

Validity and Reliability Study of The Turkish Version of The Child Primary Care Adherence Scale

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ABSTRACT

Objective: This study was aimed at adapting the Child Primary Care Adherence Scale, developed to assess parents' compliance with the recommendations made by primary health care professionals, into Turkish and to conduct its validity and reliability study.

Methods: This methodological study was conducted in a family health center between February 2024-July 2024. In the sample of the study, 325 mothers who were over 18 years old and who had children between the ages of 2 and 6 years were included. The Descriptive Information Form and Child Primary Care Adherence Scale were used to collect data.

Results: The results of the validity analyses demonstrated that the scale items measured the targeted conceptual structure. According to the exploratory factor analysis, the scale consisted of two dimensions. According to the reliability analysis, stability was sufficient and internal consistency was quite reliable. The mean score the parents obtained from the overall Child Primary Care Adherence Scale was 53.35±10.89.

Conclusion: The results indicated that the Child Primary Care Adherence Scale could be administered to parents of children aged between 2-6 years in Turkish society to determine their compliance with the care recommendations given by health professionals who checked whether the items were comprehensible.

Keywords: Child, Childcare, Reliability, Validity

1. INTRODUCTION

If public health is to be improved and protected, protection and improvement of children's health is of extreme importance.

The primary responsibility for the protection and improvement of children's health first lies with the family, then with health workers and the social environment (1).

Supporting the health of a child, preventing diseases by detecting them at an early stage, providing vaccination services, and providing health counseling to families constitute the basis of healthy child monitoring (2).

Healthy child monitoring in Turkey is carried out according to the "Baby, Child and Adolescent Monitoring Protocol" published by the Ministry of Health. According to this protocol, a record should be kept for every baby and the baby's monitoring should be initiated as soon as the baby is born.

Each registered child should be followed up at birth, and after the birth, within the first 48 hours, on the 15th and 41st days, once a month in the 2nd, 3rd and 4th months, once every three months in the 6th, 9th and 12th months, once every six months between the ages of 1 and 3, once a year between the ages of 3 and 21and each follow-up should be recorded (3). One of the most important steps in infant and child follow-ups is the provision of counseling to parents. Provision of detailed information to parents is of great importance if they are to adopt and implement the recommendations given to them, to comply with the follow-up program, and to improve their health literacy. It is known that parent education increases the success of healthy infant and child follow-ups and ensures the provision of higher quality service (4). Healthy child followups offer the best opportunities for providing evidence-based preventive health services such as monitoring the growth

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and development of the child, administering childhood vaccinations, determining some behavioral problems of the child and the family, and informing families about accidents and nutrition (5). In the primary healthcare, both the family physician and the family health nurse follow-up the growth and development of the child, and provide guidance and counseling to parents so that they can raise healthy children. Primary health care workers provide guidance and counseling to parents on the important stages of child development such as teething, transition to complementary feeding, toilet training, and on problems such as accident/injury risk, sleep disorders, and nutritional problems that may arise during the growth and development process and on how they can manage the process correctly. Monitoring parental compliance with the counseling and guidance services provided for them is very important. Parents' adherence to the health advice given by primary health care workers minimizes unnecessary contact with health services, strengthens families' parental competence, and most importantly, allows children to grow and develop healthily. In the Turkish literature, there is a gap regarding measurement tools that can be administered to determine parents' compliance behaviors with the basic care recommendations made for their children. Thus, the present study was carried out to adapt the Child Primary Care Adherence Scale (CPC-Adherence Scale) (6) developed by Mourao et al. (2022) to Turkish and to conduct its validity and reliability study to assess parents' compliance with the recommendations made by primary health care professionals.

2. METHODS

This methodological study was conducted with mothers registered in a family health center in Menemen, a district of Izmir, a province in western Turkey, between February and July 2024. Inclusion criteria were as follows: being over the age of 18, having children between the ages of 2 and 6 years, being primary caregiver of the child, volunteering to participate in the study, and having no obstacles to communicate. Of the mothers who presented to the family health center for any reason, those who met the inclusion criteria were assigned to the study sample using the random sampling method. It is recommended that in validity and reliability studies performed to adapt a scale to Turkish (another) language and culture, the sample size should be five-fold or ideally tenfold the number of the items in the scale in order to perform factor analysis (7). In another method regarding the sample size, if the sample includes 200 participants, it considered as "moderate", if 300 as "good", if 500 as "very good", and if 1000 as "excellent" (8). Thus, by taking the two methods into account, it was decided to include 325 individuals in the sample to adapt the 20-item scale into Turkish.

