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Psychometric properties of the Persian version of the Questionnaire of Cognitive Schema Activation in Sexual Context (QCSASC) in unsuccessful sexual situations

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ABSTRACT

The aim of this study was to translate and adapt to Persian, and to assess psychometric properties of the Questionnaire of Cognitive Schema Activation in Sexual Context (QCSASC). A total of 265 Iranian participants (121 women and 144 men) were recruited for this study. A principal component analysis (PCA) with varimax rotation and subsequent confirmatory factor analysis revealed a best fitting five-factor structure similar to the original QCSASC: Incompetence, Undesirability, Abandon/Rejection, Powerless/Helpless, and Difference. However, in the Iranian sample, the original Self-Depreciation dimension was included in the Incompetence and Undesirability factors. An Abandon/Rejection dimension was also evident, and may be explained by cultural, social, and religious factors in the Iranian culture. Additionally, reliability analysis has supported the internal consistency (adequate Cronbach's alpha values) and temporal stability (test-retest reliability) of the QCSASC in an Iranian sample. The findings suggest the adequacy of the Persian version of the QCSASC to assess cognitive schemas in sexual context among Iranian men and women.

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Cognitive schemas; sexual context; assessment questionnaire; psychometric properties; cultural context

Introduction

Cognitive schemas are conceptualized as the nuclear structure of the cognitive system guiding human behaviour, and assign meaning to past experiences (Beck, 1995). Cognitive schemas are often adaptive and useful, and facilitate interaction between individuals and their environment (Alford & Beck, 1997). However, dysfunctional cognitive schemas may occur when the meaning assigned to a particular event is inappropriate and maladaptive, predisposing individuals to develop psychological difficulties (e.g. depression, anxiety disorders, and sexual dysfunction) (Beck, 1995, 1996).

Some authors have proposed that the schema concept, applied in the sexuality domain, includes ideas that people have about sexuality and about themselves as sexual beings, incorporating of a set of standards and expectations regarding sexual intercourse (Sbrocco & Barlow, 1996; Wiegel, Scepkowski, & Barlow, 2007). Sbrocco and Barlow (1996) postulated that individuals with sexual dysfunctions have unrealistic standards and expectations (e.g. “A real man should have an erection whenever and wherever”). Whenever such standards and expectations are not met, a person may draw conclusions (e.g. “A man who cannot attain an erection is not a real man”) and develop negative self-schemas (e.g. “I’m not a real man”) that predispose the person to develop sexual difficulties (Sbrocco & Barlow, 1996).

Recently, Nobre and colleagues have developed a series of research studies examining the role of cognitive schemas in the sexual context (Nobre & Pinto-Gouveia, 2009a, 2009b; Oliveira & Nobre, 2012; Peixoto & Nobre, 2015; Quinta-Gomes & Nobre, 2012). Drawing on ideas from cognitive therapy, Nobre and Pinto-Gouveia (2009a) explored the role of cognitive schemas on sexual problems. The Questionnaire of Cognitive Schemas Activated in Sexual Context (QCSASC) (Nobre & Pinto-Gouveia, 2009a) examines negative self-schemas activated in response to negative sexual events. The instrument draws on a list of self-schemas proposed by Beck (1995). Respondents examine four negative sexual episodes associated with common sexual difficulties, and then rate the cognitive schemas activated according to the most frequent negative sexual event rated. The QCSASC is a measure that might be clinically useful in helping to assess the self-schemas individuals activate in their sexual lives, and eventually contribute to a better understanding of cognitive processes underlying sexual problems. The QCSASC consist of five domains: Undesirability/rejection schemas (e.g. “I’m unlovable”, “I’m unwanted”); Incompetence schemas (e.g. “I’m powerless”, “I’m a failure”); Difference/loneliness schemas (e.g. “I am lonely”, “I’m different”); Self-depreciation schemas (e.g. “I’m unlikable”, “I am unworthy”); and Helpless schemas (e.g. “I am needy”, “I’m trapped”).

