Turkish Journal of Geriatrics
DOI: 10.31086/tjgeri.2019.88
2019;22 (2):150-162

■ Ayşegül ILGAZ [1]
■ Ayşe AKGÖZ[1]
■ Sebahat GÖZÜM[1]

RESEARCH

VALIDITY AND RELIABILITY OF THE TURKISH VERSION OF THE SOCIAL INCLUSION SCALE

Abstract

Introduction: This study aimed to adapt the Social Inclusion Scale (SIS) to a Turkish population and test its reliability and validity.

Materials and Method: In total, 230 older persons aged ≥65 years participated in methodological research conducted in Antalya, Turkey. In the validity section, factorial construct and content validity analyses were used. To determine the reliability of the scale, internal consistency and item analyses were used.

Results: Cronbach's alpha of the scale was 0.894, indicating high reliability. The item-total correlations ranged 0.28–0.70. The content validity index was 0.97. The factor loadings of 18 items of SIS loading on three factors varied between 0.40 and 0.79, accounting for 55.14% of the variance.

Conclusion: SIS was found to be a reliable and valid tool for defining social inclusion levels in the older persons aged ≥65 years.

Keywords: Social participation; Social isolation; Aged; Loneliness; Reproducibility of results; Turkey

CORRESPONDANCE
Ayşe AKGÖZ
Akdeniz University, Faculty of Nursing,
Department of Public Health Nursing,
Antalya, Turkey.

Phone: +905435403091
e-mail: ayse.dgstn1@gmail.com

Received: 25/07/2018
Accepted: 10/05/2019

[1] Akdeniz University, Faculty of Nursing,
Department of Public Health Nursing,
Antalya, Turkey.

ARAŞTIRMA

SOSYAL DAHİL OLMA ÖLÇEĞİNİN TÜRKÇE GEÇERLİK VE GÜVENİRLİK ÇALIŞMASI

Öz

Giriş: Bu çalışmada, sosyal dahil olma ölçeğinin Türk kültürüne uyarlanması ve geçerlik güvenilirliğinin test edilmesi amaçlanmıştır.

Gereç ve Yöntem: Antalya'da yürütülen bu metodolojik araştırmaya 65 yaş ve üzeri toplam 230 yaşlı birey katılmıştır. Geçerlik bölümünde faktör yapı ve içerik geçerliliği kullanılmıştır. Sosyal dahil olma ölçeğinin güvenilirliğini belirlemek için içtutarlılık ve madde analizi kullanılmıştır.

Bulgular: Ölçeğin Cronbach alfa değeri 0.894 bulunmuştur. Ölçek yüksek güvenilirlik göstermektedir. Madde toplam korelasyonu ise 0.28-0.70 arasında bulunmuştur. Kapsam geçerlik indeksi .97'dir. Üç faktöre yüklenen sosyal dahil olma ölçeğinin 18 maddelik faktör yükleri.40 ile.79 arasında değişmektedir ve varyansın %55.14'ünü açıklamaktadır.

Sonuç: Sosyal dahil olma ölçeği, yaşlılarda sosyal dahil olma düzeyini tanımlamak için güvenilir ve geçerli bir araç olarak bulunmuştur.

Anahtar sözcükler: Sosyal katılım; Sosyalizolasyon; Yaşlı; Yalnızlık; Sonuçların tekrarlanabilirliği; Türkiye

INTRODUCTION

According to the European Union, social inclusion is defined as full participation in economic, social and cultural life and the acquisition of resources and opportunities permitting a normal standard of living. At the same time, the term references access to fundamental rights and the ability to make decisions affecting the lives of individuals. Under the European Union definition, the aims of a social inclusion policy are to prevent or eliminate social exclusion and ensure participation and integration in all fields of economic and social life. Social exclusion, the contradictory concept of social inclusion, has been considered in many studies (1). Social exclusion is the inability to participate in similar activities as the vast majority of the population because of a lack of resources, rights, goods and services and maintain normal relationships with other people (2). A prior study identified seven different dimensions of social inclusion/exclusion in older persons, namely social relations (e.g. communication with family and friends or business status), cultural and leisure activities (e.g. cinema, going to the theatre), citizenship activities (e.g. society, membership, voting, voluntary work), basic services (health and social services), neighbourhood (e.g. security and friendship associations), and financial situation (e.g. immovable property, central heating) (3).

