's perception of the quality of sexual life was explored. An initial 73-item version of the questionnaire was generated according to qualitative findings and the review of the literature. Then, psychometric characteristics consist of face, content, construct, convergent validity, and internal consistency were assessed. A total of 450 women completed the developed questionnaire, ENRICH scale, and sexual quality of the life-female questionnaire.**Results:** The results of face validity were satisfactory. The content validity index and content validity ratio were found to be .92 and .80, respectively. Exploratory factor analysis identified six factors accounted for 51.92% of the variance. The identified six factors that were also confirmed by confirmatory factor analysis with acceptable goodness of fit indices. Correlations between the total scores and the dimensions of sexual quality of life-female questionnaire and ENRICH ranged from .414 to .747. Total and the range of Cronbach's alpha coefficient for the explored subscales were 0.94 and 0.94 to 0.60 respectively.**Conclusion:** This study provided a valid and reliable 36-items questionnaire to holistically assess Iranian women's quality of sexual life. It will be useful as a self-reported measure in research and clinical practice of women's sexual health.

Introduction

Quality of sexual life (QSL) is one of the main concepts in the field of sexual and reproductive health (1). Like quality of life, QSL is founded upon one's perception of the sexual aspect of his/her life (2). However, there is no agreement about the definition of QSL (3). Some researchers define QSL as the perception of one's sexual attractiveness, his or her interest, and participation in sexual activity, and one's perception of his or her sexual functioning (4). In contrast, others view this concept from a dynamic and interactive viewpoint which is affected by

factors such as sexual functioning, sexual self-efficacy, sexual, and relationship satisfaction (5,6). In addition, the level of quality of sexual life can be affected by gender differences. It seems that women's quality of sexual life is more susceptible than men's quality of sexual life. One explanation can be more complexity of female sexual response (7,8) as well as a higher prevalence of female sexual problems compared to males (9,10).

Except for no consensus about the definition of QSL, it has been suggested that QSL is closely related to sexual functioning, the level of satisfaction with interpersonal relationships, and the general well-being (1,2). However, there is limited scientific evidence to support this hypothesis. So, assessing QSL is an important issue for assessing short-term as well as long-term

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outcomes. Accurate assessment of QSL requires the application of gender-based, valid, context-based, and multidimensional instruments (1-3). Unfortunately, most of the existing instruments have focused primarily on the objective dimension of sexual functioning and, therefore, there are only a limited number of questionnaires available that assess QSL in a comprehensive way (3).

A review of the literature showed that there is one questionnaire to assess QSL in women named Sexual Quality of Life-Female questionnaire (SQOL-F) has been designed and validated by Symonds et al in 2005 (11). Although, this instrument is a short, valid, and reliable questionnaire it can assess the female quality of sexual life psychologically not physically as well as socially. The original questionnaire is unidimensional but the Persian version of SQOL-F contains four sub-scales as; psychosexual feelings, sexual and relationship satisfaction, self-worthlessness, and sexual repression. So, development and psychometric assessment of a new questionnaire that can assess QSL with considering contextual variables are necessary. So, the present study aimed to develop an instrument to assess QSL in Iranian women.

Methods

This was a mixed-method study with exploratory design conducted in two sequential phases; at first, during the qualitative phase, the concept of the quality of sexual life from the Iranian women's perspective was explored. At the end of this phase, items were generated by the deductive-inductive approach. Then, in the quantitative phase, psychometric characteristics were assessed. More details are shown in follow:

Phase 1: Qualitative phase

Research design

The best approach to study the quality of sexual life as a context-based concept is an exploration of the individual's perspectives

(12). So, the first phase of the present study was conducted by the qualitative method.

Participants and data collection

This phase of the study was conducted from August to November 2012. Participants included 31 Iranian Persian-speaking women being in the reproductive age, have had a sexual experience during their marital life, and willing to participate in the research. They were referred to the health care centers affiliated to Shiraz and Tehran universities of medical sciences as well as centers affiliated to the 9th distinct municipality in Shiraz. Shiraz and Tehran are two big cities in Iran with a relatively socio-cultural context.