Sexuality is experienced in a mixed intrapersonal, interpersonal, and cultural context (Shahvari, Raisi, Parsa Yekta, Ebadi, & Kazemnejad, 2015). Despite the significant contribution of cultural factors in sexuality (Song, Bergen, & Schumm, 1995), they remain unaddressed in sexuality scales. While several scales have been developed to assess sexual functioning in an Iranian cultural context (Khademi et al., 2006; Salehi & Haghani, 2014), there are no valid and reliable scales examining cognitive schemas activated in sexual contexts. Moreover, previous empirical data highlighted the role of socio-cultural dimensions on sexual functioning (Deacon, Minichiello, & Plummer, 2006; Khademi et al., 2006; Montemurro, Bartasavich, & Wintermute, 2015; Nicolosi et al., 2005). Religiosity and moral values towards sexual expression in the Iranian context may interfere with sexual response, sexual and marital satisfaction, and global well-being (Khoei, Whelan, & Cohen, 2008). Also, sexual activity is a common stipulation, with rights and obligations defined for each partner, in marriage contract within the Islamic context (Hashemi, Seddigh, Ramezani Tehrani, Hasanzadeh Khansari, & Khodakarami, 2013; Hawkes, 1996; Mir Hosseini, 2006). Thus, the purpose of the present study was to translate and adapt to Persian the QCSASC (Nobre & Pinto-Gouveia, 2009a), as well as to test its psychometric properties (factorial structure and reliability). It was intended that the validation of this scale would facilitate future studies in the field, and promote a better comprehension of the role of cognitive schemas in sexual problems. Also, by considering possible contextual

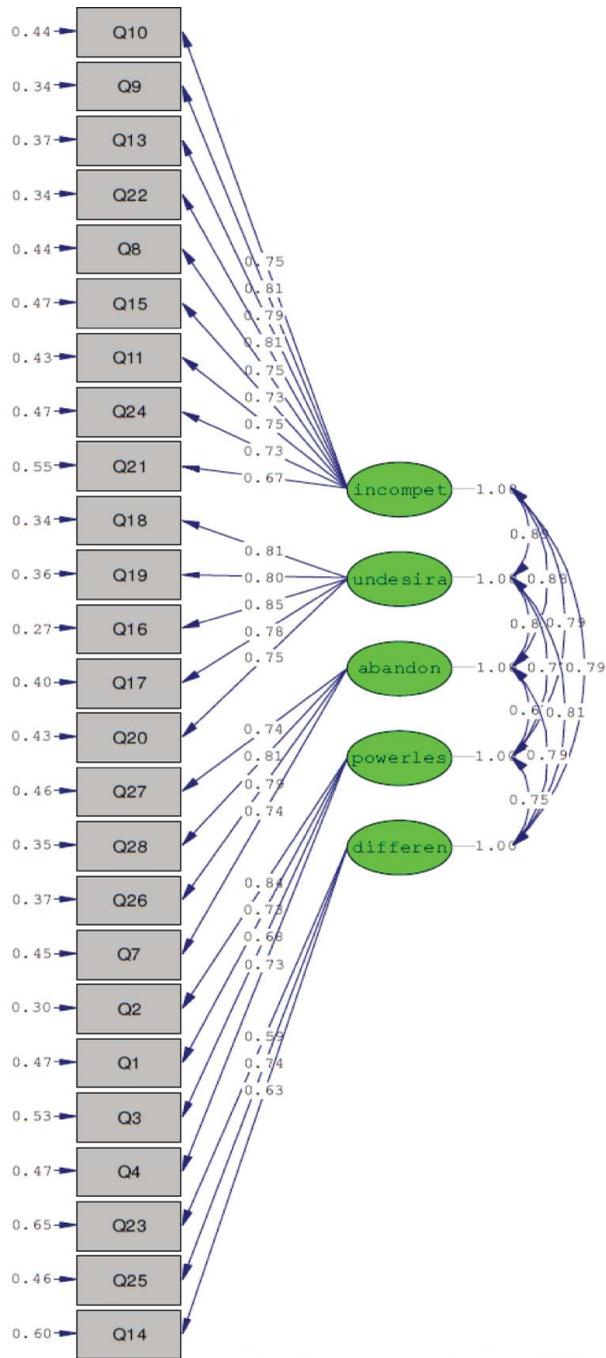


Figure 1. Confirmatory factor analysis for Questionnaire of Cognitive Schema Activation in Sexual Context.

and cultural influences, the existence of a Persian version of the QCSASC might facilitate the development of psychological interventions for sexual problems targeting Iranian population.