2.1. Data Collection

Data were collected using the face-to-face interview technique during weekday working hours at the family health center. The tools used for data collection were as follows:

2.1.1. Descriptive Information Form

The form prepared by the researchers included items questioning the participants' socio-demographic characteristics such as age, education level, income, the number of children in the family, the height and weight of the youngest child, and having or not a chronic health problem.

2.1.2. Child Primary Care Adherence Scale (CPC-Adherence Scale)

The scale developed in Portugal has 20 items and the following 2 dimensions: Adherence to a Safe Psychomotor Development dimension (items 1, 4, 5, 7-9, 11-13, 15-17, 19, 20) and Adherence to Nutritional Counselling (items 2, 3, 6, 10, 14, 18).

The respondent's level of adherence to recommendations in the scale is rated on a five-point Likert type scale ranging from 1 (never) to 5 (always), for each item, the respondent is also asked to choose the options "not recommended" and "not applicable" if the item is not recommended or not applicable. If the respondent chooses either the "not recommended" or "not applicable" option for an item, this item is not included in the scoring. In the original study of the scale, the Cronbach's alpha value was 0.894 for the Adherence to a safe psychomotor development dimension and 0.608 for the Adherence to Nutritional Counselling Dimension (6).

2.2. Validity-Reliability Studies

The language and scope validity studies of the scale were conducted by taking into account the methods and processes recommended by the World Health Organization for the translation and adaptation of instruments to other languages (9). Although the original language of the scale is Portuguese, the developer of the scale sent the English version of the scale to us. Thus, the English version of the scale was translated into Turkish by two linguists independently of each other. The two Turkish forms were merged into one form, which was then translated back to English by an academician who has a good command of both Turkish and English. After the back translation, the items in the original form and the back-translated form were compared and the items whose translations were different from the original ones were revised. The Turkish draft form was then sent to eight health professionals specialized in Public Health and Child Health to obtain their opinions to find out whether the items were comprehensible. They were asked to rate each item as follows: "the item is appropriate", "the item should be slightly revised", "the item should be seriously revised" and "the item is not appropriate". After the opinions of the eight health professionals were obtained, the Davis technique (1992) was used to calculate the scope validity index for the scale items. According to the Davis technique, the number of health professionals who selected options (a) and (b) was divided by the total number of the health professionals to obtain the "content validity index" for the item. The construct validity of the scale was first tested with the Confirmatory Factor Analysis (CFA) using the model created in accordance with

the original structure. However, it was noticed that the model was not compatible due to the low goodness of fit indexes and low item factor loadings. Therefore, the validity of the new two-factor structure was tested by applying Exploratory Factor Analysis (EFA). The reliability of the scale was tested considering its stability over time, internal consistency (Cronbach's Alpha, Spearman Brown internal consistency coefficients) and item total correlation. In addition, split-half and discriminant analyses were performed. After the Turkish version of the scale took its final form, it was again translated back to English. The back-translated form was then sent to the developer of the scale to receive her approval. After her approval was obtained, other analyses were performed.

2.3. Data Analysis

The SPSS (Statistical Package for the Social Sciences) 25 program, and SPSS AMOS (Analysis of Moment Structures) 22.0 version were used in the analysis of the data. Kolmogorov-Smirnov test was used to determine whether the data were normally distributed (p< .05). One-way and multi-way extreme value analyses were performed on the data set, and the four extreme values were not included in the analysis. The suitability of the sample size for factor analysis was tested with Kaiser-Meyer-Olkin (KMO) analysis. Content Validity Index was used for language validity. Exploratory factor analysis (EFA) was performed to analyze the factor structure of the scale. In the Principal Components Analysis, Orthogonal Varimax rotation was used to determine the factor structure. While stability over time was tested with the test-retest correlation, internal consistencies was checked with the Cronbach's Alpha, Spearman-Brown, Guttman internal consistency coefficients and item total correlation.

