

Assessing the Content and Face Validity of Persian Version of Fatigue Scale in Children with Cancer, From the Perspective of Parents and Hospital Staffs

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Abstract

Introduction: Fatigue is one of the most debilitating conditions associated with cancer and anticancer therapy. The purpose of this study was to translate the fatigue questionnaire in Persian for developing an appropriate instrument to evaluate the effect of rehabilitation and other interventions on fatigue in intended patients. **Materials and Methods:** The present study was analytical and descriptive. Thirty experts and 15 children with cancer who were treated at Mahak Hospital and their parents were asked to participate in the study through convenience sampling. For content validity, CVI (content validity index) has been calculated as an aggregation of concessions for each item that has earned "Relevant but Needed to Review" and "Completely Related" points divided by the total number of specialists. To determine the CVR (content validity ratio), experts were asked to check each item based on the three-part spectrum. To assess the face validity of the scales, forms for rating and explaining the scoring for questionnaires of all three scales were given to 15 participants, and they were asked to answer each question scale based on the three concepts of relevance, clarity and simplicity on the 4-point graph. Scores higher than 0.79 indicated the suitability of the items for further analysis. **Results:** The translated questionnaire was completed by the participants. In the content validity section, according to the critical point of the Lawshe table, CVR was acceptable at 0.49. The translation of items by CVI less than 0.79 was modified. Finally, CVIs of all items were averaged, and the final score was determined as the CVI level. In the face validity section, scores higher than 0.79 indicated the suitability of items for further analysis. **Conclusion:** The Persian version of fatigue scale can be considered as one of the suitable instruments in measuring the influence of fatigue on activities of daily living.

Keywords: Cancer; Child; Fatigue; Parent; Reliability; Staff; Validity

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Introduction

Childhood cancer usually affects children aged under 15 years (1). In some countries, cancer is the second leading cause of death after cardiovascular diseases (2, 3) and is the most important challenge of public health (4, 5, 6). In Iran, cancer is the third leading cause of death after cardiovascular diseases and accidents (7). Cancer epidemiology in children is different in comparison with adults (8). Leukemia in the most common type of cancer among children (9-13) followed by lymphatic and central nervous system cancer (13). Surgery, radiation therapy, chemotherapy or hormone therapy might be used for treatment according to the cancer stage and medical history

(14, 15). Although these interventions prolong patient's life, they may have different side effects (15). Fatigue is the most pervasive and irritating symptom of cancer and its treatment (16). Fatigue in children with cancer was studied for the first time in a research with separate groups, including cancer patients aged 7-12 years, patients aged 13-18 years, and their parents and nurses as care givers (17, 18). Hockenberry *et al.* (19) developed three scales for measuring fatigue in children with cancer from the perspectives of parents and staff. These scales assessed the experienced fatigue perception during the last week (19). Gerceker *et al.* estimated the validity and reliability of the Turkish version of the child fatigue scale-24 hours (CFS-24h), parent fatigue scale-24 hours (PFS-24h), and

staff fatigue scale-24 hours (SFS-24h) (20). All these scales assessed fatigue during the last 24 hours. Finally, the 24 hours scales were selected for this study. There are several scales for measuring fatigue in children with cancer including:

1. Pediatric Functional Assessment of Chronic Illness Therapy-Fatigue (21),
2. Pediatric Quality of life Multidimensional Fatigue scale (22),
3. Visual Analogue Scale (23).

According to the lack of a numerous scales for assessing fatigue in children with cancer, the advantages of this scale compared to the others is that this particular scale assesses the fatigue from the perspectives of children with cancer, parents and staff. In addition, it is brief and comprehensive, and needs 8 minutes to complete. It is also a self-report questionnaire, which assesses fatigue caused by cancer (19).

The management of cancer treatment corresponds to the child, parents and staff cooperation, which leads to symptom determination, effective treatment management and return to normality for children (20). There is no scale in Iran that enables the children, their parents and staff to measure fatigue. Lack of a valid and reliable instrument for measuring fatigue in children with cancer prohibits specialists to precisely determine the symptoms in children.

Occupational therapy might control the progress of cancer by measuring fatigue and planning an early intervention. It can prevent the side effects of fatigue in patients, care givers and societies and can play a substantial role in fostering quality of their life, increasing functional independence, and reducing the cost of hospitalization. Since fatigue is the most dominant symptom among patients with cancer (24), early intervention of this symptom can be effective for rehabilitation efficacy and fostering quality of their lives. In this regard, we need a comprehensive Persian questionnaire with enough capability for assessing fatigue with the lowest. Hence, the purpose of this study was to assess the validity of the Persian version of CFS-24h, PFS-24h, SFS-24h, as there were no studies on these questionnaires in the Iranian population with cancer. The cultural, educational and lingual diversity among different countries influence the validity of client-centered questionnaires and the way the people fill them out.