Method

Participants and procedures

The current study included two samples. A total of 224 women and 180 men participated in the first sample. The sample was recruited using a convenience sampling method between March and June 2014. Participants were recruited in different regions of Qom and Tehran cities, and in health centres and universities, using a convenience sampling method. For the second sample, a total of 221 women and 251 men were recruited in the capital city Tehran, between February and May 2016. Participants were recruited using a convenience sampling method. The study was approved by the Ethical Committee of the Tarbiat Modares University in Iran. Volunteers received a brief explanation of the study from a researcher, and were invited to take part. After signing an informed consent form, the participants were asked to complete the Iranian version of the QCSASC. They did so in a private location. They then handed the questionnaire directly to the researcher. No incentives were given. Participants were excluded if they reported suffering from a mental or psychiatric disorder, if they did not identify themselves as heterosexual, if they were not in a relationship, or if they had not been sexually active in the past three months. Target sample size was estimated based on the number of items in the questionnaire multiplied by 5 (28 items = 140) (Munro, 2004).

Based on the questionnaire instruction, individuals who did not identify a negative sexual situation in the QCSASC were excluded from analysis. For the first sample, of the 404 collected questionnaires, 103 female participants and 36 male participants were excluded from the analysis. For the second sample, 69 female participants and 58 male participants were excluded from the analysis of the 472 collected questionnaires. The final samples included a total of 265 (sample 1) and 345 (sample 2).

The socio-demographic characteristics of the two samples are shown in [Table 1](#).

Measures

Socio-demographic information

Participants answered a brief socio-demographic measure assessing age and educational level.

Questionnaire of Cognitive Schema Activation in Sexual Context (QCSASC). The QCSASC (Nobre & Pinto-Gouveia, 2009a) is a 28-item measure that examines cognitive schemas in response to specific sexual situations. Four sexual situations associated with the most common sexual dysfunctions are presented. These are (for the male version): hypoactive sexual desire disorder, erectile disorder, premature ejaculation, and retarded ejaculation; and (for the female version): hypoactive sexual desire disorder, subjective arousal difficulties, orgasmic disorder, and vaginismus. Participants are asked to rate the

Table 1. Socio-demographic characteristics of the sample ($N = 265$).

	Sample 1 ($n = 265$)		Sample 2 ($n = 345$)	
	Female	Male	Female	Male
Age				
<i>M</i>	29.82	30.65	34.84	37.16
Min–max	18–54	20–50	18–54	20–55
<i>SD</i>	8.78	7.27	9.45	9.75
Educational level				
<9 years	2.5	10.6	5.6	4.7
10–12 years	17.2	37.2	22	25.7
>13 years	79.8	52.1	72.2	69.6
Length of relationship				
<1 year	14.7	8.1	4	7.3
1–2 years	26.2	14.4	9.1	11.4
3–5 years	17.2	36	17.7	19.2
6–10 years	16.3	26.1	17.7	22.8
11–15 years	14.7	8.4	16.2	14
>16 years	10.9	6.9	35.3	24.9

frequency of each sexual situation in their life (1_never happened; 5_happened often) and identify the emotions aroused by the situations. These emotions consist of worry, sadness, disillusion, fear, guilt, shame, anger, hurt, pleasure, and satisfaction. Finally, participants are asked to respond to 28 self-statements drawing on the self-schemas presented by Beck (1995), and framed in the context of negative sexual events. Responses are on a 5-point Likert scale (1_Completely False; 5_Completely True), higher scores reflecting greater negative schema activation. A factor analysis of the 28 schemas identified five dimensions: Undesirability/rejection (e.g. “I’m unwanted”), Incompetence (e.g. “I’m powerless”), Self-depreciation (e.g. “I’m unlikable”), Difference/loneliness (e.g. “I’m vulnerable”), and Helpless (e.g. “I’m needy”). Psychometric properties suggested excellent internal consistency (Cronbach’s alpha .94) and adequate 4-week test-retest reliability ($r = .66$) (Nobre & Pinto-Gouveia, 2009a).

