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Developing and Validating a Questionnaire to Measure Women's Sexual Behaviors: A Psychometric Process

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Abstract

Background: Sexual well-being is essential in women's overall health. Emphasis is placed on the assessment of women's sexual behaviors across various domains. The purpose of this study was to describe the processes undertaken to evaluate the psychometric properties of a questionnaire developed for assessing sexual behaviors in its domains among Iranian women through their reproductive age. **Materials and Methods:** A mixed method study using exploratory design was conducted with the Iranian women of reproductive age living in Rafsanjan, a city in the Kerman Province, the center of Iran. Item reduction was made in three main steps: 1) item development in the qualitative phase of the study; 2) determination of internal consistency using Cronbach's alpha correlation coefficient; 3) content and face validity, construct validity using factor analysis. The qualitative exploratory phase produced the 62-item Sexual Behaviors Assessment Questionnaire (SBAQ). **Results:** The exploratory factor analysis revealed three domains include sexual capacity, sexual motivation, and sexual performance. Good internal consistency and reliability were obtained (Cronbach's alpha coefficient = 0.81) for the global 33-item SBAQ. The items on the SBAQ revealed factor-loading > 0.5. **Conclusion:** The SBAQ is a new validated and culturally appropriate instrument for evaluating sexual behaviors of Iranian women through their reproductive ages. **[GMJ.2016;5(4):208-14]**

Keywords: Sexual Behavior; Reproductive Age; Women; Questionnaire; Iranian

Introduction

In past decade, different measures have been developed and validated psychometrically and applied for assessing the variety of dimensions of human sexuality. Our previous review has revealed many of these available measures are not appropriate for applying in our special culture and society as the only culturally and legally accepted the type of sexual conduct in Iran is heterosexual marital relationship [1]. Some of the available measures for assessing sexual function have been translated and validated for using in Iranian context in past years [2-7]. In few cases, some measures have been developed in domestic context and validated for applying in different areas of sexuality in Iranian population [8-10]. In recent years, a growing body of research on Iranian sexual function and dysfunction has emerged. However, our knowledge of the meaning of sexual behavior and quality

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of sexual behavior among Iranian, especially among Iranian women is limited. A study on the meaning of sexuality and sexual self-understanding revealed that religion was an important factor in the conceptualization of sexuality in Muslim Iranian women living in Australia [11]. The researcher has mentioned to the role of Islamic shi'a principles in participants' sexual behavior formation. Although the participants were born and raised in Iran and might be considered to have been socialized in Iranian context but were living in Australia as a modern and secular country for many years, then their meanings may do not reflect those of Iranian women currently residing in Iran. Therefore, it seems that the role of a religious and traditional context might be more impressive in the sexual self-understanding and sexual behavior formation of Iranian women residing in Iran. Iran as an ancient country and home of one of the oldest civilization in the world, have the unique culture and religion compared to its neighbors in the Middle East area. With 90-95% shia's Muslim population, Iran has the most shia's Muslim population in the world. [12].The official language of Iranian is Persian unlike the other countries in the Middle East that most speak in Arabic. It seems that in this unique context, exploring the formation of sexual behaviors and quality of sexual behaviors will lead to obtaining the novel and valuable data. For achieving such data, in a mixed method paradigm, we used exploratory design to develop and validate a culturally appropriate and meaningful instrument to assess women's sexual behavior. A part of data of qualitative phase of the study has been published earlier [13]. The current study reports the second phase of the study, the development of an instrument that specifically addresses the sexual behavior in three factors including capacity, motivation, and performance in Iranian women. In this study, we present the development of a special measure for assessing sexual behavior in Iranian reproductive-aged women (IRAW). This measure can be used alone to evaluate the sexual behavior of women of reproductive age.

Materials and Methods

In a mixed method paradigm, we used exploratory design to develop and validate a culturally appropriate and meaningful instrument to assess women's sexual behaviors. We utilized the public health centers for approaching the participants from diverse socioeconomic backgrounds.

