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Validating and Investigating Reliability of Comprehensive Feeding Practices Questionnaire

Saeid Doaei,[*1] Naser Kalantari,[2] Maryam Gholamalizadeh,[3] Bahram Rashidkhani[2]

1. Department of Nutrition, National Nutrition and Food Technology Research Institute, Faculty of Nutrition Sciences and Food Technology, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Department of Nutrition, Faculty of Nutrition Sciences and Food Technology, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Department of Nutrition, School of health, Isfahan University of Medical Sciences, Isfahan, Iran

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*Corresponding author at:
Students' research committee, National Nutrition and Food Technology Research Institute, Faculty of Nutrition Sciences and Food Technology, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
E-mail: sdoaee@yahoo.com

Abstract

***Background*:** The present research aims to validate and discuss the reliability of Comprehensive Feeding Practices Questionnaire (CFPQ).

***Materials and Methods*:** In this cross-sectional study, 150 mothers with 3-6 year old children in the city of Rasht were selected through cluster random sampling from the public and private kindergartens in 2010. After being confident about the translation validity, the degree of validation (content and structure) and validity (test-retest reliability and internal consistency) of the questionnaire was examined.

***Results*:** The degree of validation of questionnaire content, except questions 2, 16 and 46, was at a high level and these three questions were omitted. The method of the consistency of factors and total scores of the questionnaire was used to study the validation of structure, which was satisfactory and varied between 0.30-0.72. The validity of questionnaire was examined through test-retest and Cronbach's alpha methods. The Intraclass Correlation Coefficient (ICC) was between 0.80-0.91 and Cronbach's alpha was between 0.80-0.90.

***Conclusion*:** In general, the Comprehensive Feeding Practices Questionnaire (CFPQ) was proved to be valid and with respect to the results obtained from the present research, it can be used in the research on child diet.

Introduction

The children nutrition may be impressed by parents, friends, media and personal preferences of children at pre-school ages [1, 2]. The influence of parents, who play the role of providers, executors and models for child nutrition at the early stages of childhood, has been recognized as the most important effective factor [3, 4]. During the pre-school ages, parents are considered the main individuals in charge for food choices of children and they feed their child using different methods. The methods used by parents are one of the important ways of influence on child nutrition. Studies indicated that the methods of children nutrition by parents relate directly to child's ability to regulate food consumption according to the internal signals of hunger and satiety [2] and his/her food preferences [6] with the level of energy consumption and body weight [7].

Parents use a wide range of methods to control their children nutrition as per the different social, economic and cultural methods [8, 5-11]. With respect to the extent of approaches used by parents to feed children, the results of research carried out on the effect of these activities on diet and health of children were contradictory. The majority of studied behaviors in researches included limiting children's diet, forcing them to eat food and controlling them explicitly [7, 8, 10]. Topics such as modeling for children, training healthy nutrition for children, using food as a reward, and controlling children's emotions by foodstuff have not been discussed much, while they might be of paramount importance. Various tools are used to evaluate children's feeding methods [7, 8, 10, 12, 13].

Comprehensive Feeding Practices Questionnaire (CFPQ) is a self-administered test, which is designed to study the different aspects of children's feeding methods and it seems to be more completed than the rest of available tools. This questionnaire was first designed by Musher-Eizenman et al. in America in 2007 [12]. This questionnaire was designed aiming to collect and study all the information related to the pre-school parents-children dietary interactions. The main questionnaire had 49 questions, which studied children feeding methods through 12 different aspects. As there is a rather high risk of malnutrition among the Iranian children and the rate of children obesity is increasing, having a tool, which evaluates the methods used in children nutrition from different aspects, can help us understand the differences in children's nutritional condition. Meanwhile, we have never had a tool to evaluate feeding methods used by parents in our country. Therefore, the present research aims to discuss the validation and reliability of the 49-question Comprehensive Feeding Practices Questionnaire (CFPQ) to make possible the use of one of the most modern and completed tools for evaluation of children nutrition in the country, in case the results are favorable.

