

Araştırma makalesi

Research article

Validity and Reliability Study of the Turkish Version of the Social-Functional Autonomy Measurement System



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ABSTRACT

Aim: Social functions are required to be at an optimum level to maintain and develop an individual's health at all ages. This study aimed to evaluate the validity and reliability of the Turkish version of the Social-Functional Autonomy Measurement System (*Social-SMAF Scale*) on elders.

Material and Methods: This methodological study was conducted to evaluate the validity and reliability of the Social-SMAF scale. The research was conducted with 92 nursing home residents living in three nursing homes in Afyonkarahisar.

Results: It was observed that the scale consisting of 6 items explained 70.186% of the total variance. It was found that the scale was collected under one dimension (factor), and its eigenvalue was 3.768. Sampling adequacy was checked for factor analysis to be applicable (*Bartlett's Test=211.779; p<0.001 and KMO=0.770*). The Cronbach Alpha coefficient for the internal consistency of the social autonomy scale was calculated as 0.80. In the confirmatory factor analysis of the scale, it was determined that it formed a suitable model that could be grouped under a single factor.

Conclusion: The "Social-SMAF" scale was valid and reliable in evaluating the social independence of elderly individuals living in Turkish society.

Keywords: Autonomy, healthy aging, quality of life, social functions

ÖZ

Sosyal-Fonksiyonel Otonomi Değerlendirme Ölçeğinin Türkçe Versiyonun Geçerlik ve Güvenirlik Çalışması

Amaç: Her yaşta bireyin sağlığının korunması ve geliştirilmesi için sosyal işlevlerin optimum düzeyde olması gerekmektedir. Bu çalışmanın amacı, Sosyal-İşlevsel Özerklik Ölçme Sistemi'nin (*Sosyal-SMAF ölçeği*) Türkçe formunun yaşlılar üzerinde geçerlik ve güvenilirliğini değerlendirmektir.

Gereç ve Yöntem: Bu metodolojik çalışma, Sosyal-SMAF ölçeğinin geçerlik ve güvenilirliğini değerlendirmek amacıyla yapılmıştır. Araştırma Afyonkarahisar'da üç huzurevinde kalan 92 huzurevi sakini ile gerçekleştirilmiştir.

Bulgular: 6 maddeden oluşan ölçeğin toplam varyansın %70.186'sını açıkladığı görülmüştür. Ölçeğin tek boyut(faktör) altında toplandığı ve özdeğerinin 3.768 olduğu bulunmuştur. Faktör analizinin uygulanabilir olması için örnekleme yeterliliğine bakılmıştır (*Bartlett's Test=211.779; p<0,001 ve KMO=0,770*). Sosyal özerklik ölçeğinin iç tutarlılığı için Cronbach Alfa katsayısı 0.80 olarak bulunmuştur. Ölçeğin yapılan doğrulayıcı faktör analizinde, tek faktör altında toplanabilen uygun bir model oluşturduğu tespit edilmiştir.

Sonuç: "Sosyal-SMAF" ölçeğinin, Türk toplumunda yaşayan yaşlı bireylerin sosyal bağımsızlığını değerlendirmede geçerli ve güvenilir olduğu görülmüştür.

Anahtar kelimeler: Özerklik, sağlıklı yaşlanma, sosyal fonksiyonlar, yaşam kalitesi

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INTRODUCTION

Old age is a period during which quality of life should be addressed with care, although some disabilities and adaptation problems exist together¹. Quality of life refers to the life comfort, satisfaction, and ability of the elderly to manage their life voluntarily. In other words, it is the ability of her/him to make decisions about life on her/his own². Many factors such as having an economic and social assurance, a safe and comfortable environment, activities, and respect for the individuality of others are among the indicators showing the life quality of the older individuals³. When the quality of life is addressed in two dimensions, its physical dimension shows how much an individual can perform his/her daily work and tasks². Its social dimension includes the perception of him/her on how much he/she can communicate with his/her relatives and the other individuals in the society. The concept of autonomy which is thought to be directly related to these factors, is among the important determinants of quality of life and life process⁴.

Autonomy is the individual's protection of his character, independence, and rights. It means that the individual continues his life by making his decisions with his free choices, that is taking his own responsibility⁵. Autonomy is also affected by communication and relationships with other people⁶. The adaptability skills of individuals who can act autonomously while making decisions also increase. Also, it has been emphasized that the ability of the elderly to behave autonomous is possible by having a sense of responsibility⁷. Several physical problems and reduced physical independence brought by old age also cause a decrease in functional autonomy. It has been reported that an increase in chronic diseases among the elderly decreases the functional independency level of the individual and adversely affects his/her life quality and autonomy^{8,9}.