For discrimination, 27% upper and lower group comparisons were performed with the independent samples t test. Hotelling's T – squared test was performed for item means.

3. RESULTS

In the study, 325 mothers were included. Their mean age was 31.3±6.38 (min: 19, max: 54) years. They were all married. The median number of children in the family was two. The mean age of the children was 4.06±1.39 (min: 2, max: 6) years, and 52.3% of them were boys. None of the children was diagnosed with a chronic disease (Table 1). The mean score the mothers obtained from the overall Child Primary Care Adherence Scale was 53.35±10.89 (min: 27, max: 85). The mean values, standard deviation, lowest and highest scores obtained from the overall scale, and its items and dimensions are presented in Table 2. There was a very high positive correlation between the scores obtained from the overall scale and its Adherence to Psychomotor Development and Health Care Recommendations dimension (r=0.976), and a high positive correlation between the scores obtained from the overall scale and its Adherence to Safety Precautions Recommendations dimension (r=0.744) (Table 3).

Table 1. Socio-Demographic Characteristics of the Participating Mothers and Anthropometric Characteristics of their Children

Minimum-maximum 76-154 73-133 Weight (kg) Mean±SD 16.3±4.09 17.4±4.26		em opometme emanacee	6			
Minimum-maximum 19-54	Mothers					
Literate but not a graduate of any school Four-year primary school Four-year junior high school Four-year senior high school University 21 (6.5%)	Age	Mean±SD 31.3±6.38				
Literate but not a graduate of any school Four-year primary school Four-year primary school Four-year junior high school Four-year senior high school University 21 (6.5%)		Minimum-maximum	19-54			
Four-year primary school Four-year primary school Four-year primary school Four-year junior high school Four-year senior high school Four-year senior high school University 21 (6.5 %)	Education	Illiterate	18 (5.5%)			
School Four-year junior high school Four-year senior high school Four-year senior high school University 21 (6.5%)			45 (13.8%)			
School Four-year senior high school University 21 (6.5 %)		, , ,	143 (44.0%)			
School University 21 (6.5%)			47 (14.5%)			
Employment status Employed 106 (32.6%) Income status Not employed 219 (67.4%) Income less than expenses 76 (23.4%) Income equal to expenses 187 (57.5%) Income more than expenses 62 (19.1%) The number of the children in the family Median 2 Children Mean±SD 4.06±1.39 Age Minimum-maximum 2-6 Sex Girls 155 (47.7%) Boys 170 (52.3%) Height (cm) Mean±SD 103±12.5 105±11.1 Minimum-maximum 76-154 73-133 Weight (kg) Mean±SD 16.3±4.09 17.4±4.26			51 (15.	7%)		
status Not employed 219 (67.4%) Income status Income less than expenses 76 (23.4%) Income equal to expenses 187 (57.5%) Income more than expenses 62 (19.1%) The number of the children in the family Median 2 Children Mean±SD 4.06±1.39 Age Minimum-maximum 2-6 Sex Girls 155 (47.7%) Boys 170 (52.3%) Height (cm) Mean±SD 103±12.5 105±11.1 Minimum-maximum 76-154 73-133 Weight (kg) Mean±SD 16.3±4.09 17.4±4.26		University	21 (6.5	5%)		
Income status	Employment	Employed	106 (32	.6%)		
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Expenses 187 (57.5%)	Income status		76 (23.4%)			
Expenses 62 (19.1%)			187 (57.5%)			
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Age Minimum-maximum 2-6 Sex Girls 155 (47.7%) Boys 170 (52.3%) Girls Boys Height (cm) Mean±SD 103±12.5 105±11.1 Minimum-maximum 76-154 73-133 Weight (kg) Mean±SD 16.3±4.09 17.4±4.26	Children					
Minimum-maximum 2-6 Sex Girls 155 (47.7%) Boys 170 (52.3%) Girls Boys Height (cm) Mean±SD 103±12.5 105±11.1 Minimum-maximum 76-154 73-133 Weight (kg) Mean±SD 16.3±4.09 17.4±4.26	Δσο	Mean±SD	4.06±1.39			
Boys 170 (52.3%) Girls Boys Height (cm) Mean±SD 103±12.5 105±11.1 Minimum-maximum 76-154 73-133 Weight (kg) Mean±SD 16.3±4.09 17.4±4.26	Age	Minimum-maximum	2-6			
Girls Boys Height (cm) Mean±SD 103±12.5 105±11.1 Minimum-maximum 76-154 73-133 Weight (kg) Mean±SD 16.3±4.09 17.4±4.26	Sex	Girls	155 (47.7%)			
Height (cm) Mean±SD 103±12.5 105±11.1 Minimum-maximum 76-154 73-133 Weight (kg) Mean±SD 16.3±4.09 17.4±4.26		Boys	, ,			
Minimum-maximum 76-154 73-133 Weight (kg) Mean±SD 16.3±4.09 17.4±4.26						
Weight (kg) Mean±SD 16.3±4.09 17.4±4.26	Height (cm)	Mean±SD	103±12.5	105±11.1		
		Minimum-maximum	76-154	73-133		
Minimum-maximum 8.80-35.0 8.30-38.0	Weight (kg)	Mean±SD	16.3±4.09	17.4±4.26		
		Minimum-maximum	8.80-35.0	8.30-38.0		