Purposeful sampling was conducted to select of information-rich cases related to the subject of study. Data were collected through open-ended and unstructured interviews. Interviews were started by one open question relevant to the women's sexual and marital life. Women were asked to express their perceptions about the quality of their sexual relationships by employing probing questions such as, "would you please share with me your experiences about the sexual relationship especially the quality of the sexual relationship?". All interviews from 31 participants were audio-recorded with the permission of them. The length of the interviews ranged from 30 to 120 minutes (average= 60). To apply the maximum variation we selected two strategies; 1) selection of the women with the different ages, socio-economic, educational and marital status, and 2) selection of the women with various sexual experiences in their marital life.

Prolonged engagement, immersion in the data, writing field notes, and member checking were applied to the establishment of data credibility (13). For member checking, the primary results of the qualitative analysis were returned to the participants to confirm that the researchers were presenting their real perceptions and ask to what extent the analyses made sense to them. Dependability was considered

through external checking by four experts who were outside the research team. Confirmability was also established by peer checking through three sexual and reproductive health care professionals informed with a qualitative methodology. They supervised the coding process and extraction of the subcategories and categories. In this study, we tried to consider the maximum variation to establish the transferability of the data.

Data analysis

A conventional content analysis was used to data analysis and explore various dimensions of QSL from the women's viewpoint. The analysis process was performed simultaneously with data collection based on the algorithm proposed by Graneheim & Lundman (14). Based on the algorithm, the meaning units as words, sentences, or paragraphs containing aspects related to each other through their content and context were marked. Then, the size of meaning units was decreased while preserving the core and latent content. The next step was abstraction and labeling of the condensed meaning units with codes. After that, all extracted codes with each other and sorted them into subthemes based on the similarities and differences. Finally, an overarching theme emerged regarding the interrelationships among the various subthemes.

Item generation

Items of the questionnaire were generated through the deductive-inductive approach. This approach helps to find appropriate items based on the results of the qualitative phase and the literature review. So, the initial questionnaire contains 73 items was developed based on the extracted themes from the qualitative phase as well as the review of the literature.

Phase 2: Quantitative phase

In this phase, the psychometric properties of the developed questionnaire were

assessed. Before the validity and reliability assessment, three pilot studies were conducted for assessing the item-total correlation (15). In the first pilot study, 30 women were asked to answer the 73-item questionnaire. According to the first pilot, 9 items were deleted and another 9 were revised so that the number of questions was reduced to 64. In the second pilot study, the revised 64-item questionnaire was again administered to 30 women. Results showed that a number of items still indicated weak item-total correlations. At this time, 9 inappropriate items were removed and the Likert options were rewritten for some of the items; thus, the questionnaire was reduced to 55 items. In the third pilot study, another 30 women completed the questionnaires. Finally, eliminating 5 other items, all the items showed desired Cronbach's alpha and item-total correlations, and the questionnaire was prepared for validity and reliability assessment with 50 questions.

A total of developed questions was categorized into two parts: part A contains items arranged by a Likert scale with five-point rates from strongly agree (=5) to strongly disagree (=1), and part B contains items with such like Likert scale from always (=5) to never (=1).

Content validity

Qualitative and quantitative were assessed by an expert panel consisting of 10 sexual and reproductive health specialists who also familiar with the tool development and psychometric assessment. Grammar, wording, item allocation, and scaling of the questionnaire were assessed as the items of investigation of qualitative content validity by an expert panel. Also, the content validity index (CVI) and content validity ratio (CVR) were assessed as the indexes of quantitative content validity by specialties (15,16). Calculating of CVI was done by a Likert-type, ordinal scale with four possible responses include from 1=not relevant/simple /very clear to 4= very relevant/ very simple/ very clear. To assess CVR the essentiality of each item was rated by the

Female quality of sexual life questionnaire

experts. The proportion of items that reported a rating of 3 or 4 considered as CVR (15,16).