Addressing older individuals from a functional aspect is an important component of the comprehensive geriatric evaluation. In functional evaluation, the effects of acute or chronic diseases on the functions of the elderly are examined. Factors such as performance in Daily Living Activities (DLA), cognition, seeing, hearing, state of social support, and psychological well-being should be considered for this¹⁰. "Autonomy Measurement System" (SMAF), one of the functional measurement systems, was developed by Hebert. It has been developed considering the concepts of disability and disability defined in the World Health Organization (WHO) International Classification of Disorders, Disability, and Handicap (ICIDH). This scale assesses 29 functions related to daily living activities, movement, communication, mental functions, and instrumental daily living activities¹¹.

Social Functions are another factor affecting autonomy and health as well as functional states¹². Social functions are required to be at an optimum level to restore and maintain an individual's health¹³. As well as the decrease in functional states, the decrease in social functions has also been shown to be associated with an increase in the risk of illness and death. Social autonomy includes various aspects such as

social relations, social attitudes, and activities¹⁴. From a broader perspective, it has been emphasized to be associated with concepts such as social participation, network, support, resources, relations, and roles¹⁵.

Several measurement instruments are used to assess social functions among elderly. Many of these scales have been developed to reveal disorders in social behavior. These scales were found to evaluate individuals' social disruption and adaptation problems instead of deficiencies in social performance such as maintaining relationships with others or leisure activities. The "Social Autonomy Scale" is a scale that aims to identify the deficiencies in social functions. This scale was developed by Pinsonnault et al. in accordance with ICIDH published by the World Health Organization in 1998¹⁶. It also provides information about the stability of such resources besides handicaps to evaluate the availability of human resources to decrease disability. Moreover information on the disability part may be used as an indicator for determining the presence of social support and social environment¹⁷. Social functions give a different view to determining the delivery process of health services. Social functions play an important role in holistic, comprehensive evaluation by integrating assessment of functional autonomy into the presentation of healthcare services¹⁸. Therefore, clinicians recommend addressing social aspects and planning appropriate interventions while evaluating functional autonomy comprehensively. Thus, they can contribute to improving healthcare for older people¹⁷.

In the studies conducted in our country, we see that autonomy is mainly evaluated as functional. However, an evaluation should be made by considering the social dimensions of autonomy. We see that a scale that will contribute to the comprehensive evaluation of autonomy and that can evaluate social dimensions is not used in our country.

Aim

This study aims to evaluate the validity and reliability of the Social Autonomy Assessment Scale in Turkish society, which can comprehensively assess the social functions of individuals.

MATERIAL and METHODS

Study Design

This methodological study was conducted in Emirdag Nursing Home, Sandıklı Hüseyin Develi Nursing Home and Bolvadin Nursing Home, affiliated with Afyonkarahisar Provincial Directorate of Family and Social Policies between 01.01.2018 and 02.28.2018.

Study Sample

The sample size was calculated by choosing at least five people for each item of the scale¹⁹. Since the Social SMAF Scale consists of 6 items, the sample group was determined as at least 30 people. The sample selection was made from a total of 181 individuals living in three different nursing homes, and 92 volunteers who met the inclusion criteria were selected. Inclusion criteria were to be 60 years of age or older, not diagnosed with a serious illness such as dementia, Alzheimer's or schizophrenia, score between 0

and 4 on the Geriatric Depression Scale (Short Form), and a serious physical defect in hearing, vision, and speech. determined as absent. In selecting the participants, cooperation was made with the authorized physician of the institution, the institutional psychologist, the physiotherapist, and their caregivers.

Data Collection Tools

In this study, a questionnaire form was used by the researcher to examine the age, gender, education level, marital status, length of stay in the institution, chronic diseases, lifestyle, admission to the institution, connections with their families, relations with other individuals and people working in the institution. GDS (Short Form) and Social-Functional Autonomy Measurement system/ Social Functioning Scale (Social SMAF) were used to collect the data. Social-SMAF is an instrument used to measure individuals' autonomies in terms of social functionality. The scale is composed of 6 titles, including "Social and Leisure Activities", "Social Relations", "Social Resources", "Attitudes", "Social Roles", and "Self-Expression". In order to assess the availability of human resources to reduce disability, there is also a part about the stability of such resources within the following three or four weeks besides the handicaps. Information on the disability part can be used as an indicator for the identification of the presence of social support and social environment. Each item in Social-SMAF is scored between 0 to -3 according to certain criteria based on the information retrieved by questioning the individual, observing them directly, or requesting from resources (caregiver, family members, nurses, etc.) when necessary. Assessment is initiated from the disability part and continued with the handicap part. Disability score of each function is assessed as "independent" for 0, "needs curing, supervision or guidance for the activity" for -1, "needs partial help for the activity" for -2, and "needs complete help for the activity" for -3. Then, it is determined whether the individuals have the human resources or support required to overcome the identified disability for each function to be assessed. Handicap levels of these individuals are evaluated similarly according to the scores of disability levels. Total score can indicate that the individuals do not have any needs associated with their social functions (high scores including 18 at maximum) or they do not have any needs regarding social function (0 points)¹⁶.