3.1. Validity Findings

The Content Validity Index (CVI) calculated using the Davis technique was 0.925, which was considered as appropriate. Minor revisions were made in ten of the items in line with suggestions made by health professionals who checked whether the items were comprehensible, and content adjustment was made in one item "From the 4th month onwards, I introduced new foods to my baby in the recommended order", The phrase "4th month" in the item was replaced with "6th month"). This change was asked to the author who developed the scale via e-mail whether it was appropriate and her approval was obtained. The results of the analysis of the content validity assessment scores performed with the Kendall's W test demonstrated that the opinions of the health professionals who checked whether the items were comprehensible were consistent (Kendall's W=0.190; p= .299). The results of the Exploratory Factor Analysis (EFA) and Principal Components Analysis performed for the construct validity of the scale demonstrated that the sample size was sufficient for EFA (KMO=0.908; Bartlett's Test of Sphericity=2967.08; p=

.001). Three factors' eigenvalue was above 1. Since there was only one item in the third factor, they were reduced to two dimensions and the EFA was performed.

Tablo 2. Results regarding the Child Primary Care Adherence Scale (n=325)

	Standard					
Items (I)	Mean	Deviation	Minimum	Maximum		
11	2.43	1.22	1.00	5.00		
12	2.66	1.08	1.00	5.00		
13	3.56	0.98	1.00	5.00		
14	1.88	1.21	1.00	5.00		
15	4.50	0.73	1.00	5.00		
16	3.29	0.86	1.00	5.00		
17	3.81	0.92	1.00	5.00		
19	4.85	0.43	1.00	5.00		
110	3.47	1.11	1.00	5.00		
l11	1.09	0.36	1.00	4.00		
112	2.83	1.10	1.00	5.00		
113	1.05	0.22	1.00	2.00		
114	2.28	1.15	1.00	5.00		
I15	1.56	0.89	1.00	5.00		
116	3.31	0.88	1.00	5.00		
117	2.68	1.35	1.00	5.00		
118	3.30	0.86	1.00	5.00		
119	3.26	0.97	1.00	5.00		
120	1.52	1.12	1.00	5.00		
Adherence to Psychomotor Development and Health Care Recommendations dimension (Items 1, 2, 4, 10, 11, 12, 14, 15, 17, 18, 19, 20)	28.97	8.86	14.0	56.0		
Adherence to Safety Precautions Recommendations dimension (items 3, 5, 6, 7, 9, 13, 16., 17)	27.06	3.93	14.0	36.0		
Child Primary Care Adherence Scale	53.35	10.89	27.0	85.0		

Table 3. Correlation between the mean scores obtained from the Child Primary Care Adherence Scale and its dimensions

		1	2	3
1. Adherence to Psychomotor	r	1		
Development and Health Care Recommendations dimension	р			
2. Adherence to Safety Precautions	r	0.580	1	
Recommendations dimension	p	.001		
	r	0.976	0.744	1
3. Child Primary Care Adherence Scale	р	.001	.001	