Face validity

Qualitative face validity was assessed by 10 married women about item difficulty, and item ambiguity in responding. Quantitative face validity was assessed by the impact score (IS) calculated as frequency \times importance. Each item that was acquired score equal to or greater than 1.5 considered suitable (15).

Construct validity

After evaluating the item-total correlation, face, and content validity, the modified 50-item QSL-F was completed by women. A sample of 457 married and sexually active women was recruited to the second phase of the study from women who referred to two the reproductive health unit of centers which were affiliated with the Tehran University of Medical Sciences. Convenience sampling was carried out from June to September 2016. Women were eligible to participate in the phase of the study who have been married and being in reproductive age. Pregnant and post-menopausal women were not entering the study. From all of 457 completed questionnaire, 7 questionnaires were excluded from data entry because they were many missing data. So, 450 questionnaires completed were entered. The data set was divided into two parts; the first part (n=225) was used to the EFA analysis and the second part (n=225) was applied to the CFA analysis.

EFA analysis

Factor extraction was performed using Maximum likelihood (ML) on the 50-item version of QSL-F with oblique rotation (direct oblimin) using IBM SPSS version 22 in order to explore the number and nature of the factors. In order to explore the number and nature of QSL-f factors, three major indexes including eigenvalues, the

proportion of explained variance, and the plot of eigenvalues after rotation that is called scree plot, were utilized. Items with factor loadings 0.4 and above were retained for the respective component. Further details will be presented in the results section. Skewness and kurtosis statistics were used to assess the normality of the distribution of the data; all of which were between ± 1.5 .

CFA analysis

To test the multi-dimensionality hypothesis of the QSL-F, CFA was performed using EQS-Structural Equation Modeling Software 6.3 for Windows. Further details will be presented in the results section.

Convergent validity

To assess the convergent validity, the Persian version of the Sexual Quality of Life-Female questionnaire (SQOL-F) and ENRICH scale were concurrently completed with the designed questionnaire. SQOL-F consists of 18 questions with a six-point Likert scale. Higher scores indicate more favorable levels of sexual quality of life in females (11). Maasoumi et al. after Persian translation of the SQOL-F reported an acceptable level of validity (CVI = .91, CVR = .84) and reliability ($\alpha = .073$, ICC = .88) for this instrument (17). ENRICH is a multidimensional questionnaire that is used to measure the quality of relationships between married couples (18). One of the short forms of this questionnaire, entitled ENRICH couple scale has been translated into Persian and validated in Iran by Asoodeh et al. (19) Cronbach's alpha of the Persian version of ENRICH Couple Scales has been found satisfactory (19).

Reliability

In this study, internal consistency as one of the indexes showed the reliability of the questionnaire was test by calculation of the Cronbach's alpha coefficient. The satisfactory level of this index was considered equal to or greater than 0.60 (15).

Ethical consideration

The Ethics committee of Tarbiat Modares University (TMU) approved the qualitative phase ongoing 2012 (Reference number IR.TMU.52.11.2071) and then, the Ethics Research Committee of Tehran University of Medical Sciences (TUMS) approved the qualitative phase ongoing 2016 (Reference number IR.TUMS.VCR.REC.1395.1780).

The quantitative phase of the study was approved by All participants were informed about the research objectives. Informed consent was obtained from all participants. Data was collected and analyzed anonymously.

Results

Phase 1: Qualitative study

In the first phase of the study, we found that 604 primary codes, 252 condensed codes, 58 subcategories, 16 main categories, and 5 themes (20). The full details of the qualitative phase have been reported in previous articles by the authors (21-23). Here, we only define the main themes because they were the foundation of the operational definition of the QSL as well as item generation. According to, we explored that Iranian women conceptualized the quality of sexual life as “the perception of satisfying sexual relationship affected by the level of preparation for sex, couple’s interaction and harmony in a sexual relationship, previous sexual relationship outcomes, marital life status, and the state of passive sexual socialization.

Preparation for sex

From the women participants' viewpoint, the most important factor that helped them prepare for sex was being psycho-physically motivated or being sexually aroused. In fact, the participants' level of participation, pleasure, and satisfaction with sex showed a positive relationship with their sexual arousal.

