

Research Article

Validity and Reliability Study of the Turkish Form of the Family Support Scale for the Older People

Tuğba Solmaz¹, Tuba Korkmaz Aslan²¹Department of Nursing, Faculty of Health Sciences, Tokat Gaziosmanpaşa University, Tokat, Türkiye²Department of Nursing, Necmettin Erbakan University, Seydişehir Kamil Akkanat Faculty of Health Sciences, Konya, Türkiye

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Abstract

AIM: The Family Support Scale is a used scale to assess family support in older people. The purpose of this study was to test the Family Support Scale for older people in Turkish and to examine its validity and reliability.**METHODS:** This was a methodological study. This study sample enrolled 250 older individuals. The study was conducted between July–December 2022. In data collection, sociodemographic information form and The Family Support scale were used. The inclusion criteria for this study selected participants who were 65 years or older, literate, open to communication, living with at least one family member, and who volunteered to participate in the research. In the study, who developed the original scale, was contacted via e-mail and the necessary permission was obtained for the Turkish validity and reliability of the scale. Language equivalence, content validity, exploratory factor analysis, and confirmatory factor analysis of the scale were performed. Internal consistency and total item score correlation were calculated to ensure validity and reliability.**RESULTS:** The scale is compatible in terms of language and content suitability, CVI (Language)= 0.87; CVI (Content)=0.099. In the validity analyzes of the scale; the factor loadings values of the scale were found to be between 0.36 and 0.83, and the explained variance (54.78%) was at a sufficient level according to the EFA results. It was determined that factor loading values for all items were varied between 0.58 and 0.97 and factor load values were statistically significant in CFA ($p<.05$). It was determined that the fit indices were RMSEA=0.064, GFI=0.99, CFI=0.99, NFI=0.99, $\chi^2/df=2.03$ at the desired level. In the reliability analysis, it was found that the internal consistency coefficient (α : 0.94) was quite reliable, and the total correlation values of the scale ranged between 0.48 and 0.83.**CONCLUSION:** The cross-cultural adaptation of this scale has been realized successfully in Turkish. Health care providers may utilize this tool to evaluate family support for older people.**Keywords:** Family nursing, family support, older people, reliability and validity

Introduction

Definition of the World Health Organization aging as a progressive decrease in vital functions and adaptation to the environment (World Health Organization, 2018). The elderly population in the world is increasing and is expected to reach 2.1 billion by 2050 (World Health Organization, 2021). Declining function is a powerful predictor of health in older adults, and chronic diseases have an important role to play in this age-associated phenomenon (Vetrano et al., 2018). Social environment has crucial importance in protecting the cognitive functions of older individuals at risk (Cacioppo & Cacioppo, 2014). Therefore, keeping in touch with friends and family and strengthening social ties will be beneficial to well-being (Akbas et al., 2020). Older people experience more health problems in their later years, which means they need more care. The aging of society and the increase in the need for care of the aging group make senescence a social rather than individual problem (Samanci Tekin

& Kara, 2018). The family plays important role in improving the quality of life (Sulastrı et al, 2021).

When older people, who are often isolated from society, cannot get support from their social environment, they apply for official support, which means that funding is needed for better care (Gokcek Karaca, 2019). The inability to establish a sincere and warm relationship with individuals in their new places of residence and the lack of adequate social support cause psychological problems and make it difficult for older people to cope with stress. This situation affects older people who are isolated from society physically, socially, and spiritually (Softa, 2015). According to the holistic model in the delivery of health services, every individual is a whole, with a physical, cultural, psychological, and social environment (Booth & Kaylor, 2018). Because of this, it is recommended that older people live together with family members, with whom they feel happier and safer, and that the family should support them. But not every family can provide