Linguistic validation

In order to perform a cross-cultural adaptation of the measure, current guidelines have recommended a multi-step process to certify the equivalence of the original and the back translated versions. The standard linguistic validation process was obtained from the guidelines of the MAPI Research Trust which was conducted in four steps (MAPI linguistic validation process, 2011):

Step 1: Forward translation.

The QCSASC (Nobre & Pinto-Gouveia, 2009a) was translated into Persian by two researchers independently. The two translated versions were then compared and a single Persian provisional version was produced.

Step 2: Backward translation.

The provisional Persian version was translated back into English by a third independent bilingual translator who had not seen the original English version of the QCSASC

before. Afterward, all three translators compared the provisional English version with the original questionnaire and following linguistic and cultural adaptations, produced a pre-final Persian version of the QCSASC.

Step 3: Pilot testing.

The Persian version of the QCSASC was tested in a pilot study with 10 women and men in order to identify any possible problem in understanding and interpreting the questionnaire items.

Step 4: Field testing.

The final Persian version of the QCSASC was administered to all 265 and 345 participants respectively to ensure consistency of the translation and to enhance cross-cultural comparability.

Statistical analysis

Psychometric properties of the Iranian version of the QCSASC were assessed by several statistical tests as follows.

Validity. Exploratory factor analysis (PCA) and subsequent confirmatory factor analysis (CFA) were performed to determine the underlying constructs of the questionnaire. To enhance the interpretability of the principle components, varimax rotation was applied. In order to further evaluate the construct validity, one order CFA, maximum likelihood method, was conducted based on the resulting PCA factor solution in a different sample. The model fit was estimated using recommended goodness of fit indices such as the model chi square (χ^2), the root mean square error of approximation (RMSEA), comparative fit index (CFI), and normed fit index (NFI) (Kline, 2011).

Reliability. The internal consistency was assessed using Cronbach's alpha, with a coefficient equal to or greater than .70 indicating adequate to excellent reliability (Cronbach, 1951). In addition, the intra-class correlation coefficient (ICC) was used to assess test-retest reliability, with 30 participants completing the questionnaire twice with a four-week interval. ICC values of .40 or above are indicative of satisfactory ($r \geq .81$ –1.0 as excellent, .61–.80 very good, .41–.60 good, .21–.40 fair, and .0 to .–.20 poor) (Munro, 2004).

Results

Validity and reliability analysis for the QCSASC

To explore the factor structure of the QCSASC, an exploratory factor analysis, using principal components analysis (PCA) with varimax rotation, was conducted on the 28 items that constitute the core beliefs. The Kaiser–Meyer–Olkin (KMO) statistic indicated adequacy of the sample (KMO = .95). Bartlett's test of sphericity suggested that correlations between items were large enough for a PCA ($\chi^2 = 4400.024$, $p < .001$). The PCA identified five factors accounting for 67.73% of total variance. The item selection for each

Table 2. Principal component analysis of the QCSASC with varimax rotation ($n = 265$).

QCSASC items	Factors				
	1	2	3	4	5
<i>Incompetence</i>					
10. I'm incompetent	.728				
9. I'm ineffective	.704				
13. I'm defective (less than others)	.695				
22. I'm unworthy	.691				
8. I'm inadequate	.613				
15. I'm unlovable	.595				
11. I'm a failure	.546				
24. I'm defective (not loved)	.536				
21. I'm bad	.471				
<i>Undesirability</i>					
18. I'm unattractive		.791			
19. I'm unwanted		.695			
16. I'm unlikable		.636			
17. I'm undesirable		.581			
20. I'm uncared for		.554			
<i>Abandon/Rejection</i>					
27. I'm bound to be abandoned			.774		
28. I'm bound to be alone			.725		
26. I'm bound to be rejected			.636		
7. I'm trapped			.479		
<i>Powerless/Helpless</i>					
2. I'm powerless				.804	
1. I'm helpless				.774	
3. I'm out of control				.652	
4. I'm weak				.595	
<i>Difference</i>					
23. I'm different					.673
25. I'm not good enough (not loved)					.642
14. I'm not good enough (achieve)					.640
Excluded items					
12. I'm disrespected	.391				
6. I'm needy				.394	
5. I'm vulnerable				.372	