Couple's interaction and coordination during intercourse

Participants' perceptions indicated that sexual relations would be pleasant and enjoyable for them when it involved interaction and coordination, especially during intercourse. Interaction and coordination between couples refer to the mutually effective expressions at three verbal, physical, and behavioral levels.

Consequences of the previous sex

The life experiences of the participants revealed the dramatic impact of the consequences of previous sex experiences on one's reaction in future sexual relations. The participants thought that these outputs could be divided into temporary or short-term and permanent or long-term. Temporary or short-term outputs consist of orgasm, the satisfaction of sexual and emotional needs, satisfaction with one's self because of the accomplishment of the wife's duty, and caressing after sex. These women also believed that the experience of unpleasant sexual relations would bring about long-term consequences such as undermining one's mental health and increasing the risk of separation or divorce.

Quality of interpersonal relationships

Interpersonal relationships is another factor that affects the quality of sexual relations. According to these participants, components of this theme included each partner's individual characteristics, quality of relationships, and the general conditions governing their lives. Based on their opinions, each partner's individual characteristics, such as calmness, patience, and peacefulness or dislike being hasty, emotional, and irritable plays an incredibly important role in the type of interactions between couples. In addition, affected their quality of sexual relations.

Sexual socialization

Most of the participants revealed the impact of a process called sexual

socialization on their sexual expression, behaviors, and responses. The main aspects of this theme based on their experiences included the impact of religious teachings and cultural norms, and the influence of parents and community conservatism on providing sex education.

According to the exploration of the main themes as well as the perception of QSL from the Iranian women's perspective and the review of the related literature, the item pool contains 73 items was developed.

Phase 2: Quantitative study

The results of the psychometric properties assessment of the developed questionnaire are shown as follow;

Content and face validity

Quantitative indices of content validity, i.e. CVI and CVR were 0.92 and 0.80. Seven items were revised based on the expert panel in the qualitative content validity. Furthermore, the IS of all items as well as the index of quantitative face validity were more than 1.5. Qualitative face validity of QSL-F reflected the relevance and appropriateness of the items, proper understanding of the items by respondents, and the absence of any ambiguity and/or difficulty in items' understanding. All of 50 items were obtained after face and content validity.

EFA Construct validity

Description of socio-demographic features of the sample participated in this part of the study are displayed in the second part of Table 1. The value of Kaiser-Meyer-Olkin (KMO) indicated the sampling adequacy to carry out the analysis (KMO=.909). Bartlett's test of sphericity showed that the correlations between the items were large enough and significant (6972.907; $P < 0.001$). Eleven factors with eigenvalues greater than 1 were identified that accounted for 60.32% of the variance. According to these results and the scree plot results, the ML method was performed

through the direct oblimin rotation method with six fixed factors.

The six-factor solution explained 51.92% of the total variance. The results indicated that 36 items loaded on six factors with appropriate factor loadings (0.4 and above) and 14 items were eliminated due to the lack of weakness of factor loading and complexity. Table 2 shows the inter-correlations between the subscales of the 36-item questionnaire. The results suggested that the items related to the first theme constituted a new factor with the name of "quality of sexual relations", the items related to the second and third themes constituted two independent factors, namely "satisfaction with sexual relations" and "dissatisfaction with sexual relations", the items that revealed the fourth theme loaded on the factor entitled "quality of marital relationships", and the items were generated by the fifth theme loaded on two separate factors, entitled "religious schema" and "sex education". Therefore, the identified factors in the 36-item version were named as follows:

- Factor 1: including 14 questions (numbered from 1 to 14), entitled Quality of Sexual Relations (QSR)
- Factor 2: including 8 questions (numbered from 15 to 22), entitled Quality of Marital Relations (QMR)
- Factor 3: including 4 questions (numbered from 23 to 26), entitled Satisfaction with Sexual Relations (SSR)
- Factor 4: including 5 questions (numbered from 27 to 31), entitled Religious Schema (RS)
- Factor 5: including 3 questions (numbered from 32 to 34), entitled Dissatisfaction with Sexual Relations (DSR)
- Factor 6: including 2 questions (numbered from 35 to 36), entitled Sex Education (SE)

Based on the nature of the explored subscales, the developed questionnaire generically named **ADORE** (Affection and sexual satisfaction, Dissatisfaction with sexual relations, Other as the quality of marital relations, Religious schema, and Education of sexuality issues).