Materials and Methods

In this research which is carried out in a cross-sectional approach, 150 mothers with 3-5 year old children enrolled in Rasht kindergartens in 2010 were selected through the second-stage cluster random sampling. First, 15 kindergartens were selected among all the kindergartens of Rasht and then 10 children were selected randomly from each kindergarten. To fill out the questionnaires, written consent forms were taken from mothers. The questionnaires were handed over to mothers in envelopes through the kindergarten manager. They were asked to put the questionnaire in the envelope after filling out and give it back to kindergarten manager. This research uses a 49-question form of Comprehensive Feeding Practices Questionnaire (CFPQ).

This questionnaire discusses mothers' behavior related to children nutrition from 12 different aspects including child authority, emotion regulation, encourage balance and variety, environment, using food as reward, involvement, modeling, monitoring, pressure, restriction for health, restriction for weight control and teaching about nutrition. The questions were answered in a five-point Likert scoring method. The options for questions 1-13 are "Never" to "Always" and for questions 14-49 are "completely agree" to "completely disagree". The structural analysis of this questionnaire has been performed by Musher-Eizenman et al. in 2007. The 49-question form has been executed on a sample including 33 couples (husband and wife) with 4-6 year old children. Consequently, 12 factors were obtained, which reflect 12 aspects of the methods used by parents in connection with children nutrition.

To make the questionnaire applicable in Iran, first, it was translated into Persian and then, confirmed by two child nutrition specialists. Subsequently, the translated form was translated again into English by a bilingual person. In a meeting held between the researchers and the translator, it was compared with the original questionnaire. Comparison of these two English texts indicated that the translation is correct. After insuring the validity of translation, the content validity, construct validity, and questionnaire reliability were examined. To measure the content validity, the opinions of child nutrition specialists about the questions of the questionnaire were collected in writing and measured using Content Validity Ratio (CVR).

The internal consistency method of each factor with total scores of the questionnaire was used to study the construct validity. In the internal consistency method, high consistencies indicate the convergence of factors with the total scores of the questionnaire. The validity of this questionnaire was determined by both test-retest method and internal consistency. For this purpose, the interclass Correlation Coefficient and Cronbach's alpha were used. In order to determine the validity of questionnaire's test-retest, the mothers were studied again three weeks after the first round of completion of the questionnaire.

Results

The clarity and simplicity of the questions were examined and challenges were resolved using consultation with child nutrition specialists.

Questionnaire Validity: To examine the tool validity, the content validity and construct validity were studied. In content validity, we obtained the opinions of 5 child nutrition specialists about the questionnaire. The Content Validity Ratio (CVR) above 0.6 is considered favorable [16]. The CVR of all the questions, except for the questions 2, 16 and 46 were reported as satisfactory. To be confident about the results of the content validity, the Content Validity Index (CVI) was also obtained which confirmed the results of CVR. Therefore, the questions with low content validity were omitted from the questionnaire and the next steps of the research were performed on the remaining 46 questions. Table 1 represents the results of the content validity. The Internal Consistency Method of each factor with the total scores of the questionnaire was used to study the construct validity. In the Internal Consistency Method, the consistencies above 0.3 indicate micro convergence of tests with the total score of the questionnaire [17]. Table 2 represents the results. As table 2 shows, the consistencies at the confidence level of 0.99 are significant. The validity of this questionnaire was determined by test-retest Method as well as Internal Consistency. For this purpose, the Interclass Correlation Coefficient and Cronbach's alpha were used, respectively.

Test-retest: In order to determine the test-retest validity of the questionnaire, 90 mothers with 3-6-year-old children were selected in a cluster-randomized manner. They were studied again 3 weeks after the first round of completion of the questionnaire. The Interclass Correlation Coefficient (ICC) of the whole questionnaire and each factor were calculated separately. The coefficients above 0.7 are interpreted as significant [18] and they were at a high level of significance for all the questions.

Internal Consistency: Cronbach's alpha was used to measure the internal consistency of the questionnaire. The coefficients above 0.7 are interpreted as significant [19] and the obtained results were completely satisfactory at a high level of significance (Table 4).

Discussion

In general, the results of the present study indicate that the Comprehensive Feeding Practices Questionnaire (CFPQ) enjoys favorable validity. In this study, the validity coefficient of test-retest of the questionnaire and Cronbach's alpha were obtained as 0.88 and 0.88, respectively. On the measurement of the validity of questionnaire, the content validity and construct validity were evaluated. The content validity of the questions of questionnaire, except for 3 questions, was reported at a high level (0.6-1) and the questions with low level of content validity were omitted.

