



PSYCHOMETRIC PROPERTIES OF THE FAMILY EMPOWERMENT SCALE IN THE TURKISH LANGUAGE

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Abstract: The aim of this study is to investigate the psychometric properties of the Family Empowerment Scale in the Turkish language. The study was carried out with 223 parents of intellectually disabled children. Data were collected between February and September 2018 by using the "Family Knowledge Form" and the "Family Empowerment Scale". The Family Empowerment Scale is a Likert type scale consisting of 34 items and a three-factor structure. The study evaluated the following; KMO values, Cronbach alpha internal consistency coefficient, item-total correlation, and exploratory and confirmatory factor analysis. The mean total score of the scale was 128.21±15.77 (min. 73, max. 165). The KMO value was 0.82, P=0.000, $\chi^2=26444.80$ and the factor analysis showed that the scale was three-dimensional. Item total score correlations were between 0.280-0.614. In the exploratory factor analysis, the item was removed from the scale since the factor load of item 7 was below 0.30. The Cronbach alpha value of the scale was 0.89. Confirmatory factor analysis fit indexes were $\chi^2=1048.36$, P<0.001; RMSEA=0.072; $\chi^2/df=2.15$; NFI=0.625; CFI=0.752; GFI=0.782; RMR=0.074. The results of the analysis were evaluated, the psychometric properties of the *Family Empowerment Scale* in the Turkish language was found to be a valid and reliable tool to measure the empowerment of parents.


Keywords: Psychometric properties, Family empowerment scale, Child


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1. Introduction

The importance of empowerment of parents is increasing. Empowerment programs for parents, especially those related to primary care providers for children with chronic illnesses or disabilities, are becoming more widespread. Parents of children with chronic diseases have to manage complicated care and treatment processes (Smith et al., 2015; Segers et al., 2019). With these processes, parents become more stressed and worried than parents with healthy children (Swallow et al., 2011). Additionally, parents face economic, emotional, physical and social difficulties (Sarı and Girli, 2018). Empowerment of parents is important to enable them to face these difficulties and be involved in the decisions during the treatment period (Gibson, 1995; Hallström and Elander, 2007; Payroove et al., 2014; Vuorenmaa et al., 2014).

Empowerment is accepted as an important concept in the parental role in healthcare services (Dempsey and Dunst, 2004; Jones and Prinz, 2005; Burke, 2017). The empowerment concept is described as "One's ability to take control of their own life by taking action to get what they want and need." (Murray et al., 2013). This includes increasing one's knowledge, ability and motivation.

Empowerment of parents has a positive effect on children's well-being, self-sufficiency and stress levels. Additionally, it improves parents' ability to make appropriate choices and decisions for the necessary care and treatment of their children (Koren et al., 1992; Vuorenmaa et al., 2014).

Measuring family empowerment is difficult. There are a limited number of valid and reliable measurement tools to measure the empowerment of care providers of children with emotional and behavioral needs (Huscroft-D'Angelo et al., 2018). The Family Empowerment Scale was developed by Koren et al in 1992 and includes 34 items. The original version of the Family Empowerment Scale was developed for parents with emotionally disabled children who were under 21 years of age (Koren et al., 1992). This scale measures the perceptions regarding the roles and responsibilities of care providers with disabled children in the local health service systems of the family and their advocacy on behalf of their children. Three different factors were determined (Family, Service and Community) in the first factor analysis of the scale and there was enough internal consistency with Cronbach alpha coefficient that varied between 0.87 and 0.89 (Koren et al., 1992). The study conducted by VanNess-Knolls and Tighe (1996) supported these results. The



Family Empowerment Scale has been translated into many languages such as Finnish, Hebrew, Japanese, Spanish and Dutch (Florian and Elad, 1998; Martínez et al., 2009; Ketelaar et al., 2010; Vuorenmaa et al., 2014; Kageyama and Nakamura, 2016). Even though the scale is more valid and reliable when used in different populations and cultural environments than the original, psychometric characteristics should be re-examined. There is no scale that evaluates the empowerment of parents in Türkiye. Therefore, this study aimed to evaluate the Turkish adaptation of the Family Empowerment Scale which is the internationally accepted scale in empowerment of parents with disabled children.

2. Materials and Methods

2.1. Study design

This methodological study evaluated the psychometric characteristics of the Family Empowerment Scale in Turkish.

2.2. Place of the Study

This study was conducted in a Special Education and Rehabilitation Center affiliated with the Provincial Directorate for National Education between the dates of February and September 2018.

2.3. Population/Sample of the Study

Population of the study included parents whose children receive education from the Special Education and Rehabilitation Center. The Family Empowerment Scale included 34 items. Population of the study included 223 parents that could be contacted between the specified dates.

2.4. Data Collection Tools

2.4.1. Family information form

This form was developed by researchers in line with the literature to collect family and children's demographic data (Akey et al., 2000; Vuorenmaa et al., 2014; Wakimizu et al., 2017; Burke, 2017). This form included questions regarding parents' age, education level, employment status, profession, type of family. Additionally, it included questions regarding the children's age, disability level, and presence of another illness, status of continuously using medicine and dependency level of the child.