Procedures of the Study

In the study, language validity, reliability, and construct validity were studied.

Language Validity of Social Autonomy Scale

Content validity of the scale was done during language validity studies. In this context, content validity was performed to measure the whole scale or subscales and evaluate the presence of different concepts outside the area to be measured²⁰. Brislin's Translation Model was applied to ensure the scale's validity in terms of language, culture, and content. This model is often preferred when adapting data collection tools to different cultures²¹. As the first step within the context of language equivalence study, the scale was translated from English to Turkish by two individuals

who specialized in nursing and one linguist. The translations were evaluated by two different nurse academicians who specialized in geriatrics, and the appropriate translations were adopted for each item. It was translated back to its original language again by an academician and an academic linguist independently. Then, the scale was compared with the original version to examine whether there was a difference in the meanings of the expressions, and then the scale was given its final version in Turkish by interviewing the author of the scale.

Data Collection

The ability of a measurement tool to give precise, consistent, and stable results shows its reliability²⁰. Time constancy (test-retest) reliability and internal consistency were examined for the reliability study. After the language equivalence and content validity studies were completed, a test-retest study was conducted. After the ethics committee approval and institutional permissions, the participants were given preliminary information by visiting nursing homes. The collected data were obtained as a result of face-to-face interviews of the researcher with the residents of the nursing home. This collected information was evaluated by the institution's employees, such as nurses, psychologists, caregivers, and social workers. On 01.01.2018, a preliminary application of the scale was made to a total of 25 people (8 in Emirdağ Nursing Home, 10 in Bolvadin Nursing Home, and 7 in Sandıklı Hüseyin Develi Nursing Home). After analyzing the results before the application, the first application of the study was carried out. In the two weeks following the first application, a visiting hour was determined for a second application. The scale was applied to the residents of the same nursing home for the second time through face-to-face interviews. The application of the scale took an average of 30-45 minutes.

Construct Validity of Autonomy Evaluation Scale

Construct validity is performed to assess how accurately the scale items measure concept or conceptual structure if there are no criteria (reference) to compare new test²². It allows us to explain the factors measured by the scale and what these factors are associated with²⁰. Different methods are used for the evaluation of construct validities of the scales. The most commonly used one among these is factor analysis²². Factor analysis is done to see which other items are compatible with each item and how strongly they are connected with each other^{23,24}.

CFA is based on testing a hypothesis such as specific variables will be mainly located on factors that were identified previously based on a theory. Due to the fact that fit indices have strengths and weaknesses in assessing the fit between the conceptual model and actual data, it is recommended to use many fit index values to prove model fit. The most commonly used ones among the relevant fit indices are Comparative Fit Index (CFI), Adjusted Goodness of Fit Index (AGFI), Root Mean Square Error of Approximation (RMSEA), Normed Fit Index (NFI), Chi-Square Goodness, Goodness of Fit Index (GFI) and Root Mean Square Error (RMR or RMS). Fit values for RFI, IFI, GFI, CFI, NFI, and AGFI indices are expected to be 0.85 at a minimum, and chi-square/degree of freedom values are expected to

be below 5. For RMSEA, 0.08 was accepted as an acceptable fit, and 0.05 was accepted as a well fit value²⁵.

Data Analysis

Mean, standard deviation, and minimum and maximum values are given for descriptive statistics. Explanatory Factor Analysis(EFA) was applied for Social Autonomy Scale in the study. In addition, Cronbach's Alpha coefficient, used to evaluate internal consistency, was calculated for reliability analysis. On the other hand, test-retest reliability was determined. In addition, CFA was performed on post-test data applied 15 days apart for Social Autonomy Scale. SPSS 21.0 and LISREL 8.71 programs were used to evaluate the data.