the same amount of support to older people. Evaluation of the extent to which a family can support older people is important for the planning of nursing care, and the nursing care offered to older people with or without family support should be carried out keeping this in mind. Older people should be monitored regularly, and treatment and care programs should be established for the family from a holistic point of view. In Türkiye, the results of the 2024 census show that the proportion of the elderly population in the total population has reached 10.2% and that there has been a significant increase in the number of older people (Turkish Statistical Institute, 2024). Older people are vulnerable and have chronic diseases. Hence family support is very important for older people. Tools have been developed to measure the family support and functional aspects of older people (Uddin & Bhuiyan, 2019). However, a scale measuring family support for the elderly has not been developed in Türkiye. It is thought that this scale adapted into Turkish will contribute to the literature. The purpose of this research is to carry out a translation, validity, and reliability research of the Family Support Scale (FSS) for older people, which was developed by Uddin and Bhuiyan (2019), and to integrate it into the Turkish literature.

Methods

Study Design

This was a methodological study.

Sample

The sampling of the study is composed of 250 older individuals (aged 65 and over) who agreed to participate. The literature reports that in scale adaptation studies, five to ten times more individuals should be studied for each item in the measurement tool (Burns & Grove, 2009). This scale, which has been tested for validity and reliability, has 20 items, and the sample size was calculated so that at least 10 participants were added for each item. Thus, the sample size for the study was determined to be at least 200 older individuals, but considering the possible losses, 250 older individuals were included. The inclusion criteria for this study selected participants who were 65 years or older, literate, open to communication, living with at least one family member, and who volunteered to participate in the study (Table 1).

Data Collection

This methodological research was conducted in family health centers in a city center in the Central Black Sea region between July and December 2022. The data were collected by the researchers through the face-to-face interview technique. Sociodemographic information form and FSS were used as data collection tools. It took an average of 10–15 min for each participant to complete the forms.

Data Collection Tools

Information Form

The sociodemographic information form consists of nine inquiries about the participants' characteristics such as age, education, marital status, and income (Booth & Kaylor, 2018; Polit et al., 2007).

Table 1.

Sociodemographic Characteristics of The Study Participants (n = 250)

		n	%
Gender	Male	119	47.6
	Female	131	52.4
Educational status	Literate	78	31.2
	Primary school	107	42.8
	Middle school	31	12.4
	High school	20	8.0
Marital status	University and above	14	5.6
	Married	178	71.2
Family type	Single	72	28.8
	Nuclear family	156	62.4
Regular monthly income	Extended family	94	37.6
	Yes	250	100.0
	No	0	0.0
Income status	Income less than expenses	46	18.4
	Income equals expense	155	62.0
	Income more than expenses	49	19.6
Social security status	Yes	250	100.0
	No	0	0.0
Chronic disease	Yes	151	60.4
	No	99	39.6
Type of chronic disease	Hypertension	49	32.4
	Diabetes	54	35.7
	Heart failure	14	9.2
	Asthma	13	8.61
	COPD	7	4.6
	Other	14	9.2

The instrument: FSS

The FSS was developed by Uddin and Bhuiyan (2019). It is a one-dimensional scale that consists of 20 items. The FSS scale for older people assesses 20 areas, including “respect, love, daily activities, knowledge, religious activities, emotional support, treatment, food, personal needs, important decisions, social events, help in solving problems, personal problems, health, important people, money, sleep, friendship, happiness, and satisfaction.” The scale uses a four-points Likert-type assessment in which no: 0, little: 1, some: 2, and much: 3. The total scale score is between 0 and 60. A high score reflects a high level of perceived family support for older people. The Cronbach’s α coefficient of the original scale was 0.94 (Uddin & Bhuiyan, 2019). In this study, the Cronbach’s α value was also found to be 0.94.

Statistical Analysis

For the evaluation of the data, Jamovi, JASP, and LISREL software were used, and the significance level was set at 0.05. The content validity of the scale was evaluated by taking expert opinions and using the content validity index. Cronbach’s α

reliability coefficient was used to estimate the reliability of the measurement tool. In the reliability analysis, invariance over time was tested using the *t*-test for dependent groups.

