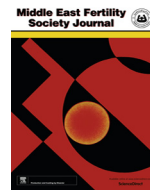




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Original Article

Reliability and validity of the Kansas Marital Satisfaction Scale (KMSS) in infertile people

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ABSTRACT

Background and objective: Infertility is a global public health issue and may adversely influence marital quality. The Kansas Marital Satisfaction Scale (KMSS) is a quick, easy to administer and score, 3-item scale measuring marital quality. The aim of this study was to evaluate the psychometric properties of the KMSS in Iranian infertile people.

Materials and methods: The research sample consist of 254 infertile people drawn from a referral fertility clinic in Tehran, Iran from February to May 2017. The participants were administered the KMSS, Couples Satisfaction Index (CSI-4), the Hospital Anxiety and Depression Scale (HADS), and a demographic questionnaire. Tests of data quality included descriptive statistics of the data, internal reliability consistency, inter-item correlations, corrected item total correlations, confirmatory factor analysis (CFA), and convergent validity.

Results: The mean total KMSS score was 17.73 ± 3.02 . The Cronbach's alpha coefficient for KMSS was 0.901. All corrected item-total correlations and inter-item correlations were in acceptable range. Based on CFA result, the one-factor model was fully saturated, and all three factor loadings were significant and in the expected direction. The KMSS significantly correlated with CSI-4, HADS-anxiety and HADS-depression, indicating an acceptable convergent validity.

Conclusion: In summary, the present study provides further evidence that the KMSS is psychometrically sound and therefore it can be recommended for further use by researchers interested in the context of marital quality.

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1. Introduction

In general, marital quality refers to how happy or satisfied a person is in his or her relationship [1]. It can be affected by stressful life events such as the transition to parenthood, work stress, economic stress, partner ill-health [1,2]. Infertility and its treatments are another factors associated with poor marital quality [3]. On the other hand, couples with poor marital quality are at risk of a range of negative psychological consequences such as depression, anxiety, stress as well as ill-health [1].

A variety of measures have been developed and used to assess marital quality. These instrument includes the Marital Adjustment

Test (MAT) [4], Dyadic Adjustment Scale (DAS) [5,6], Couples Satisfaction Index (CSI) [7], Quality Marriage Index (QMI) and Kansas Marital Satisfaction Scale (KMSS) [8] as well as a variety of other measures that are unique to particular population groups, such as stepfamilies, military families, or various ethnic groups. Among these measures, the KMSS is one of the most frequently used measures of marital quality in psychology research. The KMSS is a brief and easy to use measure containing three items on 7-point Likert scale [8]. A considerable amount of reliability and validity evidence supports its use as a global measure of marital satisfaction [8–11]. The reliability and validity of this scale was satisfactory in African-American [12], Chinese [13,14], Korean [15] and US Army personnel populations [16].

Although the KMSS has widely been used to measure marital quality in various cultures and populations, it is not known whether the satisfactory psychometric properties previously reported are applicable to sample of infertile people suffering from infertility. This study, therefore, examine the reliability and validity of the Persian version of the KMSS in a sample of infertile people.

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2. Materials and methods

2.1. Participants and study design

The research sample consist of 254 infertile people (113 men and 141 women) drawn from Infertility Clinic of Royan Institute, Tehran, Iran from February to May 2017. This center is a referral center for infertility treatment in Tehran, Iran [17]. The eligibility criteria were as follows: (a) willingness to participate in the study; (b) suffering from couple infertility; (c) age >18 years; (d) ability to read, write, and comprehend Persian. The questionnaires were administered to infertile patients. In total, 254 people with infertility agreed to participate and filled out the questionnaires completely.

2.2. Ethical consideration

This research was approved by the Ethics Committee of Royan Institute, Tehran, Iran. The participants were informed of the aim of the study and were assured of confidentiality. After signing a consent form and agreeing to participate, infertile patients completed the questionnaires.