2.4.2. Family empowerment scale

This scale was developed by Koren et al. (1992) and is a three-factor model (Family Subscale 12 items; Service Subscale 12 items and Society Subscale 10 items) using a Likert type scale with a total of 34 items. Each item of the scale was scored between 1 and 5 points. Cronbach alpha value of the scale was 0.87. Increased score from the scale means the family is stronger (Koren et al., 1992).

2.5. Evaluation of the Data

The Family Empowerment Scale was translated into Turkish by three people who are fluent in English and Turkish. Language equivalence and context equivalence of the final product was evaluated using translation-back translation method by ten experts. Numbers, percentages and averages were used in the evaluation of descriptive characteristics of the parents. In order to evaluate the

Turkish validity and reliability of the scale, the following were taken into consideration: KMO values, Cronbach alpha internal consistency coefficients, total item correlation, exploratory and confirmatory factor analyses.

3. Results

3.1. Descriptive Characteristics

Table 1 shows the descriptive characteristics regarding the participating parents. Table 2 shows the descriptive characteristics regarding children. When mean ages of the parents were analyzed, the mean age of the fathers was 41.32 ± 7.51 (min 27, max 69), the mothers mean age was 37.38 ± 7.30 (min 20, max 58) and the children were 8.54 ± 4.63 (min 2, max 18).

Table 1. Introductory information distribution of the parents (n=223)

Introductory Characteristics of the Parents	n	%
Education of father		
Illiterate	2	0.9
Literate	4	1.8
Primary school	60	26.9
Middle school	45	20.2
High school	72	32.3
University and higher	40	17.9
Status of father's employment		
Retired	21	9.4
Not working	3	1.3
Working in a temporary job	19	8.6
Does not have a steady job	11	4.9
Has a permanent job	169	75.8
Marital status		
Married	209	93.7
Single	14	6.3
Education of mother		
Illiterate	11	4.9
Literate	5	2.2
Primary school	80	35.9
Middle school	50	22.4
High school	44	19.8
University and higher	33	14.8
Status of mother's employment		
Retired	12	5.4
Not working	188	84.3
Working in a temporary job	21	9.4
Has a permanent job	2	0.9
Income status of family		
Very low	8	3.6
Low	25	11.2
Moderate	137	61.4
High	53	23.8
Residence		
Rental	91	40.8
Owns their home	92	41.3
Family apartment	40	17.9
Child care assistance available		
Yes	137	61.4
No	86	38.6

Table 2. Introductory information distribution of the children

Introductory Characteristics of the Children	n	%
Gender		
Female	85	38.1
Male	138	61.9
Disability level of the child		
Mild	79	35.4
Moderate	94	42.2
Severe	50	22.4
Continuous use of medication		
Yes	94	42.2
No	129	57.8
Birth order of the child		
1st	107	48
2nd	85	38.1
3rd	21	9.4
4th	9	4
5th	1	0.4
Number of siblings		
None	70	31.4
One	96	43
Two	43	19.3
Three or more	14	6.3

3.2. Validity and Reliability Analysis Results

3.2.1. Language validity

After approval was obtained to analyze the psychometric properties of the scale, the Family Empowerment Scale was translated into Turkish by three independent language experts. A research team reviewed the three different translations to construct a joint text. The constructed joint text was back translated into English by three language experts that are fluent in Turkish and English (Esin, 2014).

3.2.2. Context validity

Context Validity Index (CVI) was calculated for the context validity of the scale. The English and Turkish forms of the scale were sent to ten pediatricians. Experts evaluated the scale items between 1 and 4 points (1=not applicable, 2=needs lots of corrections, 3=almost applicable, 4=very applicable). Total CVI was calculated to evaluate consistency between experts' opinions. The Family Empowerment Scale CVI value was 0.89 (Çapık et al., 2018).