The two-factor structure explained 47.66% of the total variance. There were 13 items in the first factor (items 1, 4, 5, 7, 8, 9, 11, 12, 13, 15, 16, 17, 19, 20) and 7 items in the

second factor (items 3, 5, 6, 7, 9, 13, 16). However, the eighth item in the first factor was removed from the scale because it overlapped (factor loading was 0.488 for the dimension 1 and 0.487 dimension 2). The 17th item in the first factor, "I sit my baby/child in a car seat appropriate for his or her age and height during car trips", was moved to the second dimension because it was related to safety precautions and the "not necessary" option was marked too often in the responses received from the participants because the number of the participants who did not own a car was high. As a result, there were 11 items in the first factor (items 1, 2, 4, 10, 11, 12, 14, 15, 18, 19, 20) and 8 items in the second factor (items 3, 5, 6, 7, 9, 13, 16, 17). Factor loadings of all the items were above 0.30. The two-factor structure obtained was renamed as "Factor 1: Adherence to Psychomotor Development and Health Care Recommendations" and "Factor 2: Compliance with Safety Precaution Recommendations" by taking the item contents into account. Response bias was assessed with the Hotelling's T-squared test. The participants answered the items of the scale according to their own opinions and there was no response bias (Hotelling's $T^2 = 19455.068$; p= .001).

3.2. Reliability Findings

The internal consistency of the scale was assessed with the Cronbach's Alpha. The calculated Cronbach's Alpha value was 0.905 for the overall scale, 0.897 for the Adherence to Psychomotor Development and Health Care Recommendations dimension, and 0.705 for the Adherence to Safety Precautions Recommendations dimension. The item-total score correlation value was below 0.30 for three items (items 5, 9, and 11), and below 0.20 for one item. However, since the factor loadings were above 0.30, the items were not removed from the scale (Table 4). The scale was administered twice to 30 people who were included in the sample at a fifteen-day interval, and it was observed that the scale met the criterion of stability over time (r=0.932; p< .001). The mean scores obtained from the first and second applications were compared with the paired samples t-test and no statistically significant difference was determined between the means (p> .05). In order to determine the distinctiveness of the scale items, the raw scores obtained from the scale were ranked from the highest to the smallest and the upper and lower 27% were compared using the independent samples t-test. A significant difference was determined between the upper and lower group score averages of all the items, indicating that the scale measured the feature it was intended to measure distinctively (Table 5). The scale items were divided into two as even and odd numbers using the split-half method, and a high correlation was determined between the two halves (correlation between the two halves: 0.718; Spearman Brown: 0.836; Guttman: 0.824).

Table 4. Internal Consistency Findings Regarding the Child Primary Care Adherence Scale

Factor 1: Adherence to Psychomotor Development and Health Care Recommendations dimension	Factor loadings	Item total score correlation	Cronbach's Alfa when the item is deleted
1. I encourage my child to play.	0.761	0.735	0.894
2. From the 6 th month onwards, I introduced new foods to my baby in the recommended order (e.g. first meat, then fish).	0.753	0.767	0.894
4. I teach my child to speak correctly in his/her native language (e.g. telling stories, reading books).	0.845	0.746	0.894
10. Until my child was 12 months old, I only gave the foods recommended by the doctor.	0.510	0.505	0.902
11. I take my child to another physician or healthcare facility (e.g. specialist) if necessary/recommended.	0.459	0.225	0.906
12. Starting at around 15 months old, I taught my child good sleep habits (e.g. going to bed early or going to bed at the same time every day).	0.658	0.682	0.896
14. I avoided giving my child cow's milk before he/she was 12 months old.	0.825	0.727	0.895
15. I brushed my child's teeth as soon as he/she started teething.	0.748	0.569	0.900
18. From the age of 12 months, I gave my child the food we ate in our family.	0.493	0.573	0.900
19. When my child was two years old, I encouraged him/her to stop using a pacifier.	0.495	0.539	0.900
20. I avoid giving my child food/drinks that contain a lot of salt, sugar or fat.	0.814	0.612	0.898
Factor 2: Adherence to Safety Precautions Recommendations dimension			
3. When my child has fever or symptoms of colic (mild symptoms), I give him/her the recommended medications.	0.502	0.594	0.899
5. I avoided giving small objects (e.g. marbles, necklaces) that could cause choking when my children were under the age of 3 years.	0.633	0.290	0.906
6. I only gave my baby one new food a week until he/she was 12 months old.	0.473	0.421	0.903
7. When my child shows mild symptoms of an illness, I take measures other than medication (for example, lukewarm bath to reduce fever, massaging the belly to relieve gas pain).	0.652	0.499	0.901
9. I protect my child from electrical outlets to protect him/her from electric shocks and burns.	0.659	0.230	0.906
13. I keep my child away from poisonous substances such as medicine and detergent that he or she can drink or eat.	0.461	0.010	0.908
16. I started toilet training when my child was around 18 months.	0.453	0.348	0.905
17. I sit my baby/child in a car seat appropriate for his or her age and height during car trips	0.622	0.642	0.898