Table 1. Demographic characteristics of the study sample

Study Phase	Characteristics	N	%
Phase 1: Qualitative study	Marital status		
	Married	27	87.1
	Divorced	1	3.2
	Widow	1	3.2
	Remarried	1	3.2
	Separated	1	3.2
	Total	31	100
	Educational level		
	Illiterate	1	3.2
	Elementary school	6	19.3
	Secondary school	15	48.4
	Bachelor's degree	4	12.9
	Master's degree	3	9.6
	Doctoral degree	2	6.4
	Total	31	100
Work Status			
Housewife	8	25.8	
Employed	23	74.2	
Total	31	100	
Range			
Age range		21-53	-
Marital life duration		3 months to 31 years	-
Phase 2: Quantitative study	N		
	%		
	Educational level		
	Elementary/Secondary	288	64
	University Degree	162	36
	Total	450	100
	Work Status		
	Housewife	335	74.44
	Employed	115	25.56
	Total	450	100
		Mean	SD
Age		33.79	8.55
Marital life duration		11.59	8.74

Table 2. Inter-subscale correlations, mean and SD for the subscales of the developed questionnaire

Factor	Mean	SD	QSR	QMR	SSR	RS	DSR	SE	Total Scores
QSR	21.02	9.09	1	0.697*	0.738*	0.411*	0.361*	0.363*	.916*
QMR	13.66	5.49		1	0.628*	0.508*	0.410*	0.321*	.859*
SSR	7.60	3.34			1	0.436*	0.446*	0.281*	.828*
RS	7.90	3				1	0.292*	0.225*	.611*
DSR	14.40	2.69					1	0.094*	.537*
SE	5.34	2.20						1	.455*
Total Scores	137.85	20.1							1

*Correlation is significant at the 0.01 level (2-tailed)

CFA construct validity

Mardia's Coefficient for multivariate kurtosis was found to be 447.02 with a normalized score of 97.99 which was well beyond the cutoff point of 3.00 indicating

multivariate non-normality of the variable's distributions (24, 25). However, evaluating Mahalanobis distanced-squared, we could not find any multivariate outlier in the data. Given our satisfactory sample size, we used the maximum likelihood (ML) method of

Female quality of sexual life questionnaire

estimation with Satorra-Bentler scaled χ^2 (S-B scaled χ^2) as an adjustment for non-normality (see Ullman, 2006b) by using EQS 6.3 for Windows.

Results of CFA using EQS robust methods on the ADORE questionnaire indicated that the hypothesized six-dimensional model was a good fit. Although the S-B scaled χ^2 (891.03 with 472 DF) was statistically significant ($P < .0001$) indicating a bad fit. However, given the Chi-square test

statistic is strongly affected by the relatively large sample size, we examine other goodness of fit indices. The adjusted χ^2/DF ratio was equal to 1.88 which was well below the cutoff point of 3 and other adjusted indices were NFI=.852, NNFI=.915, CFI=.924, and RMSEA=.045. The CFA results confirmed the identified dimensions in the EFA phase. Results of factor loadings from CFA are shown in Table 3.