component was based on loadings higher than .4 on the respective factor. Three items did not load high on any of the factors and were excluded: 5. "I'm vulnerable"; 6. "I'm needy"; and 12. "I'm disrespected." Table 2 shows the component loadings for each item, after varimax rotation. The five domains identified were the following:

Incompetence: reflecting self-beliefs related to failure and incapability. This component included nine items. Items like "I'm incompetent" and "I'm ineffective" presented the highest loadings in this factor.

Undesirability: reflecting self-beliefs related to social undesirability and outwardly unattractive to others. This component contained five items – "I'm unattractive" and "I'm unwanted" presented the highest loadings in this factor.

Abandon/Rejection: reflecting beliefs about losing one's partner and rejection. This factor consisted of four items – "I'm bound to be abandoned" and "I'm bound to be alone" presented the highest loadings in this factor.

Powerless/Helpless: reflecting beliefs of being weak and helpless including four items – "I'm powerless" and "I'm helpless" presented the highest loadings in this factor.

Difference: reflecting a belief of being different, and containing three items – "I'm different" and "I'm not good enough" presented the highest loadings in this factor.

Based on the PCA, a five-factor model with 25 items was hypothesized for the purposes of a CFA, using a path diagram by LISREL 8.7. Further included in the analysis was a five-factor model with 26 items (following the five-factor structure used in the original version of the QCSASC) to be compared with the five-factor model with 25 items. While the five-factor structure derived from the original model showed poor adequate fit to the data ($\chi^2 = 1365.43$, $df = 289$, $CFI = .81$, goodness of fit index (GFI) = .76, $NFI = .71$, and $RMSEA = .12$), the five-component structure derived from the PCA showed an adequate fit, with GFI fit indices being satisfactory in terms of their recommended relative thresholds ($\chi^2 = 817.78$, $df = 265$, $CFI = .96$, $GFI = .95$, $NFI = .96$, and $RMSEA = .07$). Generally speaking, GFI, adjusted goodness of fit index (AGFI) and NFI values above .90 (Kline, 2005) and $RMSEA$ values less than .06 (Tabachnick & Fidell, 2001) are indicative of optimal model fit. $RMSEA$ values at or above 1.0 reflect a poor fitting model (Tabachnick & Fidell, 2001). Values of χ^2/df that fall below 5.00 (Marsh & Hocevar, 1985) and CFI above .90 (Bentler, 1990) are indicative of good fit (Figure 1).

The inter-correlations between the five factors of the Questionnaire of Cognitive Schema Activation in Sexual Context (QCSASC) showed a consistently positive and significant pattern of association.

Test-retest reliability was assessed by two consecutive administrations of the questionnaires with a four-week interval. Internal consistency was evaluated using Cronbach's alpha statistic for the total scale and the different domains of the questionnaire. Cronbach's alpha values ranged from .66 (F5) to .92 (F1), with the full scale presenting .87. In addition, ICC was found to be .70 and for the subscales, ICC ranged from .55 to .72, indicating the temporal stability of the questionnaire. Composite reliability and average variance extracted were .97 and .57, respectively.

Discussion

The role of cognitive schemas activated in response to negative sexual situations has been supported in the literature (Nobre, 2010; Nobre & Pinto-Gouveia, 2008, 2009b; Oliveira & Nobre, 2012; Peixoto & Nobre, 2015; Quinta-Gomes & Nobre, 2012). Cognitive schemas are conceptualized as the nuclear structure of the cognitive system, which play an important etiological role in the onset and maintenance of sexual dysfunctions (Nobre & Pinto-Gouveia, 2008, 2009a; Quinta-Gomes & Nobre, 2012). The current study investigated the psychometric properties of the Iranian version of the QCSASC. After linguistic validation, exploratory factor analysis using PCA, and CFA, internal consistency as well as test-retest reliability were performed in a sample of Iranian people. The results of this study demonstrate the validity and reliability of the questionnaire as a measure for assessing cognitive schemas in unsuccessful sexual contexts. The inter-class correlation coefficient and Cronbach's alpha coefficient were satisfactory in the present study.