Table 5. Findings on Distinctiveness of the Child Primary Care Adherence Scale

	Group	Mean	Standard Deviation	t	р		
Factor1: Adherence to Psychomotor Development and Health Care Recommendations dimension							
Item (I)1	Upper	3.85	0.80	21.313	.001		
	Lower	1.45	0.67				
12	Upper	3.90	0.72	21.419	.001		
	Lower	1.74	0.61				
14	Upper	3.21	1.36	13.271	.001		
	Lower	1.17	0.45				
I10	Upper	4.25	0.79	12.228	.001		
	Lower	2.65	0.93				
l11	Upper	1.20	0.43	3.402	.001		
	Lower	1.03	0.18				
l12	Upper	3.89	0.86	16.270	.001		
	Lower	1.91	0.74				
114	Upper	3.55	1.24	13.217	.001		
	Lower	1.59	0.63				
I15	Upper	2.27	1.19	7.752	.001		
	Lower	1.20	0.49				
I18	Upper	4.02	0.74	12.971	.001		
	Lower	2.64	0.66				
l19	Upper	4.02	0.75	12.262	.001		
	Lower	2.56	0.82				
120	Upper	2.49	1.67	7.194	.001		
	Lower	1.15	0.48				

Table 5. (Continued)

Factor 2: Adherence to Safety Precautions Recommendations dimension						
13	Upper	4.33	0.71	14.525	.001	
	Lower	2.70	0.77			
15	Upper	4.79	0.57	6.435	.001	
	Lower	4.07	0.87			
16	Upper	3.75	0.69	8.744	.001	
	Lower	2.73	0.85			
17	Upper	4.39	0.65	11.418	.001	
	Lower	3.07	0.86			
19	Upper	4.95	0.20	4.226	.001	
	Lower	4.64	0.64			
113	Upper	1.06	0.25	0.555	.001	
	Lower	1.09	0.28			
116	Upper	3.79	0.89	7.216	.001	
	Lower	2.86	0.80			
117	Upper	4.15	1.05	16.641	.001	
	Lower	1.77	0.82			
n:325,Upper: The 27% group with the highest scores (n1:88), Lower: The 27% group with the lowest scores (n2:88)						

4. DISCUSSION

The Turkish adaptation, validity and reliability analyses of the Child Primary Care Adherence Scale, which was developed to determine the compliance of parents of children between the ages of 2 and 6 based on the recommendations given by primary health care workers, were conducted in the study. Validity is defined as the degree to which a measurement tool can accurately measure the feature what it is intended to measure without considering any other feature (10). Many methods can be used to test the validity of a scale. In the present study, content validity and construct validity were tested. Content validity is the extent to which the overall scale and each item in the scale serve the purpose. Since determining the scope of the subject requires a judgment, there should be common definitions between the health professionals who checked whether the items were comprehensible and the person who developed the scale in order to prevent evaluation according to different criteria (11). In the present study, the Davis Technique was used for the content validity (11). According to this technique, the content validity index (CVI) being above 0.80 indicates that there is content validity. The CVI value (0.92) obtained in the present study indicated that the tool could measure the targeted conceptual structure. The structure is a pattern formed by certain elements thought to be related to each other or by the relationships between elements (10). One of the methods used to define the clusters of related elements in the scale and to establish validity is factor analysis. Factor analysis is a multivariate statistical method aimed at finding, discovering, or testing the models that have been found by bringing together measurable or observable variables related to each other, and a small number of unrelated and conceptually meaningful new variables (factors, dimensions) (12). In the present study, Exploratory Factor Analysis (EFA) was conducted and Kaiser-Meyer

