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Validity and Reliability of Perception of Sexually Transmitted Infections Questionnaire among Homeless Women

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Abstract

Aim: The aim of the study was to assess the validity and reliability of a native questionnaire (Perception of Sexually Transmitted Infections Questionnaire) among homeless women as a hidden layer in the Iranian society for sexually transmitted infections.

Methods: Qualitative and quantitative content and face validities were applied. In the qualitative phase of content validity, the homeless women evaluated wording, grammar, item allocation, and scaling of the questionnaire. In the quantitative phase, the content validity index (CVI) and the content validity ratio (CVR) were calculated. In the qualitative phase of face validity, 40 homeless women were asked to evaluate the questionnaire and indicate if they felt difficulty or ambiguity in the questionnaire. In the quantitative phase, the impact score was calculated. The Kuder-Richardson correlation and test-retest reliability were calculated to assess the internal consistency and stability of the questionnaire.

Findings: The ICC for the questionnaire was achieved at 0.86 (good to excellent), lending support to the stability of the questionnaire. The Kuder-Richardson correlation of the questionnaire was 0.85 (good to excellent). Impact scores of the items ranged from 1.2 to 5. In the quantitative content validity, items with CVR and CVI less than 0.59 and 0.79, respectively, were omitted; overall, 10 items were deleted in this part of the validity.

Conclusion: This study suggests that PSTIQ is a valid and reliable. It could be used to design appropriate interventions to prevent (STIs) in high risk groups, especially homeless women.

Keywords: Validity and reliability, Sexually transmitted infections, Homeless women

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Introduction

Sexually transmitted infections (STIs) are the most common infections in adults [1] that have created many challenges for the developing countries in terms of socio-economic development [2]. Women are biologically, socially, and economically more susceptible to STIs in comparison with men [3]. Biologically, a high level of the mucous membranes of the vagina are exposed to semen during intercourse; this it increases the risk of STIs in women [4]. In terms of socio-economic aspects, women have less access to resources and decision-making power in terms of using protective methods in sexual risky behaviors than men [5, 6].

Prevention of STIs, especially in high risk groups, is one of the most important goals of health programs and government policies [7]. Our assessment of the literature found no research on developing and assessing the validity and reliability of a native questionnaire to determine the perception of STIs among homeless women.

One related questionnaire is the "Family Health International" (FHI) guide for developing behavioral surveillance surveys [8]. Designers of this questionnaire suggested that preliminary qualitative research is needed before applying the questionnaire in each setting in order to increase the sensitivity of the questionnaire. This questionnaire has been designed to assess risky behaviors. In fact, it does not focus on perception of STIs among women. The design of a culturally appropriate questionnaire for research is very important in sensitive issues such as sexuality and STIs [9]. The FHI questionnaire has been used in an earlier exploratory study with 50 vulnerable women in Tehran [10]. A large proportion of the women completed the questionnaire without answering many questions. This problem indicates the necessity of developing a valid and reliable questionnaire based on the indigenous culture of every nation and country.

The aim of the present study was to assess validity and reliability of a native questionnaire (Perception of Sexually Transmitted Infections) among homeless women.

Method

The questionnaire

The first draft of Sexually Transmitted Infections Questionnaire contained 56 items, and each item was rated on a three-point response scale (yes, no, and I do not know). The questionnaire included 45 questions and 3 subscales (perceived risk, insufficient knowledge, and barriers of condom use). Each question could have a score from 0 to 1. If the women answered correctly to a question, score 1 was considered for that item; otherwise (if the answer was "false" or "I do not now"),

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score 0 was considered for that. Finally, the score of all questions was summed, and the final score was obtained (0-45). In fact, the scores of all questions were summed, and the minimum and maximum scores were determined. Then final score was converted to a percentage. According to the final score, the women's perception was interpreted as low, moderate, and high risk. Therefore, where the high risk group was 0 to 33.33 %, the moderate risk was 33.33 to 66.66 %, and the low risk group was 66.66 to 100 %.

Statistical analysis

Several statistical methods were used to assess the validity and reliability of the questionnaire:

Validity

We assessed the content and face validities of the Perception of Sexually Transmitted Infections Questionnaire as follows:

Content validity: Qualitative and quantitative content validities were applied. An expert panel consisting of a team of specialists and investigators assessed the content validity of the questionnaire. In the qualitative phase, they evaluated wording, grammar, item allocation, and scaling of the questionnaire. In the quantitative phase, the content validity index (CVI) and the content validity ratio (CVR) were calculated. Clarity, simplicity, and relevancy of each item were assessed by CVI [11]. In order to the CVI, we used a Likert-type ordinal scale with four possible responses. The responses contained a rating from 1 = not relevant, not simple and not clear to 4 = very relevant, very simple and very clear. CVI was calculated based on the proportion of items that received a rating of 3 or 4 by the experts [11]. The essentiality of the items was tested by calculating the CVR; in fact, the experts rated each item as essential, useful but not essential, or not essential [12].