Item Generation

In the qualitative phase of the study, we tend to explore how Iranian women residing in Rafsanjan perceive their sexuality and describe their sexual behaviors through their daily lives. Fifty-one women aged 15-49 years were selected by using focus group discussions and in-depth individual interview. All the sessions were recorded and transcribed verbatim. Inspiring Graneheim approach, content analysis was adopted to extract the meanings and perceptions. The extracted meanings were used for item generation.

Based on the expertise evaluation as well as member checking, Items were revised and reduced. Then, seven women from study population appraised the items. The final draft included 62 items, which would need about 10 minutes to be completed. Each item has a 5-point Likert response scale ranging from "very much" to "at all."

Psychometric Validation

Psychometric validation was done through the quantitative phase of the study.

Study Design

Participants were selected from the women attending midwifery departments in seven urban health centers in Rafsanjan. The midwives in each center facilitated access to subjects and did the sampling. The midwives to the women who met the inclusion criteria explained the study objectives and the questionnaire completion style. After giving verbal consent from the subjects, the questionnaire was given to the women. The individuals in a private environment completed questionnaires. After completion, the subjects put the questionnaires in a folder and left it at a specified place

in the center to maintain more privacy.
The participants were informed that they could withdraw from the study at any time during completing the questionnaire if they did not want to continue. Moreover, the center's midwife was available to answer any potential questions about the questionnaire or the research. All questionnaires were anonymous, and the participants were assured of the confidentiality of their information. The ethics committee of Isfahan University of Medical Sciences and the Vice-Chancellor for Education and Vice Chancellor for health in Rafsanjan University of Medical Sciences approved the study.

Study Population

A total of 248 women of reproductive age participated in the study. Inclusion criteria included being Iranian, being married, having the ability to speak and being literate, willingness to participate in the study and lack of untreated psychological disorders. While the midwives are familiar with the women in advance and are aware of the medical history of them, they were able to consider lacking of any psychological disorders in subjects. If the individual was not willing to continue at any stage of filling the questionnaire, she could deliver the incomplete questionnaire to the midwife. In such a case, another questionnaire was replaced. Incomplete questionnaires comprised 4.3% of the cases.

Item Reduction

At this stage, each item was investigated regarding the missing data, item-total correlations, and loading the subdomains. Items that were mostly left unanswered, items that showed little correlation with the whole scale and items that did not load well based on the conceptual framework were selected for reduction through Cronbach's alpha and initial factor analysis. An expert panel was used to evaluate item reduction. Two sexual health experts and one instrument development expert discussed the items that were selected for reduction.
The decision to reduce items was based on the data from the qualitative part of the study, the opinion of experts who had adequate experience in the relevant field of research and the conceptual framework of the research as well as the number of items left unanswered, item-scale correlation and the subdomain loading. Ultimately, the final items were considered for factor analysis.

Final Factor Analysis

After determining the final items, final factor analysis was performed to determine the item load in the subscales. Factor analysis by orthogonal rotation method and varimax rotation approach was used at this stage. Eigenvalues and screen plot were used to decide on the final number of factors. According to the Polit (2010), interpretation is a key aspect of factor analysis, and the researcher can decide about the calculation of the number of factors [14]. Finally, the number of subscales of the scale were determined by the researchers' opinion and based on the data.

Reliability

After conducting factor analysis, Cronbach's alpha test was performed again, and the alpha coefficients of final items were determined for the internal consistency of the final scale. Since the questionnaires were anonymous and were randomly placed in folders and the subjects were assured of the confidentiality of their personal information, it was not possible to do the test-retest.

Validity

The content validity of the scale obtained in the first phase of the development and adoption of the questionnaire items through the concepts of the qualitative phase. At this stage, researchers continuously investigated initial items and repetitive or irrelevant items were excluded. Moreover, the opinions of two sexual health experts were considered for content validity.
The reduced scale was assessed in the last step before implementing the second phase of the study by seven women of reproductive age to ensure face validity of the questionnaire. They were asked to read and determine the suitability of each item of the scale, and their opinion was used to make necessary changes in the items.