Table 1. Content Validity Ratio (CVR) of the questions of comprehensive questionnaire on children feeding methods

Questions	CVR	Questions	CVR	Questions	CVR	Questions	CVR	Questions	CVR
1	0.6	11	0.6	21	0.6	31	0.6	41	0.6
2	-0.2	12	1	22	0.6	32	1	42	0.6
3	1	13	0.6	23	1	33	1	43	0.6
4	1	14	0.6	24	0.6	34	0.6	44	0.6
5	0.6	15	0.6	25	0.6	35	0.6	45	1
6	1	16	-0.2	26	0.6	36	0.6	46	-0.2
7	1	17	1	27	0.6	37	0.6	47	0.6
8	0.6	18	0.6	28	0.6	38	1	48	0.6
9	1	19	1	29	1	39	1	49	0.6
10	0.6	20	0.6	30	1	40	0.6		

Table 2. Internal consistency of each factor with the total score of the questionnaire

Factors	Internal consistency	*p*-Value	Factors	Internal consistency	*p*-Value
1	0.455	0.01	7	0.366	0.01
2	0.378	0.01	8	0.296	0.01
3	0.334	0.01	9	0.671	0.01
4	0.419	0.01	10	0.722	0.01
5	0.390	0.01	11	0.580	0.01
6	0.351	0.01	12	0.356	0.01

Table 3. Interaclass Correlation Coefficient (ICC)

Factors	ICC
Monitoring	0.84
Pressure to eat	0.83
Restriction for health	0.83
Restriction for weight control	0.91
Modeling	0.85
Teaching about nutrition	0.84
Total score of the questionnaire	0.88
Child authority	0.85
Emotion regulation	0.87
Encourage balance and variety	0.81
Environment	0.85
Using food as reward	0.85
Involvement	0.83

Table 4. Total internal consistency of questionnaire and factors

Factors	Cronbach's alpha
Modeling	0.85
Monitoring	0.84
Pressure to eat	0.83
Restriction for health	0.83
Restriction for weight control	0.90
Teaching about nutrition	0.80
Total score of the questionnaire	0.88
Child authority	0.85
Emotion regulation	0.87
Encourage balance and variety	0.81
Environment	0.83
Using food as reward	0.85
Involvement	0.83

The psychometric experts believe that the correlation between subtests of one test with the total scores of the questionnaire indicates the internal integrity and content validity of a test [17]. To study the content validity of the present study, the correlation of subtests of the questionnaire with the total scores of the questionnaire were studied. The correlations between them were reported 0.296-0.722, which were significant.

This questionnaire has recently been designed to remove the shortcomings of the earlier questionnaires. Due to having several characteristics including execution simplicity, objectivity and measuring different aspects related to children nutrition, it can help us understand the personal differences between children nutritional condition and the reasons of these differences. As the present questionnaire discusses feeding methods from 12 different aspects, it seems to be more complete than other questionnaires such as Child Feeding Questionnaire [13], which evaluates children feeding methods only through 3 aspects (direct control, indirect control, and forcing to eat).

In general, these evidences confirm the validity and reliability of the 46-question Comprehensive Feeding Practices Questionnaire (CFPQ). Therefore, nutrition experts and other related sub-disciplines can use this questionnaire to identify the parents-children nutritional interactions. As the validity measurement of the questionnaire is not limited to the methods used in the research, it is recommended to consider other validity measurement methods including “Concurrent Validity” and “Predicative Validity” in complementary studies.

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Authors’ Contributions

Doaee S. participated in the project carried out most of the experimental work. Dr. S. Jafari Shoorijeh and Dr. Tabatabai-Naini as project leaders, designed the study, and coordinated all manuscript preparation. Dr. A

Tamadon drafted the first version of the manuscript and performed the statistical analysis.

Conflict of Interest

The authors declare no conflict of interest.

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National Nutrition and Food Technology Research Institute, Shahid Beheshti University of Medical Sciences,Tehran,Iran.

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