Social inclusion includes aspects such as friendship experiences, emotions and physical (housing), psychological (belonging sensation), social (friendship) and leisure factors (leisure time) (4). Whereas social inclusion affects both mental health and physical health in a positive manner, proper mental health reduces illness and promotes healing (5). Social inclusion has a key role in increasing mental health and well-being by guiding community-based health activities (6). A UK study found that community-based services and activities for older persons living in rural areas increase their social inclusion (7).

Problems experienced by older persons (including access to health services, transportation, financial support and other services supporting psychosocial well-being) have been incorporated into social inclusion policies in Ireland and the UK (8). Because of the increase in mental health problems among the older persons, participation in social activities has decreased, and the importance of social inclusion has emerged (9). With the growing population of older persons in Turkey, loneliness among them has increased, whereas social inclusion has decreased, leading to mental health problems in this population.

In a study conducted in the UK, participation in arts courses and health projects improved the well-being and social inclusion of individuals with mental health problems (10). It is necessary to evaluate social inclusion and implement supportive measures to improve the social health of individuals with poor mental health. The 'Multidimensional Perceived Social Support Scale' has been used to evaluate social health in the literature, but no Turkish scale evaluating social inclusion has been developed (11). The Leisure Activities Scale was used to determine social participation levels in a study conducted to identify the factors affecting social participation among older persons living at home (12). No gold standard for measuring social inclusion has been established (9). To protect and improve the mental health of at-risk older persons, it is necessary to clarify the mechanisms by which individuals perceive social inclusion and take necessary precautions.

This study sought to clarify the validity and reliability of the Social Inclusion Scale (SIS), which is used to determine the social inclusion status of older persons aged ≥65 years, by adapting it to a Turkish population.

MATERIALS AND METHOD

This psychometric study was conducted at three family health centres (FHCs) in Antalya, Turkey. The centres are located in three different regions with different socioeconomic levels. The socioeconomic levels of the older persons aged ≥65 years were

assessed using the socioeconomic status assessment scale (SES). When the samples taken from these three regions were evaluated by SES, the levels were found to be different from each other (X^2=47.671, p<0.05).

The study consisted of individuals aged 65 years and older who are registered at FHCs in three different regions of Antalya (Kepez, Konyaalti and Muratpasa). In methodological studies, it is recommended that the sample size should exceed the number of items (variables) by 5–10-fold to test the validity and reliability of measuring instruments (13). As the SISconsisted of 22 items, the targeted sample size was 110–220 people, and ultimately, 230 individuals were enrolled. The inclusion criteria were being aged ≥65 years, having no diagnosesof psychiatric diseasesand willingness to participate. For selection of the sample population, older persons who applied to FHCs for any reason and meet the inclusion criteria were included in the study.

Age, gender, education, income level and occupation were recorded to determine sociodemographic characteristics. Chronic illness, the degree of dependency (Barthel index), living arrangements and the level of loneliness (Loneliness Scale for the Elderly [LSE]) were questioned to determine the factors influencing social inclusion. The SIS was used to assess the mental health of older persons aged ≥65 years.

To determine the socioeconomic levels of participants in the study, the SES developed by Kuppuswamy in 1976 and revised and adapted into the Turkish language by Avşar in 2010 was employed. Cronbach's alpha for the scale was 0.89 (14). In the SES scale, education, occupation and monthly income were separately classified, and the sum of these variables determined each individual's SES class. In accordance with these three variables, SES classes are identified with five levels: upper, upper medium, medium, lower-medium and lower levels.

The LSE, which was developed by Gierveld and Kamphuis (1985) to measure feelings of loneliness, was revised by Tilburg and Gierveld in 1999 (15). The Turkish validity and reliability study of the scale were confirmed by Akgül and Yeşilyaprak in 2015 (16). A three-point Likert-type scale with 11 items consisted of two sub-scales: emotional loneliness (items 2, 3, 5, 6, 9 and 10) and social loneliness (items 1, 4, 7, 8 and 11). Loneliness can be divided into four levels according to the score. Hence, '0–4 points' are classified as not feeling loneliness, '5–14 points' are classified as feeling acceptable loneliness, '15–18 points' are classified as feeling very lonely and '19–22 points' are classified as feeling very intense loneliness. The score the scale ranged 0–22, with higher scores indicating greater loneliness. The Cronbach alpha of the scale was 0.85 (16).

The SIS, which was developed by Secker et al. in 2009, consists of 22 items (9). This scale includes three sub-scales, namely social isolation, social relations and social acceptance. Two items on the scale are included in two sub-scales because they fit into both sub-scales. As three items of the scale do not fit into any sub-scale, they are handled separately as 'individual items' without being included in the sub-scales (9).

