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SURGICAL FEAR QUESTIONNAIRE (SFQ) - SERBIAN CULTURAL ADAPTATION

UPITNIK ZA MERENJE STRAHA OD OPERACIJE - SRPSKA KULTURALNA ADAPTACIJA

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Abstract

Background/Aim. After having established an indication for surgery, some patients experience sense of fear, unpleasantness and embarrassment due to the expectance of adverse consequences of surgical intervention. Recently an instrument for measuring fear of surgery – the Surgical Fear Questionnaire (SFQ) - was developed and validated on a sample of Dutch patients awaiting surgery. The objective of this study was to translate the SFQ to Serbian language, make cultural adaptation of the translation and test its reliability and validity in a sample of outpatients in Serbia. Methods. The SFQ was translated and adapted according to the accepted international standards (double forward translation, harmonization, backward translation, and piloting). The study was multicentric, involving patients from 7 cities in 3 countries: Serbia, Montenegro, Bosnia and Herzegovina. It was conducted at state-owned health facilities. The sample was of consecutive nature and consisted of 330 outpatients who visited specialists of either internal medicine or general surgery. Results. Translated SFQ showed excellent reliability, both when rated by the investigators (Cronbach’s alpha 0.915), and by the patients themselves (Cronbach’s alpha 0.917). It is temporally stable, and both divergent and convergent validity tests had good results. Factorial analysis revealed one domain on the whole study sample and two domains like in original on the subsample of patients without experience with surgery in general anesthesia. Conclusion. Identification of patients with high level of fear of surgery by this questionnaire should help clinicians to administer measures which may decrease fear and prevent avoidance of absolutely necessary surgery by such patients.

Key Words:
fear; surgery; the surgical fear questionnaire; psychometric properties; translation to serbian

Apstrakt

Uvod / Cilj. Nakon uspostavljenje indikacije za operaciju, neki pacijenti imaju osećaj straha, neprijatnosti i stida zbog očekivanja nepovoljnih posledica hirurške intervencije. Upitnik za merenje straha od operacije (SFK) je instrument za merenje straha od operacije koji se primenjuje kod holandskih pacijenata. Cilj ovog rada je bio da se nakon prevoda na srpski jezik, SFK kulturološki adaptira i testira njegova pouzdanost i validnost. Metode. SFK je preveden i adaptiran u skladu sa prihvaćenim međunarodnim standardima (dvostruko prevode unapred, usklađivanje, prevode unazad i pilot studija). Studija je multicentrična, radjena kod 330 pacijenata iz 7 gradova Srbije, Crne Gore, Bosne i Hercegovine, lečenih ambulantno kod specijalista interne medicine ili opšte hirurgije koji rade u državnim zdravstvenim ustanovama. Rezultati. Preveden SFK je pokazao odličnu pouzdanost, i prilokom ocene istraživača (Cronbach Alpha 0.915), a i samih pacijenta (Cronbach Alpha 0.917). Vremenski je stabilan, a i divergentni i konvergentni testovi validnosti su imali dobre rezultate. Faktorska analiza je otkrila jedan domen na celom uzorku i dva domena kao u originalu na poduzorku pacijenata bez iskustva o opštoj anesteziji u hirurgiji. Zaključak. Identifikacija pacijenata sa visokim stepenom straha od operacije od strane ovog upitnika bi trebalo da pomogne lekarima da donesu mere koje mogu da smanje strah i spreže izbegavanje apsolutno neophodne operacije od strane takvih pacijenata.
Introduction

Fear of medical treatment relates to the fear of diagnostic and/or therapeutic procedures involving medical staff in healthcare settings [1]. Preoperative or surgical fear is frequently encountered in patients who are waiting for surgical intervention and is associated with prolonged psychophysical recovery [2,3]. Within the fear of surgery, researchers had found the following components: fear of needles, blood and injuries, fear of pain or fear of infections which may happen during the invasive diagnostic and surgical procedures [4-7]. The observational study devoted to the fear of anesthesia [8] revealed the following main sources of anxiety in patients waiting for surgery: concerns about postoperative pain (84%), prolonged unconsciousness after the surgery (64.8%) and injury by catheters or needles (59.5%). It was also shown in the same study that women are more anxious preoperatively (85.3%) than men (75.6%, p= 0.014).

Although several rating instruments were developed for measuring fear from blood, injury or dental treatments [9-11], only recently, reliable and valid instrument was developed for measuring fear of surgery. The Surgical Fear Questionnaire (SFQ) was developed in Dutch and its aim was to assess the level of fear of surgical intervention in patients who are waiting for elective operation (12). It has 8 questions and two-factor structure: one factor is related to fear of the short-term consequences of surgery (items 1–4) and the other to fear of the long-term consequences of surgery (items 5–8). Up to now, this instrument was translated only to Portuguese and validated in that cultural setting, showing similar psychometric properties as the original.