Table 3. Factor loadings from CFA with S-B scaled χ^2 as correction for non-normality

Items translated from Persian into English	Adjusted factor loadings				
	Factor Labels	Unstandardized Factor Loadings	Corrected S.E.*	Corrected z Score**	Standardized Factor Loadings
1- My husband talks to me passionately before sex.	QSR	.844	.048	17.53	.724
2- My husband caresses me before sex.	QSR	.810	.044	18.28	.797
3- My husband kisses me before sex.	QSR	.784	.041	19.07	.807
4- My husband stimulates some points of my body that he knows are enjoyable to me.	QSR	.796	.049	16.13	.799
5- My husband motivates me to have sex.	QSR	.802	.049	16.42	.782
6- My husband is able to have sex with me.	QSR	.586	.057	10.32	.653
7- My husband understands my need for sexual relations.	QSR	.788	.052	15.22	.784
8- My husband expresses his feelings in words and behaviors during sex.	QSR	.792	.049	16.20	.739
9- My husband satisfies my expectations during sex.	QSR	.775	.048	16.24	.762
10- My husband caresses me during sex.	QSR	.831	.044	18.82	.828
11- My husband shows affection to me after intercourse.	QSR	.760	.051	14.97	.710
12- My husband does not hurry up for sex.	QSR	.710	0.44	14.54	.702
13- I prepare myself before sex.	QSR	.609	0.45	13.60	.806
14- My husband excites me before sex.	QSR	.690	0.50	14.79	.780
15- My husband is good-tempered.	QMR	.627	.048	13.16	.727
16- My husband is appealing to me.	QMR	.612	.044	13.77	.786
17- I love my husband.	QMR	.525	.047	11.09	.767
18- I trust my husband.	QMR	.576	.047	12.24	.704
19- I am appealing to my husband.	QMR	.561	.038	14.95	.716
20- Overall, I am satisfied living with my husband.	QMR	.714	.046	15.54	.818
21- My husband respects me.	QMR	.717	.050	14.23	.728
22- My husband listens to me well.	QMR	.754	.048	15.67	.693
23- Having sex with my husband satisfies me.	SSR	.668	.047	14.25	.700
24- I feel relaxed as a result of sex with my husband.	SSR	.844	.047	17.88	.925
25- I feel fresh as a result of sex with my husband.	SSR	.853	.045	19.11	.883
26- I feel emotionally satisfied after sex.	SSR	.785	.048	16.24	.768
27- Sexual need is a God's blessing.	RS	.318	.041	7.78	.490
28- The reason of our healthy sexual relations is faith and religious beliefs.	RS	.651	.043	15.27	.747
29- I regard it my religious responsibility to comply with my husband's sexual desire.	RS	.678	.050	13.46	.794
30- Sexual relations between my husband and I are in accordance with religious rules.	RS	.634	.042	14.99	.786
31- After sex, I am satisfied that I have managed to please my husband.	RS	.440	.042	10.43	.569
32- I feel depressed as a result of sex with my husband.	DSR	.897	.053	16.84	.848
33- I feel worthless as a result of sex with my husband.	DSR	.989	.061	16.17	.953
34- I think of divorce from my husband after sex.	DSR	.635	.071	8.93	.743
35- I had received correct sex education before marriage.	SE	1.05	.083	12.63	.767
36- When faced with sexual problems, I know which clinic to refer to.	SE	.703	.075	9.40	.570

Note: QSR: Quality of Sexual Relations; QMR: Quality of Marital Relationship; SSR: Satisfaction with Sexual Relations; RS: Religious Schema; DSR: Dissatisfaction with Sexual Relations; SE: Sex Education; * standard error adjusted for the non-normality; ** z score for the coefficient with the adjusted standard error (to evaluate statistical significant you should compare these z scores with 1.96 for .05 and 2.33 for .01 levels)

Convergent validity

Results of correlations between total scores of the ADORE questionnaire and the subscales of the Persian translations of SQOL-F and ENRICH couple scales are shown in Table 4 as indices of convergent validity. Correlation coefficients between the total scores of ADORE and the subscales of SQOL-F and ENRICH couple scales ranged from .414 to .747.

Reliability

Reliability analysis of the ADORE and its subscales indicated satisfactory internal consistency. Cronbach's alphas of 0.94, 0.90, 0.87, 0.81, 0.88, and 0.60 obtained for QSR, QMR, SSR, RS, DSR, and SE subscale, respectively. The total Cronbach's alpha of ADORE was calculated at 0.94.