Ethical Consideration

Written approval was obtained from Eugenie Pinsonnault, the author of the scale, to adapt the original scale into Turkish. Ethics committee approval of the study was obtained from Hacettepe University Non-Interventional Clinical Research Ethics Committee (Date:13.02.2018 No: 16969557). Institutional permission was obtained from the Education and Publication Department of the Ministry of Family and Social Policies (Dated 08.10.2017, 85187) to apply the scale to the elderly in nursing homes. The research was carried out under the ethical principles stated in the Declaration of Helsinki after the written consent of the participants was obtained.

Limitations

The limitations of our study include the fact that the number of elderly who meet the evaluation criteria is less than the number of residents staying in the institution, there were hospitalizations during the study period, some elderly deaths occurred during this period, changes in institutions, and nursing home residents visiting their relatives.

RESULTS

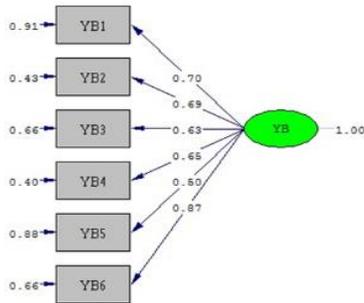
39.1% of the individuals participating in the research are between the ages of 80-89, 58.7% are male, 68.5% are widowed, and 52.7% are illiterate. 82.6% of the nursing home residents have been residing in the institution for 0-5 years, and 89.1% of them came to the institution willingly. 57.6% of those in nursing homes stay in the institution on a paid basis, while the rate of those with one or more chronic diseases is 66.3%. The demographic characteristics of the participants are given in Table 1.

Explanatory factor analysis and reliability results of the study are given in Table 2. Bartlett's test and Kaiser-Meyer-Olkin (KMO) analysis confirmed the results (Bartlett's Test=211.779, and KMO=0.770, $p<0.001$), and sampling adequacy for factor analysis was determined. In the analysis, the eigenvalue of the six-items social autonomy scale was found to be 3.768. It was determined that the scale was gathered under a single factor that explained 70.186% of the total variance. Factor loads of all six items were found to be above 0.40.

Table 1. Socio-Demographic Characteristics of Nursing Home Residents (n=92)

Socio-Demographic Variables	Number	%
Age		
60-69	25	27.2
70-79	21	22.8
80-89	36	39.1
90 years old and older	10	10.9
Gender		
Women	38	41.3
Men	54	58.7
Marital Status		
The married	9	9.8
Divorced	14	15.2
Widow	63	68.5
Single (Never Married)	6	6.5
Education Level		
Not literate	48	52.2
Literate	12	13.0
Primary education	29	31.5
High school	2	2.2
University	1	1.1
Duration in the Institution		
0-5 years	76	82.6
6-11 years	11	12.0
12-17 years	5	5.4
17-23 years	0	0
24 years and more	0	0
Status of Arrival		
With own request	82	89.1
The request of children or relatives	7	7.6
Lack of anyone	3	3.3
Number of Chronic Diseases		
No	31	33.7
One	29	31.5
Two	16	17.4
Three	15	16.3
Four and above	1	1.1
Stay in the Institution		
Free	39	42.4
Paid	53	57.6
Number of Rooms		
For one person	20	21.7
Double	72	78.3

Path diagram, which was obtained as a result of CFA, was introduced in Figure 1. Based on this, an appropriate one-factor model was obtained for the social autonomy scale as a result of confirmatory factor analysis.



Chi-Square=25.92, df=9, P-value=0.00211, RMSEA=0.076

Figure 1. CFA Path Diagram Social-Functional Autonomy Measurement Scale (n=92)

Table 2. Explanatory Factor Analysis and Reliability Analysis Results for Social-Functional Autonomy Measurement Scale (n=92)

Items	Factor loads	Corrected item-total correlation	Cronbach's Alpha deleted
1.Occupies his/her spare time	0.715	0.687	0.737
2.Maintains or creates a significant emotional tie with his/her family, friends, and support workers or ensures its continuity	0.443	0.561	0.770
3.Using the resources in his/her environment	0.481	0.691	0.734
4.Acts properly (respect, harmony, politeness) in the relationships with others	0.817	0.551	0.808
5.Carrying out significant social roles according to one's own situation	0.529	0.522	0.781
6.Expressing desires, ideas, opinions and limitations	0.782	0.574	0.765
Eigenvalue	3.768	-	-
Explanation of variance (%)	70.186	-	-
Overall Scale Cronbach's Alpha	-	-	0.800
Test-retest reliability (r)	-	-	0.767

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)=0.770
Bartlett's Test of Sphericity: Chi-Square=211.779; p<0.001

Fit measures for Confirmatory Factor Analysis are given in Table 3. RMSEA, NFI, NNFI, CFI, SRMR, and AGFI fit measures revealed an acceptable fit. When the value of χ^2/df (since $2.57 < 3$) is examined, it is seen that there is a perfect fit. In the study, the Cronbach's alpha coefficient was calculated as 0.80 above the critical value of 0.70. In addition, the total correlation values of the corrected items were found to be above 0.40. When one item was removed from the scale, the value of all Cronbach Alpha coefficients was over 0.70. The test-retest reliability value was calculated as 0.76.