The aim of this study was to translate the SFQ to Serbian language, make cultural adaptation of the translation and test its reliability and validity in a sample of outpatients in Serbia.

Methods

Translation and cultural adaptation

Translation and cultural adaptation of the SFQ was made according to International Society for Pharmacoeconomics and Outcomes Research (ISPOR) guidelines [13]. Permission for translation of SFQ (version with 8 -items) from English to Serbian was granted by the first author of the original scale Mr. Maurice Theunissen, MSc, epidemiologist from Maastricht University Medical Center, Netherlands. The original scale was first translated to Serbian by two independent translators who were Serbian native language speakers. They translated the scale independently of each other, and then the translations were harmonized to one Serbian version at the meeting of the study investigators and the translators. The harmonized Serbian version was then translated back to English by native English speaker, citizen of Australia. When translated back to English, he was not aware of the original English version of the SFQ. The back-translation to English was then compared with original English version by the study investigators at the new meeting of investigators, where final Serbian version of the SFQ was agreed on. The
final translation of SFQ to Serbian was then tested on 5 PhD students (at Faculty of Medical Sciences, University of Kragujevac, Serbia) for clarity and comprehension. After the pilot a few minor changes were made, and then final Serbian version of SFQ was copied and prepared for reliability and validity testing.

**Population and the sample**

Final Serbian version of the translated (SFQ) questionnaire was tested for reliability on outpatients who visited specialists of either internal medicine or general surgery at state-owned health facilities in seven cities: Beograd, Podgorica, Kragujevac, Bijeljina, Vrsac, Kraljevo and Soko Banja. The visits took place in April and the first two weeks of May, 2016. The inclusion criteria were literacy, and age over 18. The exclusion criteria were pregnancy, lactation, cognitive disorders, mood disorders, mental retardation and incomplete patient’s files. The sample of the patients was of consecutive nature, i.e. all patients who visited their general practitioner on the survey day (and satisfied inclusion and exclusion criteria) were offered the questionnaire. During the first encounter the questionnaire was completed in two ways: at first, by the investigators who were questioning the patients, and second, by the patients themselves.

**Reliability testing**

Reliability of the questionnaire was tested using three methods. First, internal consistency was determined through calculation of Cronbach’s alpha for the questionnaire as a whole. Second, the questionnaire was divided by split-half method to two parts with the same number of questions, and Cronbach’s alpha for each of the parts was calculated. Using the alphas for both parts, number of questions in each part and average correlation between questions in both parts of the original questionnaire, the Spearman-Brown coefficient for the questionnaire as a whole was calculated by the Spearman-Brown “prediction” formula [14]. Third, for each question mean score and their variances were calculated, in order to check their suitability for measurement of whole extent of fear.

**Factorial analysis**

Exploratory factorial analysis of the questionnaire was made in order to discover principal factors [15]. First, suitability of the questionnaire and sample for factorial analysis was tested by Kaiser-Meyer-Olkin measure of sampling adequacy and by the Bartlett's test of sphericity. Then, the factors were extracted at first without rotation, with conditions that Eigenvalues had to be greater than 1.0, and using Scree-plot (the extracted factors were above the “elbow” of the graph). Second, referent axes were rotated orthogonally, by the varimax method, and another extraction of the factors was made, using the same criteria as for the unrotated solution. Extracted factors were than named accordingly.

**Validity**

Construct validity of the questionnaire was evaluated by an independent panel of three experienced clinicians at Clinical Center Kragujevac, Serbia: psychiatrist and two general surgeons.

The criterion validity was tested by two methods: (1) convergent validity testing by comparison of the SFQ score with the Visual Analogue Scale (VAS) value measuring fear of hospitalization, and (2) divergent validity testing by comparison of the SFQ score with the score
of the Short Subjective Well-being Scale (SSWS). The permission to use the Short Subjective Well-being Scale in Serbian language (which measures feeling of well-being, and was previously validated in Serbian population) was granted by a psychologist [16,17]. The correlations between scores on the questionnaires and/or VAS value were calculated. All calculations were performed by SPSS statistical software, version 18.0. The results are presented in the multi-method, multi-trait matrix.

**Temporal stability**

Temporal stability of the SFQ results was tested by second completion of the questionnaires by the investigators who repeatedly interviewed the patients one month after the first encounter. The patients were then invited to the second encounter by phone.