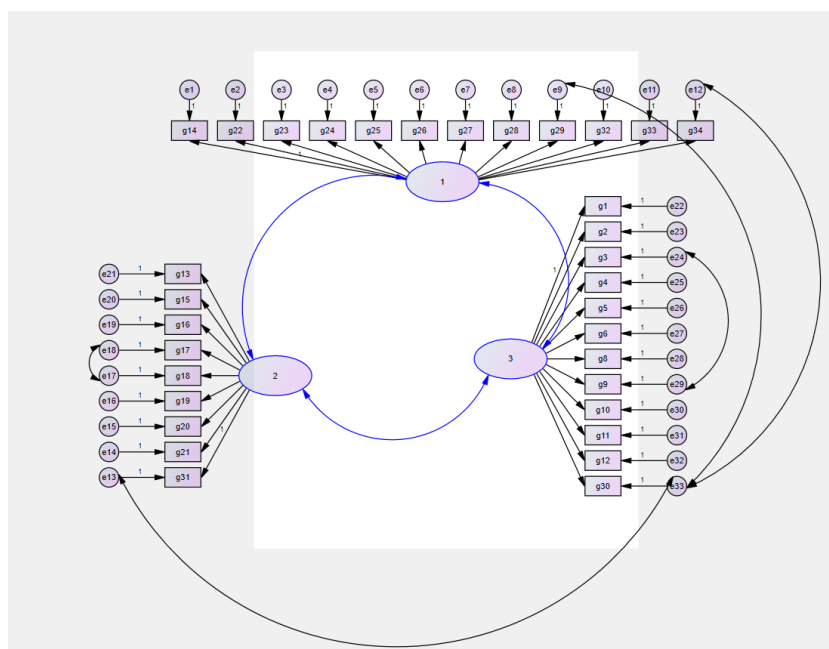
3.2.3. Structure validity

Confirmatory factor analysis

Confirmatory factor analysis (CFA) was conducted to analyze the consistency of 34 items and the three-factor model of the original scale with study data. The KMO value was found to be 0.82, $P=0.000$, $\chi^2=26444.80$ and the factor analysis showed that the scale was three dimensional. Item total score correlations of the scale items were between 0.280-0.614. Factor load of the item numbered 7 was detected to be under 0.30 in the exploratory factor analysis. The chi square difference test was used to analyze whether there was a difference or not between the model with item 7 and without item 7. The model without item 7 was found to be more useful and the confirmatory factor analysis consistency index was calculated as $\chi^2=1048.36$, $P<0.001$; RMSEA=0.072; $\chi^2/df=2.15$; NFI=0.625; CFI=0.752; GFI=0.782; RMR=0.074 (Figure 1).

3.2.3. Reliability

Total mean score of the scale was 128.21 ± 15.77 (min 73, max 165). Cronbach alpha reliability coefficient was calculated to detect whether every aspect of the scale had measurement capability. In the reliability analysis, Cronbach alpha value of the family subscale was 0.79, services for the child subscale was 0.83 and the joining society Cronbach alpha value was 0.79. Cronbach alpha value of the scale was found to be 0.89.

**Figure 1.** Second level confirmatory factor analysis connection diagram.

4. Discussion

Family burden (physical, social, emotional, economic, social burden) of the parents with disabled children is quite high. Child care, treatment and rehabilitation requires more manpower, expenditure and time than the care of a healthy child (Turan Gürhopur and İşler Dalgıç, 2017). Therefore, empowerment of the parents is important for them to actively manage the treatment and care process of the disease and to have good coping skills (Wakimizu et al., 2017; McAllister et al., 2018). Valid and reliable measurement tools should be used to measure whether the initiatives towards parents are effective or not. Validity and reliability of a measurement tool is its ability to measure the intended concept and always measuring accurately (Esin, 2014).

Content validity is done to determine to what extent the whole scale and each item in it measures the concept intended to be measured (Esin, 2014). In order to say that the scale has concept validity, its CVI score has to be 0.80 and above (Esin 2014; Çapık et al., 2018). CVI values of the scale items used in the study were between 0.90-1.00.

Cronbach alpha value of the Family Empowerment Scale was found to be 0.89 in the study. Cronbach alpha internal consistency coefficient between 0.80-1.00 means high reliability. Cronbach alpha coefficient between 0.00-0.39 means not reliable, between 0.40-0.59 means low reliability, between 0.60-0.79 mean rather reliable, and between 0.80-1.00 mean high reliability (Tavşancıl, 2014). Cronbach alpha coefficient of the Family Empowerment Scale was found rather reliable.

Item analysis was conducted by calculating the item total correlation coefficient to evaluate the reliability of the scale. Item total correlation coefficient should be positive and over 0.20 for the scale item to be active. Scale items with coefficients below 0.20 and with negative values are advised to be removed from the scale. However, the difference in the Cronbach alpha coefficient and the average after the item is taken out of the scale should be evaluated. If there is no difference in these values, the item should not be taken out of the scale (Tavşancıl, 2014). Item total score correlations of the Family Empowerment Scale were between 0.28-0.61. The 7th item was taken out of the scale because it had a low correlation coefficient and its Cronbach alpha coefficient changed.

5. Conclusion

In conclusion, the Turkish version of the Family Empowerment Scale is valid and reliable. This scale can be used to evaluate the effect of the initiatives that empower parents with disabled children. Thus, programs for the empowerments the families use can be developed accordingly. Cross-cultural comparative studies can be carried out using this scale.

Author Contributions

The percentages of the authors' contributions are presented below. All authors reviewed and approved the final version of the manuscript.

	A.K.	E.A.A.	P.D.	H.Y.S.
C	60	10	10	20
D	60	10	10	20
S				100
L	40	20	20	20
W	40	20	20	20
CR				100
SR	100			
PM	60			40

C= concept, D= design, S= supervision, L= literature search, W= writing, CR= critical review, SR= submission and revision, PM= project management.

Conflict of Interest

The authors declared that there is no conflict of interest.

Ethical Consideration

The ethics committee approval of the study was granted by the decision of the Board of Directors of the Non-Interventional Clinical Researches Ethics Committee of the University (approval date: July 05, 2017, protocol code: 119). The objective of the study was conveyed to the participating parents and written consents were obtained. The author of the Turkish adaptation of the scale gave approval for use.

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