Face validity: Qualitative and quantitative methods were applied to evaluate the face validity. In the qualitative phase, 40 homeless women were asked to evaluate the questionnaire and indicate if they felt difficulty or ambiguity in the questionnaire. In the quantitative phase, the impact score (frequency × importance) was calculated to indicate the percentage of homeless women, who identified the item as important or quite important. The items were considered appropriate if they had an impact score equal or greater than 1.5, corresponding to a mean frequency of 50% and a mean importance of 3 on the 5-point Likert scale [13].

Construct validity: Questions of the questionnaire were in binary or numerical form. Since the scale of the questionnaire was not in a Likert form, we could not conduct factor analysis for the final draft of the questionnaire.

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Reliability

The Kuder-Richardson correlation was calculated to assess the internal consistency of the questionnaire. Values equal or greater than 0.70 were considered satisfactory. In addition, in order to assess the stability of the questionnaire, test-retest reliability was conducted to estimate the intraclass correlation coefficient (ICC). 25 participants completed the questionnaire twice with a two-week interval. The ICC values of 0.40 or higher were considered satisfactory ($r \geq 0.81$-1.0 as excellent, 0.61- 0.80 very good, 0.41-0.60 good, 0.21-0.40 fair, and 0.0-0.20 poor) [13].

Results

Content validity

In the quantitative content validity, items with CVR and CVI less than 0.59 and 0.79, respectively, were omitted; therefore, 10 items were deleted in this part of the validity. In the qualitative phase, some criteria such as grammar, wording, and item allocation were edited according to the experts' opinions. For example, the sentence "I did not use condom because I like my partner" changed to "I did not use condom because I trust my partner". The final CVR and CVI values of the questionnaire were found to be 0.97 and 0.93, respectively.

Face validity

Impact score was calculated to examine quantitative face validity. Impact scores of the items ranged from 1.2 to 5. Therefore, 1 item with value less than 1.5 was omitted, and other items were preserved. In the qualitative face validity, the participants stated that they had no problems in reading and understanding of the items.

Reliability

Internal consistency was used to evaluate the reliability of the questionnaire. The ICC for the questionnaire was found to be 0.86 (good to excellent) that supports the stability of the questionnaire. The Kuder-Richardson correlation of the questionnaire was obtained as 0.85 (good to excellent).

Discussion

The research results showed that the Perception of Sexually Transmitted Infections Questionnaire had acceptable validity and reliability; as final CVR and CVI values of the questionnaire were found to be 0.97 and 0.93, respectively, and The ICC and Kuder-Richardson for the questionnaire were 0.86 (good to excellent) and 0.85 (good to excellent), respectively.

This study has innovation because it aimed to determine the validity and reliability of the perception of STIs among homeless women. In the one hand, this is an important strength for this study; on the other hand, it is a limitation

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for providing a comparison to other similar questionnaires in the country.

Other studies have applied similar questionnaires for their research; for example, Bergamini et al. applied a structured self-administered questionnaire containing 18 closed questions for data collection [14]. The aim was to ensure that answers could be reliably aggregated and that comparisons could be made with confidence between the subgroups. The questions were close-ended that provided a set of responses or options from which the respondents indicated their choice. According to the content of the questions, the items were formulated as follows: 1) basic knowledge and risks of STDs; 2) perception of risk and methods of prevention; 3) sources and quality of information; and 4) sex and age. To determine the best formulation and sequence of the questions, a pilot study was performed in two phases with an increasing number of respondents. In the first phase, they asked each participant to determine the degree of understanding, the degree of self-awareness, and the appropriateness of the terminology of each item in the questionnaire. In the second phase, the entire questionnaire was assessed, and then it was corrected, supplemented, and amended based on the responses. Validity assessment of the questionnaire was similar to that in the present study in terms of qualitative face validity. The process of assessment of the validity and reliability of the questionnaire was more comprehensive in our study because we assessed both the face and content validities through qualitative and quantitative approaches. Also the reliability of the questionnaire was assessed by determining ICC and Kuder-Richardson coefficient.

The present study had some limitations. Homeless women are highly stigmatized in Iran and are a hard-to-reach population for many people doing research. Most of these women did not initially cooperate with the research team because of the sensitivity of the subject, but after spending more time in the centers and establishing rapport, they became eager to participate in the study.

Conclusion

The findings of this study provided preliminary evidence for assessment of the validity and reliability of Perception of Sexually Transmitted Infections Questionnaire. These findings could be used to design appropriate interventions to prevent STIs in high risk groups, especially homeless women.

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Declaration of conflicting interests

The authors state that there is no conflict of interest.

Authors' contributions

LA is the main researcher, and AR is the research assistant and wrote the paper.

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