Olkin (KMO) and Barlett's Test of Sphericity were conducted to test the data were suitable for factor analysis. The result of the KMO test should be at least 0.60 (13). In the present study, the KMO value was 0.90 indicating that the sample was perfectly adequate for factor analysis. The results of the Barlett's test of sphericity indicated that the matrix formed by the relationships between the variables was significant for factor analysis. Based on these values, it was concluded that factor analysis of the scale could be performed. One of the most critical questions to be answered when factor analysis is performed is the number of dimensions obtained. One of the criteria used to determine the number of factors is eigenvalues. Eigenvalues used in the analysis are obtained from the correlation matrix. Guttman-Kaiser's eigenvalue ≥1 rule is used to determine the number of factors. Only factors with eigenvalues greater than 1 are taken into account (13). In the present study, three factors with eigenvalues greater than 1 emerged, but since there was one item in the third factor, they were reduced to two factors and EFA was performed. Although the explained variance was over 50% in the three-factor structure, the explained variance in the structure reduced to two factors due to the presence of only one item in the third factor was 47.66%. Since the obtained value was close to 50%, it was considered acceptable. The factor loadings of all the items were over 0.30. The values obtained are expected to be higher than 0.30, and sometimes this value can be reduced to 0.10. If it is below 10%, it means that there may be a problem with that item (13,14). The 17th item in the scale, which includes the statement "I sit my baby/child in a car seat appropriate for his or her age and height during car trips", is within the scope of accident protection/safety precaution; thus, it was included in the first dimension during the analysis. Due to the small number of participants having a car in the sample, the option "not applicable" was marked too many times and therefore this item was moved

to the second dimension. Unlike the original scale, in the present study, since the 17th item was moved to the second dimension, the factor names were named as "factor 1: Adherence to Psychomotor Development and Health Care Recommendations" and "factor 2: Adherence to Safety Precautions Recommendations" considering the contents of the items. Responses similar to the expectations of society or the researcher are defined as response bias and they are analyzed with the Hotelling T2 test. The statistical significance obtained with the Hotelling T2 test indicates that there is no response bias. According to the results of the present study, the participating mothers answered the items according to their own opinions, indicating that there was no response bias. Reliability, one of the features that a scale must have, is an indicator of the stability of the measurement values obtained in repeated measurements under the same conditions with a measurement tool (10). Reliability means ensuring adequacy, equivalence, consistency, accuracy and stability (15). Stability and consistency in a measurement tool indicate the tool can give similar results in repeated measurements, while accuracy indicates it can determine the true measurement value. An unreliable measurement tool or a measurement tool with low reliability is also considered to have low scientific value (15). Internal consistency and stability methods were used to determine the reliability of the scale. Internal consistency is a reliability method that determines whether all aspects of the scale have the ability to measure. In order to be able to say that a scale has internal consistency reliability, it is necessary to prove that all dimensions of the scale can measure the same feature (15). One of the methods that measure internal consistency is the Cronbach's Alpha reliability coefficient. In the present study, since the scale is Likert type and contains more than three items, the Cronbach's Alpha reliability coefficient was used to measure internal consistency. In the present study, the Cronbach's Alpha value was 0.905 for the overall scale scale, 0.897 for the Adherence to Psychomotor Development and Health Care Recommendations dimension, and 0.705 for the Adherence to Safety Precautions Recommendations subdimension. According to these data, the internal consistency coefficient was above 0.70 for the overall scale and its dimensions. Another method used to determine internal consistency is the split-half method. In this method, if the correlation between two separate question groups is high, in other words, if they are consistent with each other, it is concluded that the whole instrument consists of questions that are closely related to each other, and this means that the measurement instrument has internal consistency (15). In the present study, the items of the scale were divided into two based on the even and odd numbers with the split-half method, and it was observed that there was a high correlation between the two halves, and therefore it was concluded that the internal consistency of the scale was good. Stability is the ability of a measurement tool to provide consistent results from one administration to another over time. Stability of the scale was determined using the test-retest method performed at intervals (15).