Table 3. Compliance Criteria for Social-Functional Autonomy Measurement Scale (n=92)

Measures	Excellent Harmony	Acceptable Compliance	Finding	Result
RMSEA	$0 \leq RMSEA \leq 0.05$	$0.05 < RMSEA \leq 0.08$	0.069	Acceptable
NFI	$0.95 \leq NFI \leq 1$	$0.90 \leq NFI < 0.95$	0.920	Acceptable
NNFI	$0.97 \leq NNFI \leq 1$	$0.95 \leq NNFI < 0.97$	0.950	Acceptable
CFI	$0.97 \leq CFI \leq 1$	$0.95 \leq CFI < 0.97$	0.960	Acceptable
SRMR	$0 \leq SRMR \leq 0,05$	$0.05 < SRMR \leq 0.10$	0.069	Acceptable
AGFI	$0.90 \leq AGFI \leq 1$	$0.85 \leq AGFI < 0.90$	0.850	Acceptable
χ^2/DF	<3	<5	2.570	Excellent Harmony

(RMSEA-Root Mean Square Error of Approximation), (NFI-Normed Fit Index) (NNFI-Non-Normed Fit Index), (CFI-Comparative Fit Index) (χ^2/DF -Kikare/df), (SRMR-Root Mean Square Residual) (AGFI-Adjusted Goodness of Fit Index)

DISCUSSION

In the explanatory factor analysis of the Social-SMAF scale, in which the validity and reliability study of the Turkish version was performed on elderly individuals, the sample size was found to be sufficient for its applicability. The fact that the scale could explain more than two-thirds of the total variance revealed that it was gathered under a single factor. Besides, adjusted item-total correlation values above 0.40 and test-retest reliability values of 0.76 indicated that the scale provided an acceptable outcome. With the results obtained from the exploratory factor analysis, the factor structure was confirmed by CFA. A suitable model has been reached with the path diagram. Finding a value less than three as a result of dividing the chi-square value by the degrees of freedom ($2.57 < 3$ for χ^2/df) revealed that the obtained model showed a perfect fit. In the promotion study for the scale, Pinsonnault *et al.* found the total score as 0.78 (0.64–0.87) in Group 1 and 0.96(0.93–0.98) in Group 2 by examining Cohen's weighted kappa (kw) and ICC (CI 95%) values. This shows a perfect fit according to Landis and Koch scale²⁵. OARS (*Multi-Functional Assessment Questionnaire and Service Assessment Questionnaire*), LIFE-H, and SPS(*Social Support*) were compared to show the power of the scale. Although the correlations obtained were not at an expected level, they were at an acceptable level to support fitness¹⁶. The scale can evaluate social functionality in the clinics with less number of items found in the literature in a shorter time. Besides evaluating social functions, it is a scale that facilitates planning the services to bring coping skills and follow progression or regression. Due to this autonomy of the individual will be evaluated in complete integrity. Moreover, this scale that allows us to assess support resources will not only enable us to address

the individual multidimensionally and diagnose social autonomy, but it will also provide the opportunity to manage and follow up on the process.

CONCLUSION

Autonomy is an essential component of quality of life. The scale is an important tool to evaluate individuals whose autonomy decreases with aging functionally and socially and make the necessary planning. In this sense evaluating the care process of the elderly and determining the sources of support will contribute significantly to directing the care. At the end of this study, the scale will be used as an important measurement tool in the development of resources that can provide support for the evaluation of social autonomy and the planning that can be done by addressing the social dimension of the autonomy of the elderly. In further studies, it is recommended to examine the levels of the scale's exposure to some variables and use it for health promotion in elderly and disabled individuals.

Ethics Committee Approval: Hacettepe University Non-Interventional Clinical Research Ethics Committee (date:13.02.2018 no: 16969557)

Conflict of Interest: Ayten KÜÇÜK and Oya Nuran EMİROĞLU declare there is no conflict of interest.

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Author contributions

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