Results

Item Reduction

The initial scale of the sexual behavior of women of reproductive age that was extracted directly from the qualitative phase of the study consisted of 102 items. As the researchers frequently reviewed and re-evaluated every item of the initial list, gradually the repetitive, unrelated and less important items concerning the evaluation of the sexual behavior of married women of reproductive age were excluded. At this stage and during several discussion sessions and investigations as well as the application of some corrective feedbacks, the number of items was reduced to 86 items. In the next phase, the numbers of the items were reduced again to 63 by helping 3 experts. The questionnaire was critically reviewed by seven women of reproductive age, and one other item was excluded based on their comment to provide the face validity. The 62-item scale was used in the second phase. Cronbach's alpha, as well as the initial rotation of the first stage of the data of the second phase of the study, resulted in finding items that had the least correlation to the whole scale, were not loaded well in the factors or were highly unanswered. Hence, removed of these items resulted in the final 33-item scale (Table-1).

Factor Analysis

Factor analysis with varimax rotation was conducted on the 33-item scale. According to the Kaiser gutman rule, 9 factors obtained eigenvalues greater than one and were considered valid (Table-2) [1].

The nine factors together explained 58.5% of the variance in the data. Based on the conceptual framework of the study and qualitative data and according to the researchers' ideas finally, the items were categorized into four subscales which explained 39.1% of the total variance of the data.

Based on how items were placed in subscales, ultimately the four extracted subscales were named as follows: first subscale sexual capacity, second sexual performance, third subscale sexual motivation and forth sexual script.

Thus sexual health scale of reproductive-aged women was developed with 33 items in four subscales. The first subscale is the sexual capacity subscale with ten items. The second subscale is the sexual performance subscale with nine items. The third subscale is the sexual motivation with the highest number of items (eleven item). The fourth subscale is the sexual script with the fewest number of items (three item). Cronbach's alpha was 0.81 for the 33-item scale.

Discussion

A thorough research relies on the accuracy of the instruments utilized, especially when exploring complex phenomena such as sexuality. The results of the validity testing on the Sexual Behavior Assessment Questionnaire (SBAQ) indicated it is an accurate and culturally acceptable measure of sexual behavior in women. Rigorous and appropriate processes were used to validate SBAQ.

The SBAQ was developed based on an explained concept in the qualitative phase of the study with 33 items and 4 subscales. In this study, face validity, content validity, construct validity, and reliability were confirmed.

This scale was developed to assess the sexual behavior of IRAW having a conceptual framework based on Hilbert classification of the sexual behavior. In Hilbert's classification, three factors of capacity, motivation, and performance are introduced to shape the sexual behavior [16]. The present scale also has three sexual behavior subscales of sexual capacity subscale with ten items (first subscale), sexual motivation with eleven items (third subscale) and sexual performance with nine items (second subscale).

Also, in explaining sexual behavior concept, we frequently faced with concepts that were effective in regulating sexual behavior of women of reproductive age. According to Gagnon and Simon hypotheses, the sexual script is a guideline for thoughts, feelings and sexual behavior in different situations [17].

Peoples' sexual concept forms and they think, learn how to express sexual feelings and show sexual performance based on what the culture of a specific community has determined for sexual behaviors [17].

In the qualitative phase of the present study,

Table 1. The Sexual Behaviors Assessment Questionnaire (SBAQ)