This Likert-type scale uses answers of 'not at all' (1 point), 'not particularly' (2 points), 'yes a bit'(3 points) and 'yes definitely' (4 points). But four items (1., 10., 11. and 16. items) are the reverse coded items. These items' answers of 'not at all' (4 point), 'not particularly' (3 points), 'yes a bit' (2 points) and 'yes definitely' (1 points). Minimum and maximum scores are 18 and 72 points for SIS. The SIS measures an individual's relationship with other people over the last month, and higher scores indicate greater socialisation. Cronbach's alpha for all items was 0.85, and the values for the social isolation, social acceptance and social relations sub-scales were 0.76, 0.76 and 0.70, respectively.

Because SIS, consisting of 22 items, was originally developed to assess mental health, one of these items is not appropriate for the older persons. For this reason, the wording of one statement has been changed; specifically *'I have felt some people look*

Table 1. Demographic characteristics of participants and effect on SIS scores (n=230).

Variable	n(%)	Median (min–max)	p
Age groups (years)			
65–74	154(67.0)	56.0 (28–71)	
75–84	63(27.4)	48.0 (22–71)	
≥85	13(5.7)	43.0 (20–66)	
Education			**<0.001**
Primary school and less	157(57.3)	52.0 (20–69)	
Secondary school and high school	49(17.9)	59.0 (27–71)	
University and over	24(8.8)	65.0 (49–71)	
Working status			**<0.001**
Retired	132(48.2)	58.0 (27–71)	
Housewife	90(32.8)	51.0 (20–69)	
Working	4(1.5)	55.5 (44–57)	
Unemployed	4(1.5)	46.0 (41–53)	
Perceived level of income			**<0.001**
Income<expenditure	62(22.6)	49.0 (20–67)	
Income =expenditure	161(58.8)	57.0 (27–71)	
Income>expenditure	7(2.6)	55.0 (41–65)	
Marital status			**<0.001**
Married	164(59.9)	56.0 (31–71)	
Single	66(24.1)	48.0 (20–68)	
Living arrangements			**0.011**
Live alone	46(16.8)	50.0 (20–68)	
With spouse	117(42.7)	57.0 (31–71)	
With spouse and children	38(13.9)	53.0 (31–68)	
Other	29(10.6)	50.0 (27–69)	
Chronic disease			**0.115**
Yes	167(60.9)	54.0 (20–71)	
No	63(23.0)	56.0 (22–71)	
Types of chronic diseases[a]			
Diabetes	74(27)		
Hypertension	109(39.8)		
Coronary artery disease	22(8)		
Asthma	15(5.5)		
COPD	3(1.1)		
Chronic renal failure	5(1.8)		
Cancer	4(1.5)		
Other	7(2.6)		
Housing type			**0.073**
Slum	18(6.6)	50.0 (20–60)	
Apartment house	208(75.6)	54.0 (22–71)	
Other	4(1.5)	58.5 (41–64)	

COPD, Chronic Obstructive Pulmonary Disease; sd, standard deviation.

[a] One elder person has multiple diseases. No analysis was made for this variable with SIS scores.

down on me because of my mental health needs' was revised to *'I have felt some people look down on me because of my age'*. The two items fit into two sub-scales, and they were included in both sub-scales of the original scale. Therefore, these two items were removed from the scale, and 20 items remained in the scale. Three individual items were not removed from the scale because they were retained in the sub-scales. In the process of adapting the other two items to older persons, Secker suggested replacing the phrase 'mental health and mental health services' for two items ('my social life has been mainly related to mental health, or people who use mental health services' and 'I have been involved in a group not just for mental health') with 'services for the older persons who use health services' or removing these items from the scale. It has been deemed suitable for researchers to remove these items from the scale, as individuals who can afford to use institutions providing services for the older persons in Turkey are not reflective of the socioeconomic status of the general population. Secker has also granted approval for this change. Finally, the scale consisted of 18 items.

Translation and adaptation of the scale

This scale was prepared in accordance with the World Health Organization guidelines and an updated guide for translation and adaptation of scales (17, 18). After receiving permission via e-mail from Jenny Secker, who developed the SIS, the scale items were translated independently from English into Turkish by bilingual linguists and authors.

Translation of the scale was controlled by a bilingual linguist team including six specialists to avoid inappropriate expressions and inconsistencies. The scale was independently translated again from Turkish into English by two other bilingual linguists. The conceptual and linguistic appropriateness between the original scale and back-translated English version was checked by three different experts.