Ethical Considerations

In this study, the necessary institutional permission and ethical endorsement were obtained from the Social Sciences and Humanities Research Ethics Committee of Tokat Gaziosmanpaşa University (Approval no: 10/01-46, Date: July 20, 2022). The individuals were informed that their information would remain confidential, and the study was carried out after obtaining their written and verbal consent. Permission was obtained from Uddin and Bhuiyan (2019), who developed the original scale, to determine its Turkish validity and reliability online. Helsinki rules were followed in the conduct of the study.

Results

Validity Results

Analysis of language equivalence

The original scale was translated into Turkish using the translation-retranslation method. First of all, the Family Support Scale for the Elderly (FAS) was translated from English to Turkish by two academicians who teach in the field of English translation. The form was reviewed by two different Turkish translators whose

field is Turkish Language and Literature in terms of language validity and cultural suitability, and the Turkish form was created by making the necessary arrangements. Then, the back-translation of the scale into English was carried out by two independent experts with a bachelor's degree in English Language and Literature. After the translation and back translation studies, it was determined that the original form of the scale and the back translation form were compatible with each other. No item was removed from the scale, and after the final form of the Turkish form was given, the application phase was started. Turkish form was found to be compatible. Content validity was calculated in order to determine the exact measurement situation of the measurement tool to be measured. For this purpose, expert opinions were obtained from nine academics. The CVR values calculated in line with the opinions of these experts varied between 0.89 and 1.00, and the content validity index (CVI) value calculated for the scale was 0.99. It was reported in the literature that a CVI should be higher than 0.80 (Uddin and Bhuiyan, 2019). Thus, the FSS provides suitable content validity. After consensus approval was obtained from the experts, the preliminary application of the scale targeted 30 older individuals. None of the items were eliminated from the scale, and the Turkish scale was then finalized.

Reliability

The invariance test-retest value of the measurement tool over time was calculated as 0.96. Since this value is above 0.70, it

Table 2.
Item Analysis Results of The Family Support Scale for The Older People

Scale Items	\bar{X}	SD	<i>r</i>	Eigenvalue	Explained Variance	Total Explained Variance	Cronbach α
M1. My family loves me	3.78	0.59	.71	10.955	54.776	54.78	0.94
M2. I get respect from my family	3.77	0.57	.73	1.779	8.893		
M3. My family helps me with daily activities	3.34	0.99	.61	0.984	4.922		
M4. My family helps me with religious activities	3.17	1.08	.53	0.836	4.182		
M5. My family gives me useful information	3.42	0.84	.64	0.739	3.696		
M6. My family gives me emotional support	3.64	0.75	.75	0.634	3.168		
M7. My family shares important decisions with me	3.54	0.84	.73	0.561	2.807		
M8. My family understands my personal desires	3.60	0.80	.70	0.471	2.356		
M9. My family helps me to participate in social events	3.17	1.05	.62	0.433	2.164		
M10. My family listens to my problems	3.70	0.66	.82	0.428	2.140		
M11. My family helps to solve my problems	3.68	0.67	.83	0.390	1.951		
M12. My family is aware of my health	3.86	0.46	.75	0.358	1.789		
M13. My family helps in my treatment	3.84	0.51	.76	0.334	1.668		
M14. My family treats me as an important person	3.81	0.52	.75	0.293	1.467		
M15. My family gives me money when I need it	3.38	1.02	.53	0.244	1.220		
M16. My family is careful about my food	3.51	0.88	.55	0.179	0.897		
M17. My family is careful about my sleep	2.94	1.25	.48	0.133	0.665		
M18. My family gives me companionship	3.54	0.83	.78	0.099	0.495		
M19. My family helps me to stay happy	3.66	0.71	.73	0.091	0.453		
M20. I am satisfied with my family support	3.78	0.59	.79	0.058	0.289		

Note: *r* = item-total correlation; SD = standard deviation; \bar{X} = average.

was concluded that the scale scores are quite reliable (Polit et al., 2007). To assess the test-retest reliability of the FSS, the scale was administered to 30 elderly individuals 2 weeks after the initial data collection. Test-retest time invariance analysis showed that there was no difference between the two test applications ($p > .05$).