Table 4. Correlations between total scores of the ADORE, SQOL-F and ENRICH

Questionnaire	Dimensions	Pearson correlation	P-value
Total scores of ADORE	SQOL-F	Psychosexual Feelings	.603*
		Sexual and relationship satisfaction	.747*
		Self-worthlessness	.573*
	ENRICH	Sexual repression	.520*
		Marital satisfaction	.616*
		Communication	.517*
		Conflict resolution	.414*
		Idealistic distortion	.541*

*Correlation is significant at the 0.01 level (2-tailed)

Discussion

The results revealed that ADORE consists of 36 items that are a tool with good psychometric properties for assessing the Iranian women's quality of sexual life. Cronbach's alpha coefficients for all the dimensions of the instrument were equal and higher than 0.60. The results indicated the desirability of the content, face, and construct validity of ADORE. Correlation coefficients between the total scores of ADORE and the subscales of SQOL-F and ENRICH indicated the appropriate convergent validity of the instrument.

There are a few instruments to assess the female quality of sexual life. SQOL-F questionnaire is one of a few closely related measures to the scope of the present study. SQOL-F is an instrument with a psychological perspective and its items assess the satisfaction of sexual and marital relationships (11). Comparing with SQOL-F, the ADORE questionnaire has additional dimensions like the quality of sexual relationship as well as the marital relationship, religious schema, and sex education. So, it seems that ADORE can be

more assess holistically and contextually the Iranian women's quality of sexual life.

ADORE contains six dimensions as the quality of sexual relations, satisfaction with sexual relations dissatisfaction with sexual relations, quality of marital relationships, religious schema, and sex education. In fact, we can interpret these dimensions in three levels; the core level is quality of sexual life (the first three dimensions), the background level is quality of marital life (the fourth dimension), and the contextual level are religious schema, and sex education (the last two dimensions). The core level explored in ADORE is in line with the female sexual response (7,8). Sexual satisfaction is more important and considerable than orgasm in female sexual response (7,8). In our study, in addition, the core items of the designed questionnaire can be assessing the quality of sexual relationships with determining sexual satisfaction and dissatisfaction. Quality of marital life is the background level of assessing the quality of sexual life. In other words, there is a dyadic relationship between the quality of marital life and the quality of

sexual life (26). The proportion of sexual dissatisfaction in the conflict of the marital relationship is reported to relatively high. So, the rate shows the considerable relationship between a sexual and marital relationship (27).

Religious schema and sex education are the contextual levels of the quality of sexual life. Religious teachings are one of the main factors that affect Iranian women's quality of sexual life (23). So, this effect must be considered for good assessing Iranian women's quality of sexual life. In other words, a questionnaire which applies to evaluate the Iranian female quality of sexual life should contain the dimension for assessing the religious schema.

Sex education like religious schema is the last dimension of ADORE that can increase the level of designed questionnaire fitness with the Iranian women's quality of sexual life. Access to the correct and scientific sex information can improve sexual health as well as the quality of sexual relationships (27). Exploration of sex education in the ADORE can be interpreted with the social context of Iran related to sex education. There are no formal sex education settings especially for adults. So, this context can affect women's sexual health as well as the quality of sexual life.

Application of ADORE can study the statue of the Iranian women's quality of sexual life as well as which dimensions of the quality of sexual life need intervention and improvement.

Besides its strengths, we should acknowledge some limitations in our study. The participants were limited to married women living in Tehran and Shiraz cities in the qualitative phase, and to the women living in Tehran city in the quantitative phases. Therefore, it is necessary to conduct other similar studies using ADORE to measure the quality sexual of life for increasing the generalizability of the findings. The small number of items that loaded on the sex education factor, led to a reduced internal consistency for this subscale. It is still possible to raise important questions about the generalizability of the

dimensions of ADORE to all different populations of women, especially Iranians and non-Iranians living abroad.

Conclusion

This study was conducted to develop and study the initial psychometric characteristics of ADORE as the context-based questionnaire to assess the Iranian women's quality of sexual life. The establishment of the stronger psychometric characteristics for the present questionnaire is required in more studies.

Conflict of interest

The authors declare no conflict of interest.

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Reference

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