**Results**

The study sample consisted of 330 outpatients: mean age 45.9 ± 16.1 years, male/female ratio 141/189 (42.7%/57.3%), years of formal education 14.0 ± 3.6, place of residence, urban/rural = 246/84 (74.5%/25.5%), living alone/in a family = 37/293 (11.2%/88.8%), previous experience with surgery in general anesthesia (194 [58.8%] yes /136 [41.2%] no). The distributions of diagnoses within the study sample was as following: hypertension (17%), chronic heart failure (0.6%), coronary disease (2.4%), COPD (3.9%), asthma (6.1%), diabetes mellitus (0.9%), cancer (3.6%), surgical disease (24.2%), other (18.2%) and no diagnosis of a chronic disease (23%).

**Reliability testing**

After testing original 10 items from the questionnaire, and examining results of correlation matrix, mean values, variance, skewness and kurtosis of distributions of responses for each of the items, the results are shown in the Table 1. Cronbach’s alpha of the version with 10 items was 0.915, when the scale was rated by the investigators. After division of the questionnaire by the split-half method the Spearman-Brown coefficient for the questionnaire as a whole was calculated by the Spearman-Brown “prediction” formula, and its value was 0.822. When the scale was rated by the patients themselves (a week after the rating by the investigators), Cronbach’s alpha was 0.917.

**Factorial analysis**

Factorial analysis was made by the principal components method. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.884 and the Bartlett's test of sphericity was significant (p = 0.000). Only one factor was extracted, explaining in total 62.85% of variance. This factor bears 5.028 eigenvalues, and includes all 8 items.

**Validity**

Construct validity of the questionnaire was confirmed by the panel of experts, who also helped with slight re-phrasing of the questions.

Divergent criterion validity was tested through non-parametric correlation between scores of the SFAQ (when it was rated by investigator and by patients themselves) and scores of the SSWS scale (when it was rated by investigator and by patients themselves). Convergent criterion
validity was tested through non-parametric correlation between scores of the SFQ (when it was rated by investigator and by patients themselves) and VAS scores. Non-parametric correlation was chosen due to non-normal distribution of some of the scores. Spearman’s correlation coefficients are shown in the Multi-trait, multi-method matrix (Table 2).

**Temporal stability**

The SFQ showed satisfactory temporal stability: when rating (by the investigator) was repeated on the same patients one month later, the correlation between the scores (Spearman’s coefficient) was 0.930 (p < 0.001). Cronbach’s alpha after the repeated rating was 0.892.

**Discussion**

Version of the SFQ scale with 8 questions showed excellent reliability, both when rated by the investigators, and by the patients themselves. It was temporally stable, and both divergent and convergent validity tests had good results. Factorial analysis revealed only one domain, unlike the analysis of original scale, where two domains were established: the fear of the short-term consequences of surgery and the fear of the long-term consequences of surgery.

Although short- and long-term consequences of surgery are well defined clinical entities [18], the research about characteristics of fear of these entities is almost inexistent. It was shown in a Portuguese study on 203 women undergoing hysterectomy that preoperative anxiety was strong predictor of chronic or persistent postsurgical pain (PPSP), which is one of the long-term adverse consequences of surgery [19]. Division of the SFQ scale to two parts (the first 4 questions relate to fear of short-term and next four questions to fear of long-term consequences of surgery) seems intuitively logical, and worked well in the studies of Theunissen and associates [12] on patients awaiting surgery. In our study sample, which was composed of outpatients currently not scheduled for any surgical intervention in close future, the SFQ behaved as a whole, i.e. the patients had the same attitude towards the possible short- and long-term consequences of hypothetical surgery. Only one factor emerged when analysis was made on the questionnaires rated by investigators, by the patients themselves and when the rating was repeated by the investigators a month later (results not shown, available on request).

However, when we tried factor analysis on subsamples of patients who had and who hadn’t previous experience with surgery in general anesthesia, those who had the experience behaved as the whole sample, i.e. only one factor was extracted. On the other hand, the factor analysis of the SFQ on the subsample of patients without previous experience with surgery in general anesthesia revealed two factors after rotation: the first composed of the questions 1-4 (explaining 34.3% of variance), and the second composed of questions 5-8 (explaining 38.5% of variance). Inexperienced patients also scored higher on the first 4 questions than the patients with previous experience and then on the questions 5-8 (results not shown, available on request), showing that they were more afraid of short-term consequences of surgery. Experience with surgery and general anesthesia obviously has alleviating effect on fear of next surgery, at least when short-term adverse consequences are in question. It would be very interesting to see whether the two-factor structure of original instrument would remain as such if factor analysis was made on a subsample of patients having previous experience with surgery in general anesthesia.
Main limitation of this study was the fact that the patients from the study sample were not scheduled for a surgery in close future, since this was the main characteristic of the study sample on which original instrument was developed and validated. This is probably the reason why the translated instrument did not show the same factorial structure as the original. Future studies with the same translated questionnaire should be conducted on a group of patients who are scheduled for surgery in near future, in order to get complete insight into its functionality.