Construct Validity

When the analysis results of the FSS items were examined, it was found that the averages of the items ranged between 2.94 and 3.86, and the total correlation values varied between 0.48 and 0.83. Since the item-total score correlation values were greater than 0.30, it was concluded that the items were distinctive (Table 2).

When the exploratory factor analysis (EFA) results were examined, two factors were found with eigenvalues above 1. However, the amount of variance explained by the first factor was more than three times the variance explained by the second one. For this reason, a dominant one-dimensionality was identified. The fact that the explained variance value collected in a single factor was 54.78 and that the graph went on a certain line after the single factor when examining that factor's eigenvalue line (scree plot) graph supports the impression that the scale consists of a single factor (Table 2, Figure 1).

The lowest loading value was 0.44 in the 17th item, and the highest loading value was 0.88 in the 11th item. It was revealed that the Turkish version of the originally single-factor scale was also single factor. Since the factor loading value for each item was higher than 0.30, each item was determined as distinctive, and all items served their purpose.

Factor loading values and error variance values were determined by confirmatory factor analysis (CFA). Factor loading values for all items in the scale ranged between 0.58 and 0.97, and error

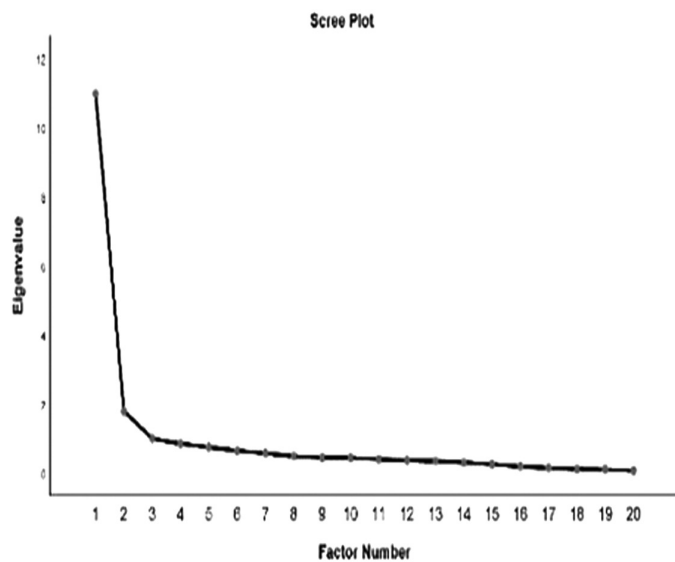


Figure 1. Family Support Scale for Older People Scree Chart.

variance values ranged between 0.07 and 0.67 and were found to be statistically significant ($p < .05$). Accordingly, it was concluded that the items were distinctive in measuring the structure of the factor in which they were found. Figure 2 shows a model of the measurement tested.

When the fit index obtained as a result of the CFA was examined, it was observed that the χ^2/SD value was lower than 3, which suggests that the model fit the data well. The Comparative Fit Index (CFI), Goodness of Fit Index (GFI), and Normed Fit Index (NFI) values were determined to be 0.99. Since these values are above 0.90, it can be concluded that the model fit the data well. The Root Mean Square Error of Approximation (RMSEA) Index of the model was found to be 0.064, which means that the model can be considered compatible with the data. As the fit indices are evaluated, the one-dimensional model fit the data. The Cronbach's α value calculated for the FSS scores was 0.94 (Table 2).