With this test, the Pearson Product Moment correlation coefficient value was calculated (15). Coefficient values are expected to be above 0.70. The higher the value is, the more reliable the scores are (15). In the present study, the test-retest correlation value of the scale administered twice to 30 people at a fifteen-day interval was above 0.90 and met the stability criterion.

5. CONCLUSION

The results of the validity and reliability study obtained in the present study indicated that the Child Primary Care Adherence Scale could be used to determine the compliance behaviors of parents of children aged 2-6 in Turkish society to the care recommendations given by health professionals. The Child Primary Care Adherence Scale whose validity and reliability study in Turkish was conducted in the present study consists of 19 items and 2 dimensions. The 11th and 13th items of the scale are reverse scored in the analysis. The minimum and maximum possible scores that can be obtained from the scale are 27 and 87, respectively.

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Author Contributions:

Research idea: BA

Design of the study: BA, GU, MY Acquisition of data for the study: DA Analysis of data for the study: GU

Interpretation of data for the study: BA, GU, DA, MY

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REFERENCES

- [1] Aykanat B, Gözen D. Family centered care approach in child health nursing. Gümüşhane University Journal of Health Sciences. 2014;3(1):683-695
- [2] Karabekiroğlu B, Kuş C, Gümüştakım RŞ. Evaluation of the knowledge level and attitudes of family physicians on follow-up of healthy children. J Curr Pediatr. 2022;20:155-167. https://doi.org/10.4274/jcp.2022.42243
- [3] Republic of Turkey Ministry of Health, General Directorate of Public Health, Infant Child Adolescent Monitoring Protocols, 2018. https://ekutuphane.saglik.gov.tr/Ekutuphane/kitaplar/Bebek_Cocuk_Ergen_Izlem_Protokolleri_2018.pdf Accessed August 21, 2024
- [4] Demirci A. Current Approach to Family Health Center Management. Ö, Gökdemir, Editor. Infant and Child Monitoring

in Primary Care. Ankara: Akademisyen Bookstore; 2021. S.51-65

- [5] Topal Y, Topla H, Battaloğlu İnanç B, Özkoç HH. The evaluation of well-child monitoring data in Turkey. Medical Journal of Muğla Sıtkı Kocman University. 2017;4(2):6-10.
- [6] Mourao S, Bernardes SF, Carvalho H. Assessing caregivers' adherence to child primary care recommendations: development and validation of a scale. Child Care in Practice. 2022;28(3):333-354. https://doi.org/10.1080/13575.279.202 0.1776682
- [7] Kline P. An Easy Guide to Factor Analysis. Routledge, New York:1994
- [8] Streiner DL, Kottner J. Recommendations for reporting the results of studies of instrument and scale development and testing. J Adv Nurs. 2014 Sep;70(9):1970-1979.
- [9] WHO (2018) Process of translation and adaptation of instruments. Geneva: World Health Organization 2016.

- https://www.coursehero.com/file/30372721/WHO-Process-of-translation-and-adaptation-of-instrumentspdf/
- [10] Ercan İ, Kan İ. Reliability and validity in the scales. Journal of Uludağ University Medical Faculty. 2004;30(3):211-216.
- [11] Karakoç Y, Dönmez L. Basic principles of scale development. World of Medical Education. 2014;40:39-49. https://doi. org/10.25282/ted.228738
- [12] Meydan CH, Şeşen HC. Structural Equation Modeling AMOS Applications. Ankara: Detay Publishing, 2015
- [13] Aksu G, Eser MT, Güzeller CO. Exploratory and Confirmatory Factor Analysis and Structural Equation Modeling Applications. Ankara: Detay Publishing; 2017
- [14] Gürbüz S, Şahin F. Research Methods in Social Sciences. 4th ed. Seçkin Publishing; 2017
- [15] Erdoğan S, Nahcivan N, Esin MN. Research in Nursing: Process, Practice and Critique. Ankara: Nobel Medical Bookstore; 2015