In conclusion, the translation of SFQ scale to Serbian language is reliable and valid instrument for the measurement of the surgical fear. Identification of patients with high level of fear of surgery by this questionnaire should enable administration of measures which may decrease that fear and prevent avoidance of absolutely necessary surgery by such patients.

Acknowledgements

The authors are grateful to Dr Zan Friscic, MD, specialist of orthopedic surgery and native English language speaker, who helped with backward translation from Serbian to English of the Surgical Fear Questionnaire in Adult Patients Waiting for Elective Surgery. We are also thankful to Valentina Opancina, MD, PhD student and Bosko Nikolic, MD, PhD student who translated the original scale to Serbian. The authors also thank Doc Dr. Jovanovic Veljko, University of Novi Sad, for giving permission to use the Short Subjective Well-being Scale in Serbian language, and to Maurice Theunissen, MSc, epidemiologist from Maastricht University Medical Center, Netherlands, for giving permission to translate the Surgical Fear Questionnaire in Adult Patients Waiting for Elective Surgery to Serbian and test reliability and validity of the translated instrument.

Funding

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Compliance with Ethical Standards

Conflict of Interest: The authors declare that they have no competing interests.

Ethical approval: The study was approved by the Ethics Committee of Clinical Center Kragujevac, Serbia. The patients were treated with due respect and care, according to the principles stated in Declaration of Helsinki.

Informed consent: Informed consent was obtained from all individual participants included in the study.
References:


### Table 1.

Mean values, standard deviation, skewness and kurtosis of responses to items of Surgical Fear Questionnaire (the responses are rated from 0 [not at all afraid] to 10 [very afraid])

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean response</th>
<th>Standard deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am afraid of the operation</td>
<td>5.14</td>
<td>3.26</td>
<td>-.051</td>
<td>-1.168</td>
</tr>
<tr>
<td>I am afraid of the anaesthesia</td>
<td>4.48</td>
<td>3.49</td>
<td>.174</td>
<td>-1.347</td>
</tr>
<tr>
<td>I am afraid of the pain after the operation</td>
<td>4.94</td>
<td>3.10</td>
<td>.056</td>
<td>-1.045</td>
</tr>
<tr>
<td>I am afraid of the unpleasant side effects (like nausea) after the operation</td>
<td>4.35</td>
<td>3.13</td>
<td>.286</td>
<td>-1.031</td>
</tr>
<tr>
<td>I am afraid my health will deteriorate because of the operation</td>
<td>3.41</td>
<td>3.07</td>
<td>.691</td>
<td>-.576</td>
</tr>
<tr>
<td>I am afraid the operation will fail</td>
<td>3.79</td>
<td>3.12</td>
<td>.462</td>
<td>-.895</td>
</tr>
<tr>
<td>I am afraid that I won’t recover completely from the operation</td>
<td>3.81</td>
<td>3.05</td>
<td>.455</td>
<td>-.777</td>
</tr>
<tr>
<td>I am afraid of the long duration of the rehabilitation after the operation</td>
<td>4.16</td>
<td>3.15</td>
<td>.312</td>
<td>-.972</td>
</tr>
</tbody>
</table>
Table 2.

Multi-method, multi-trait correlation matrix (non-parametric Spearman’s coefficients)

<table>
<thead>
<tr>
<th></th>
<th>SSWS score, rated by an investigator</th>
<th>SSWS score, rated by a patient</th>
<th>SFQ score, rated by an investigator</th>
<th>SFQ score, rated by a patient</th>
<th>Visual Analogue Scale score</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSWS score, rated by an investigator</td>
<td>1</td>
<td>0.919**</td>
<td>-0.113</td>
<td>-0.109</td>
<td>0.004</td>
</tr>
<tr>
<td>SSWS score, rated by a patient</td>
<td>0.919**</td>
<td>1</td>
<td>-0.108</td>
<td>-0.107</td>
<td>0.032</td>
</tr>
<tr>
<td>SFQ score, rated by an investigator</td>
<td>-0.113</td>
<td>-0.108</td>
<td>1</td>
<td>0.950**</td>
<td>0.645**</td>
</tr>
<tr>
<td>SFQ score, rated by a patient</td>
<td>-0.109</td>
<td>-0.107</td>
<td>0.950**</td>
<td>1</td>
<td>0.652**</td>
</tr>
<tr>
<td>Visual Analogue Scale score</td>
<td>0.004</td>
<td>0.032</td>
<td>0.645**</td>
<td>0.652**</td>
<td>1</td>
</tr>
</tbody>
</table>

**Significant correlation at p<0.001.