The results of exploratory factor analysis using PCA corroborated the five-factor solution for the QCSASC, explaining 67% of the total variance and including the domains of Incompetence (e.g. "I'm incompetent", "I'm ineffective"); Undesirability (e.g. "I'm unattractive", "I'm unwanted"); Abandon/Rejection (e.g. "I'm bound to be abandoned", "I'm bound to be alone"); Powerless/Helpless (e.g. "I am powerless", "I'm helpless"); and Difference (e.g. "I'm different", "I'm not good enough"). Notwithstanding the above, the

study showed that the five-factor solution is not identical to the original version. The original Self-depreciation dimension was included in the Incompetence and Undesirability factors. A new dimension (Abandon/Rejection) emerged. These findings suggest that Iranian people may be more likely to feel abandoned and less confident in their sexual relationships, concerning the supports they receive from their relatives. In the context of Islam, sexual intercourse occurs, almost exclusively, in marriage and monogamy context (Rahmani, Khoei, & Gholi, 2009) and includes a set of rights and obligations for each partner (Mir Hosseini, 2006). Sexual obedience is a core religious principle in line with Islamic principles and values and is clearly described in the original Islamic sources as one of the key aspects of the marital contract. It is traditionally considered that a man's sexual drive is stronger than woman's and requires satisfaction. Consequently, the wife has to be always sexually prepared for her husband at all times (Khoei et al., 2008). Sex is considered a way women can ensure conjugal stability. If marriage is in danger for any reason, especially due to man's extramarital relationships, Islamic society blames the woman for not successfully satisfying the demands of her husband (Raisi, Parsa Yekta, Ebadi, & Shahvari, 2015). Therefore, even if a woman does not have sexual interest or desire, or never reaches orgasm during sex, she has to endure sex in order to avoid feelings of abandonment or rejection. Nevertheless, some specificity was found in the items that constitute each dimension. Also, the CFA based on the original version had a poor fit in comparison with CFA based on 25 items. The disparities in factor structure of the QCSASC may reflect the measurement characteristics of the instrument itself and/or may mirror the sample's cultural or linguistic peculiarities, which can impact understanding of the questions or concepts with which the instrument deals. Also, it is commonly accepted in sexuality research that sexuality is an historical, social, and cultural construction influenced by socio-cultural context (Weeks, 1985) and cultural values have a large impact on individual's expectations of sexual relationships (Raisi et al., 2015). Individuals' cognitions about sexual functioning are influenced by cultural factors which in different cultural conditions might lead people to respond differently to sexuality-related issues. The difference in factor structures of the questionnaires in Iran and in Portugal may therefore be related to people's cognitions and perspectives on sexuality related themes.

Notwithstanding the above, it is important to note limitations of the study. First, participants were not selected randomly from the general population. The ability to generalize findings to the general Iranian population might therefore be limited. Indeed, examining the factorial structure of the QCSASC with a clinical sample is clearly needed. Second, convergent and divergent validity and known-groups validity was not assessed in this research. Further studies are therefore required in order to replicate current findings and extend our knowledge of the psychometric properties of the QCSASC.

Regardless of the above-mentioned limitations, current findings suggested that the Iranian version of the QCSASC displayed adequate psychometric properties, and that the instrument can be used to examine cognitive schemas activated by Iranian persons in response to negative sexual situations. The present study should be of value to those interested in using the QCSASC in clinical and research settings in Iran. Further studies should be conducted in order to improve scientific knowledge, particularly in regard to cultural and social specificities associated with Iranian culture, and to develop meaningful clinical interventions.

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Disclosure statement

No potential conflict of interest was reported by the authors.

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