Materials and Methods

Tools

Scales in this study are as follows:

1. The CFS-24h consists of 10 items. Child responses to items were determined on a 5-point Likert-type scoring from "Never" to "Always" (intensity). The intensity rating ranges from the minimum of 10 (no fatigue) to maximum of 50 (high fatigue). Higher score refers to the greater amount of fatigue experienced

by the child. The Cronbach α ranges from 0.64 to 0.72 (19).

2. The CFS-24h consists of 17 items and measures parents' perception of their children' fatigue during the past 24 hours. Items were scored by five-point Likert-type score from 1- Never to 5-Always. The lowest intensity was 17 (no fatigue) and the highest was 85 for high fatigue. The Cronbach α for this scale ranges from 0.78 to 0.90 (19).

3. The SFS-24h consists of 9 items that measure the staff perception of child' fatigue intensity during the past 24 hours. The scoring was based on the 4point Likert-type score, and the rate of intensity was from 9 (no fatigue) to 36 (high fatigue). The Cronbach α is between 0.86 and 0.95 (19).

Translation process

The CFS-24h, PFS-24h, and SFS-24h scales were translated in three steps by forward and backward methods.

English to Farsi translation

Permission from the developer, Pamela Hinds, was taken to proceed with the translation.

The original versions of the CFS-24h, PFS-24h, and SFS-24h scales were translated into Farsi by two Farsi native translators, fully experienced in English texts (translators 1 and 2). Also, they were asked to prepare different translations for some items and phrases, if possible. One session was held to discuss with the translators if some items needed to be changed. The Farsi version was then prepared.

Farsi to English translation

Two other translators (3 and 4) who were fluent in both Farsi and English language were asked to backward translate those scales to English. They translated the scales without having any access to the original versions. After discussions, they agreed on one English version.

Comparing the original with the English translated version

The English-translated versions of CFS-24h, PFS-24h, and SFS-24h were compared with their original versions in term of conception by the four translators. Then the composed English-translated version was sent to the main developer for final approval; she announced her agreement with our translated version.

1. Face Validity

For assessing the face validity, the CFS-24h, PFS-24h, and SFS-24 scales were offered to the children with cancer, their parents and the nurses responsible for taking care of them. They were asked to score all items of three questionnaires in terms of relevance, clarity, and simplicity on four points diagram (Score 1 refers to not relevant, clear and simple; scores 2 and 3 refer to need further revision, and score 4 means maximum score). Scores of 0.79 and above showed the need for further analysis (25).

Table 1. Content and Face Validity CFS-24h

Question Number	CVI						CVR
	Relevant		Clear		Simple		
	Content	Face	Content	Face	Content	Face	
CFS1	1	1	0.93	1	1	1	1
CFS2	1	1	1	1	1	1	1
CFS3	0.73	1	0.93	1	0.93	1	0.86
CFS4	0.80	0.80	0.80	0.93	0.80	0.93	*0.60
CFS5	1	1	0.93	1	1	1	*0.60
CFS6	1	0.73	1	1	1	1	0.86
CFS7	1	0.73	1	1	1	1	1
CFS8	1	1	1	1	1	1	1
CFS9	1	0.86	1	1	1	1	0.73
CFS10	0.93	0.73	0/93	0.93	1	1	*0.60

*4: The initial CVR value for this question was 0.2 that was changed to an acceptable level of 0.60 after discussion with experts and making changes.

*5: The initial CVR value for this question was 0.33 that was changed to an acceptable level of 0.60 after discussion with experts and making changes.

*10: The initial CVR value for this question was 0.33 that was changed to an acceptable level of 0.60 after discussion with experts and making changes.

Table 2. Content and face validity PFS-24h

Question Number	CVI						CVR
	Relevant		Clear		Simple		
	Content	Face	Content	Face	Content	Face	
PFS1	1	1	1	1	1	1	86.0
PFS2	1	1	1	1	1	1	73.0
PFS3	1	1	1	1	93.0	86.0	86.0
PFS4	86.0	1	86.0	1	93.0	1	73.0*
PFS5	0.93	1	1	1	1	1	60.0
PFS6	1	1	1	1	1	1	73.0
PFS7	1	1	1	1	1	1	86.0
PFS8	1	1	93.0	86.0	93.0	73.0	73.0*
PFS9	1	1	93.0	73.0	1	1	73.0
PFS10	1	1	1	1	1	1	60.0
PFS11	1	1	1	1	1	1	73.0
PFS12	73.0	73.0	93.0	93.0	93.0	1	60.0*
PFS13	80.0	73.0	93.0	86.0	93.0	93.0	73.0*
PFS14	93.0	93.0	1	1	93.0	86.0	60.0
PFS15	93.0	1	1	1	1	1	73.0*
PFS16	1	1	93.0	93.0	1	1	73.0
PFS17	1	73.0	1	1	1	1	60.0*

*4: The initial CVR value for this question was 0.46 that was changed to an acceptable level of 0.73 after discussion with experts.