2.3. Questionnaires

2.3.1. Kansas Marital Satisfaction Scale (KMSS)

The KMSS is a 3-item self-report instrument designed to measures marital quality [8]. Items are rated on a 7-point Likert scale, ranging from 1 (extremely dissatisfied) to 7 (extremely satisfied). Total score range from 3 to 21, with high scores meaning better marital quality.

2.3.2. The Couples Satisfaction Index (CSI-4)

The CSI-4 is an abbreviated version of CSI-32, which assess individual's satisfaction with their relationship [7]. It consists of four positively worded items that are rated on a 7-point Likert scale, ranging from 0 (extremely unhappy) to 6 (perfect) for the first item, and on 6-point Likert scale, ranging from 0 (not at all true) to 5 (all of the time) for the other three items. Total scores range from 0 to 21, with higher scores indicating greater relationship satisfaction. For this study, the Cronbach's alpha coefficient of the CSI-4 was 0.846.

2.3.3. Hospital Anxiety and Depression Scale (HADS)

The HADS is a 14-item self-report inventory. It consists of two 7-item subscales that assess anxiety (HADS-A) and depression (HADS-D) symptoms [18]. Respondents are asked to rate the presence of each symptom on a 4-point Likert scale, ranging from 0 to 3. Subscale scores can range from 0 to 21, with higher scores indicating greater levels of anxiety and depression. The Persian version of HADS has been shown to have adequate psychometric properties in infertile people [19]. The Cronbach's alpha coefficient for HADS-A and HADS-D in the present study were 0.842 and 0.721, respectively.

2.4. Statistical analysis

The unidimensional factor structure of the KMSS was evaluated with CFA using maximum likelihood estimation. In order to evaluate the internal consistency of the KMSS, we calculated the Cronbach's alpha, inter-item correlation, and the corrected-item total correlation. Convergent validity of the KMSS was examined by calculating Pearson correlation coefficients between scores on the KMSS and two widely used measures of CSI-4 and HADS. Data analyses were performed with IBM SPSS Statistics for Windows,

Version 22.0 (IBM Corp., Armonk, NY, USA) and Lisrel 8.80 (Scientific Software International, Inc., Lincolnwood, IL, USA).

3. Results

3.1. Participant characteristics

The demographic and clinical characteristics of the participants (113 men and 141 women) are presented in Table 1. The average age and infertility duration of respondents was 32.09 ± 6.55 and 4.85 ± 3.73 years, respectively. Of the participants, the majority of them were male factor (35.8%), 36.2% had a college or university degree, 50.4% had no failure in previous treatments, and 76.4% had no history of abortion.

3.2. Reliability and item analysis

The internal consistency reliability of the KMSS was quiet high, with Cronbach's alpha of 0.901 (0.893 for female participants and .913 for male participants). The corrected item-total correlations ranged from 0.790 to 0.831 which were above the minimum level of 0.3. The inter-item correlations were also high in magnitude within the range of 0.719–0.772. The mean and standard deviation for each items of KMSS are also presented in Table 2.

3.3. Convergent validity

To examine the convergent validity of the KMMS, we calculated the Pearson correlation coefficients between the KMMS score and the scores of the HADS and CSI-4. As expected, the KMMS was negatively correlated with the HADS-A ($r = -0.330$, $p < .001$) and HADS-D ($r = -0.388$, $p < .001$), and positively correlated with CSI-4 ($r = 0.614$, $p < .001$).

Table 1
Demographic and clinical characteristics of the participants (n = 254).

	Mean \pm SD or n (%)
Age (years)	32.09 \pm 6.55
Sex	
Male	113 (44.5)
Female	141 (55.5)
Educational level	
Primary	61 (24.0)
Secondary	101 (39.8)
University	92 (36.2)
Duration of infertility (years)	4.85 \pm 3.73
Cause of infertility	
Male factor	91 (35.8)
Female factor	55 (21.7)
Both	49 (19.3)
Unexplained	59 (23.2)
Failure of previous treatment	
No	128 (50.4)
Yes	126 (49.6)
History of abortion	
No	194 (76.4)
Yes	60 (23.6)
Type of infertility	
Primary	187 (73.6)
Secondary	67 (26.4)

SD: Standard deviation.

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