Discussion

In this research, it was aimed to test the Turkish validity and reliability of the FSS. The CVR-calculated values for opinions

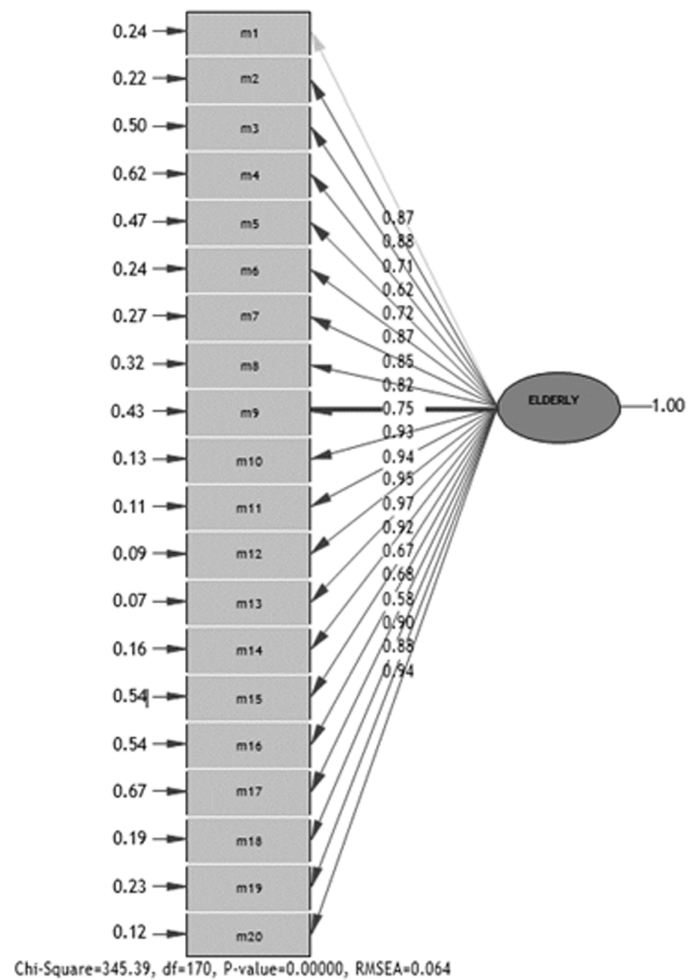


Figure 2. Family Support Scale Measurement Model for Older People.

expressed by the specialists about the language suitability of the FSS items ranged from 0.33 to 1.00, and the CVI value is 0.87. Since this value is higher than 0.80, the language compatibility of the FSS was ensured (Polit et al., 2007).

The content validity of the scale as a whole was assessed to determine the extent to which every item in the scale serves its purpose and whether there was a different concept other than the area to be measured (Ercan & Kan, 2004). The Lawshe and Davis techniques are recommended in the literature to ensure content validity (Erdogan et al., 2017). The Davis technique was used in this study. According to this method, expert opinions are evaluated as follows: "1" not appropriate, "2" slightly appropriate (phrase needs to be corrected), "3" appropriate (minor changes required for expression), and "4" absolutely appropriate (Davis, 1992). The CVR (expert opinions on the content appropriateness of the scale items) values vary between 0.89 and 1.00, and the CVI value obtained for the scale is 0.99. Since the CVI was higher than 0.80, the scale was determined to have content compliance. Based on this result, the agreement among the experts and the content validity of the scale were both high.

The purpose of factor analysis is to evaluate whether the items in a scale can be grouped under different dimensions (Erdogan et al., 2017). The construct validity of this scale was determined through EFA and CFA. The explained variance in single-factor scales should be 30% or more, and it should be higher than 30% in a multi-factor scale (Erkus, 2009; Yurdabakan & Cüm, 2017). The fact that in this study, the scale explained 54.78% of the total variance in one dimension according to the EFA, can be interpreted as an indicator that it reliably measures family support.

It is recommended that the factor loadings representing the relationship between the items of a scale and its sub-dimensions should be at least 0.30 (Erkus, 2009; Harrington, 2009). In general, a loading value between 0.30 and 0.59 is considered moderate, and 0.60 and above is considered high (Laher, 2010). In this scale, factor loadings of all items were found to be sufficient, with moderate and high factor loads between 0.44 and 0.88. The single-factor structure of the scale was confirmed by CFA, and the measurement model is given in Figure 2. According to the CFA, the goodness of fit statistics were also at the desired level. It was observed that the χ^2/SD value of the fit indices of the scale items (Table 3) was lower than 3, which was