*8: The initial CVR value for this question was 0.33 that was changed to an acceptable level of 0.73 after discussion with experts.

*12: The initial CVR value for this question was 0.06 that was changed to an acceptable level of 0.60 after discussion with experts.

*13: The initial CVR value for this question was 0.46 that was changed to an acceptable level of 0.60 after discussion with experts.

*15: The initial CVR value for this question was 0.46 that was changed to an acceptable level of 0.73 after discussion with experts.

*17: The initial CVR value for this question was 0.33 that was changed to an acceptable level of 0.60 after discussion with experts.

Table 3. Content and face validity SFS-24h

Question Number	CVI						CVR
	Relevant		Clear		Simple		
	Content	Face	Content	Face	Content	Face	
CFS1	0.86	0.86	0.73	0.73	1	0.73	0.60
CFS2	0.86	0.86	1	1	1	1	1
CFS3	0.86	0.86	1	1	0.93	1	1
CFS4	0.73	0.73	0.86	0.86	0.80	0.93	0.83
CFS5	1	1	1	1	1	1	1
CFS6	1	1	1	1	1	1	1
CFS7	0.73	0.73	0.86	0.86	1	0.93	0.73
CFS8	1	1	0.93	0.93	1	1	1
CFS9	1	1	1	1	1	1	1

2. Content Validity

Thirty specialists (13 occupational therapists, 2 oncology residents and 15 nurses) who were working in the field of pediatrics were asked to take part in this study. Content validity index (CVI) and content validity ratio (CVR) were analyzed to assess the content validity. In order to measure CVR, occupational therapists were asked to comment on the necessity of all individual items by 3-points Likert-type scoring. According to the Lawshe table, CVR values of 0.49 and more were acceptable. CVI was measured for all items of CFS-24h and PFS-24h by 15 specialists (13 occupational therapists and 2 oncology residents) and for all items of SFS-24h by 12 nurses. They responded for each item in terms of simplicity and clarity. Translation was changed for items that scored less than 0.79. Eventually, the average value of all CVIs and final score were reported as CVI. It is recommended that the mean above 0.90 proved excellent CVR (25).

Results

The results showed that all items of the CFS-24h were acceptable and that translation does not need any revision. The translations of items 8, 9, 13, 15 and 16 were changed in PFS-24h, and the others were acceptable. In SFS-24h, the translations of items 1, 4 and 7 were modified, and the rest of them remained as they were. Tables 1, 2 and 3 show the data analysis for CVI and face validity.

Discussion

Fatigue is known as the most common and painful cancer symptom, which is reported by 70%-100% of cancer patients (24). Fatigue is caused by disease progression and its treatment,

and referred to as cancer-included fatigue. This symptom influences more than 70% of patients who undergo chemotherapy and radiation therapy. Fatigue is so sever for some patients that affects the patient's life profoundly and interferes with their daily activities if not cured (26). The quality of life and functional stability are influenced by this symptom (27-29). In this cross-cultured questionnaire, we benefited from all comments from children with cancer, their parents and nurses for all items so as to prepare the final draft.

In the final draft, all items were aligned with Persian culture in terms of content and necessity. In parent's form, items 4, 8, 12, 13, 15 and 17 were translated negatively referring to the Persian culture and scoring of the original version. Similar action was repeated in staff form for items 1, 4 and 7. These changes were done in an expert panel, and all modifications were accepted.

Yeh *et al.* investigated the fatigue associated with chemotherapy in children, and they noted that parents' compliant might be more than that of children in the first day of chemotherapy. Relationship between chemotherapy elements and cancer-related fatigue is not the same in views of children and their parents. According to the previous study, it is highly recommended that not only children fill out the questionnaire on their own, but parents and nurses' reports should be evaluated according to the child's stress level and age (30).

Conclusion

Due to the evaluation process in patients, making use of patient-based evaluation, such as these questionnaires, were complementary for routine assessments and were capable enough for determining the patient's priorities and effect of rehabilitation and other treatments on fatigue management. There is a need to assess the reliability and validity of these questionnaires on a larger population of children, parents and

staffs. It is suggested that further studies be conducted to assess the psychometric features of more instruments that reflect the patient's challenges in a more effective manner.

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Conflict of interest:

None

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Authors' contributions:

All authors made substantial contributions to conception, design, acquisition, analysis and interpretation of data.

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