No.	**Subscale 1:** Sexual capacity
1	During sex, I am keen on a long foreplay.
2	I want to have sex at least once a week.
3	I am able to get aroused in any sexual interaction with my husband.
4	Even in the case of lack of desire, receiving sexual stimulation from my husband helps me to get aroused and reach orgasm.
5	Practicing novel style of sexual interactions Is pleasurable for me.
6	When I feel angry with my husband, beginning sex from him would calm me down.
7	My sexual desire would increase after menstruation.
8	My sexual desire would increase by receiving my husband's affection.
9	My sexual desire is much more than my husbands'.
10	I could reach orgasm in any intercourse.
	Subscale 2: Sexual performance
11	I could get him to orgasm by oral stimulation.
12	I could get him to orgasm by anal sex.
13	He could reach orgasm by receiving my oral stimulation.
14	Receiving oral stimulation is always joyful for me.
15	At the time of menstruation, for meeting my husbands' sexual needs, I would accept anal sex.
16	Getting oral stimulation is always joyful for me.
17	Having anal sex is always joyful for me.
18	I have anal sex.
19	I sometimes masturbate.
	Subscale 3: Sexual motivation
20	Once I have sexual needs, I can talk to my husband about it.
21	I think my husband expects sex just to satisfy himself.
22	My husband did not respect the appropriate time for sex and do not consider my preferences.
23	I am not hesitating to express, what is enjoyable for me during sex, to my husband.
24	My husband usually respects what I do for elevating sexiness.
25	I would be cheap if I express my sexual needs to my husband.
26	Once I have sexual needs, express It to my husband by caresses or clothes exchanges.
27	I am able to discuss to my husband about the appropriate time for sex.
28	Conflict and long-term problems with my husband lead to decline in my sexual desire.
29	my sexual desire would decline due to my husbands' imitation of erotic movies and pictures.
30	I inform my husband of my menstruation onset beforehand.
	Subscale 4: Sexual script
31	Responding positively to husbands' sexual requests would be rewarded from God.
32	Responding positively to husbands' sexual requests would empower the couple's effective relations and create peace in the family.
33	Responding positively to husbands' sexual requests would prevent a man being pulled toward other women.

Table 2. Initial Eigenvalues and Explained Variances by Nine Factors with Eigenvalues More Than One

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative (%)	Total	% of Variance	Cumulative (%)
1	5.852	17.732	17.732	5.852	17.732	17.732
2	3.001	9.094	26.826	3.001	9.094	26.826
3	2.138	6.478	33.304	2.138	6.478	33.304
4	1.917	5.809	39.113	1.917	5.809	39.113
5	1.645	4.985	44.098	1.645	4.985	44.098
6	1.452	4.400	48.498	1.452	4.400	48.498
7	1.177	3.566	52.063	1.177	3.566	52.063
8	1.132	3.430	55.494	1.132	3.430	55.494
9	1.003	3.041	58.535	1.003	3.041	58.535

Extraction Method: Principal Component Analysis.

the concepts that represented the strong impact of women's sexual script on conducting their sexual behavior were found. Similarly, some items in the original scale were not related to the three defined factors but fit in a new factor named the sexual script. However, the number of items in sexual script subscale were reduced in various stages of scale developing and finally reached three items in the final subscale. Undoubtedly, we don not claim that this three items could assess the whole sexual script of women. However, they could give us valuable data regarding women's sexual script.

The SBAQ was specifically developed and validated in Iranian married women population. Regarding the culture, tradition, and religion in Iran, having sexual interaction with the opposite sex is a norm only in married women and can be evaluated, studied and modified in them. Therefore, research on sexual relations and counseling, training and guidance is also only performed for married women.

To our knowledge, this scale is unique because firstly, it has equally valued and evaluated all the three factors constituting sexual behavior. Secondly, it is based on concepts, priorities, needs and particular understanding of the Iranian women and speaks with the specific sexual language of Iranian women as the target population.

The scale can be used both at the clinic and at community health level. Using this instrument to assess the sexual behavior of clients would help the clinician to gain an easy understanding of the clients' status at clinics and counseling centers. At community health level, using this instrument can identify women who do not enjoy a desirable level of sexual behavior.

We had limitations in performing our research and completing the questionnaires. As with all studies conducted on sexual behavior, we were concerned that women do not report their sexual behavior as it really is. Of course, we administered multiple strategies to minimize this issue. We explained the confidentiality and anonymity of the questionnaires to the participants in detail. Participants themselves completed the questionnaire, and during its completion, their privacy was maintained and finally the completed questionnaire was put in the folder by them.

Conclusion

The SBAQ was developed, and its psychometric properties were assessed to provide an instrument to measure the sexual behavior of married women of reproductive age in Iran. This instrument allows one to determine the type of women's sexual behavior regarding sexual capacity, performance, and motivation. Moreover, their sexual script can be divided into either traditional and submissive or modern and authoritative. The questionnaire also

helps clinicians to recognize women in need of counseling, training, and assistance and to understand their kind of need.

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Conflict of Interest

The authors declare no conflicts of interest and have approved the final article.

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