Table 3.
Family Support Scale for The Older People Confirmatory Factor Analysis Fit Index Results

Fit Indices	FSS	Perfect Compliance Criteria	Acceptable Compliance Criteria
χ^2/sd	2.03		
CFI	0.99	$0.90 \leq CFI \leq 1.00$	$0.80 \leq CFI \leq 0.90$
GFI	0.99	≥ 0.90	≥ 0.80
NFI	0.99	≥ 0.90	≥ 0.80
RMSEA	0.064	$0 \leq RMSEA \leq 0.05$	$0.05 \leq RMSA \leq 0.08$

found to be compatible with the literature (Simsek, 2007). The CFI, GFI, and NFI values were all above 0.99 in this study. Since these values were above 0.90 and thus compatible with the literature, it can be said that the model fit the data well. Moreover, an RMSEA value less than or equal to 0.08 and a p -value less than .05 indicate a good fit, while an RMSEA value equal to or less than 0.10 indicates a poor fit (Harrington, 2009). When this study was evaluated in terms of the RMSEA index, the value was 0.064, which is significant ($p < .001$); this shows that the scale is compatible in terms of the factor structure. In line with this information, it can be said that the Turkish form of the scale has a single-factor structure and meets the criteria for construct validity.

Reliability is one of the features that a scale should have. It is an indicator of the invariance, adequacy, consistency, accuracy, and stability of the values obtained with a given measurement tool in repeated uses under the same conditions (Erdogan et al., 2017). In this study, an invariance test–retest by time was used to measure the reliability of the scale, while the Cronbach's α coefficient and item–total score correlation were calculated to measure the homogeneity. The consistency coefficient for invariance by time is determined by the correlation coefficient between two measurements. The Pearson product–moment correlation coefficient was used since it is the correlation technique with the highest level of competence (Karasar, 2017). It has been reported in the literature that the correlation coefficient should be 0.70 or above (Karakoc & Dönmez, 2014). In this study, the invariance test–retest value of the measurement tool over time was calculated as 0.96. Since this value is above 0.70, the scale scores can be deemed quite reliable. Cronbach's α coefficient is a method used to determine the internal consistency of measurement tools in which the Likert-type grading method is used, and it is reported that the reference value should be 0.70 or above (Karakoc & Dönmez, 2014). In addition, the literature states that if this value is less than 0.40, the measurement tool is not reliable. On the other hand, values between 0.40 and 0.59 indicate low reliability, 0.60 and 0.79 indicate reliability, and 0.80 and 1.00 indicate high reliability (Kılıc, 2016). The Cronbach's α internal consistency coefficient, which was 0.94 in the original study, was similarly determined as 0.94 in this study, which means the scale scores are highly reliable.

The item–total correlation value examines the relationship between the value of each scale item and the value it receives from the total scale score. A higher correlation coefficient indicates a higher reliability of the items in the scale (Karasar, 2017). When the item–total correlation results for the FSS items were examined, they ranged between 0.48 and 0.83, which is a sufficient level (Table 2). Since this value was above 0.25 and there was no change in the alpha value when items were deleted, no items were removed from the scale, as they were all considered appropriate.

Study Limitations

The determined limitation of the research is that it was carried out with the older people residing in a certain province. Therefore, the findings of the study cannot be generalised to the whole country.

Conclusions and Recommendations

In conclusion, it can be said that the FSS scale adapted to Turkish culture is a valid and reliable measurement tool. It is recommended that this scale be used by health professionals as a data collection tool to determine family support for older people individuals.

Availability of Data and Materials: The authors confirm that the data supporting the findings of this study are available within the article.

Ethics Committee Approval: Ethics committee approval was received for this study from the Social Sciences and Humanities Research Ethics Committee of Tokat Gaziosmanpaşa University (Approval no: 10/01-46, Date: July 20, 2022).

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

Peer-review: Externally peer-reviewed.

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Declaration of Interests: The authors have no conflict of interest to declare.

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