The content validity of the preliminary SIS was investigated by six public health nurse specialists at different universities in Turkey. Based on their findings, small corrections were made to 18 items for cultural and language differences to comply with Turkish language phraseology (Appendix 1).

Statistical analysis

In the planned methodological study, firstly, the original structure of the scale was tested with confirmatory factor analysis. However, exploratory factor analysis was performed because fit indices in the confirmatory factor analysis were not suitable. Finally, confirmatory factor analysis was performed to test exploratory factor analysis for psychometric evaluations. Cronbach's alpha was used to test the reliability of the scale. All data analyses were performed using the Statistical Package for the Social Sciences version 21.0 for Windows (SPSS Inc. Chicago) and Linear Structural Relationships (Lisrel v8.5, Scientific Software International Inc. Lincoln). The sociodemographic variables associated with SIS score were examined using the Mann–Whitney U test and Kruskal–Wallis test.

The extent of agreement between the specialists was assessed using a content validity index (CVI). The specialists evaluated the feasibility and appropriateness of each item on the scale by rating them as follows: 1=not relevant, 2=unable to assess relevance without item revision or the item requires a level of revision that would render it irrelevant, 3=relevant but needs minor alteration and 4=very relevant.

Corrected total item correlations, Cronbach's alpha and alpha item-total correlations were included in the analysis to determine the internal consistency. Split-half method using Spearman Brown formula was used for reliability. A reliability coefficient of 0.70 or greater is considered as an evidence for internal consistency of new instruments, along with Cronbach's alpha value range from 0.00 to 1.00, wherein higher values indicate greater reliability (19).

We examined the relationship between social inclusion and the loneliness level as the criterion.

Pearson correlation analysis of the scale with the LSE was conducted to establish criterion validity.

Principal component analysis and varimax rotation with Kaiser Normalisationto test the construct validity were used for exploratory factor analysis. Before conducting the factor analysis, the Kaiser–Meyer–Olkin (KMO) measurement and Bartlett test were performed to determine the adequacy of the sample size. Kaiser–Meyer–Olkin values exceeding 0.5 indicate sufficient sample sizes for factor analysis (20). All factors with eigenvalues of at least 1.0 were retained. A first-order confirmatory factor analysis of data from the SIS (Tr) was conducted.

Confirmatory factor analysis is a specific structural equation modelling technique used to identify the goodness-of-fit index (GFI). The goodness of the calculated fit indices includes Pearson's $\chi 2$ statistic with the freedom scores, the Bentler & Bonett's comparative fit index (CFI), the GFI, the root mean error of approximation (RMSEA), adjusted goodness-of-fit index (AGFI) and the Bentler & Bonett's non-normed fit index (NNFI). Model fitness is indicated by an RMSEA less than 0.08,GFI, CFI and NNFI values greater than 0.9 and an AGFI greater than 0.8 (21).The weighted least squares method was chosen in the Lisrel program because SIS consisted of categorical variables.

Signed informed consent was obtained from all older persons aged ≥65 years. The ethics committee of university approved the study (21 February 2016-number:162), which was conducted in accordance with the principles of the Declaration of Helsinki.

RESULTS

CVI was found to be 0.97 for all items of SIS. This study included 230 older persons aged ≥65 years (127 females and 103 males; mean age=72.5 ±6.7 years). Demographic characteristics of the participants are shown in Table 1. The mean SIS and LSE scores were 52.73±11.24 and 8.14±5.90, respectively.

The sociodemographic characteristics of individuals influenced their social inclusion. A high socioeconomic status (Konyaalti), sex (male), age (65–74 years), a high education level (university and over), working status (retired and working), perceived income status (income=expenditure and income > expenditure), marital status (married),living arrangements (with spouse and children) and dependency status (independent) positively affected social inclusion ($p<0.05$). Conversely, the presence of chronic disease and housing type did not influence social inclusion ($p>0.05$) (Table 1).

Cronbach alpha internal consistency and split-half reliability coefficient of SIS was 0.894 and 0.825, respectively. The Cronbach alpha values of the factor 1, 2 and 3 were 0.877, 0.828 and 0.472, respectively. All corrected item-total correlations exceeded the accepted cut-off of 0.32 (Table 2) (21). A correlation analysis revealed a negative correlation between the SIS and LSE ($r=-0.716$, $p<0.001$). There was a negative correlation between the emotional loneliness of LSE and the sub-scales of factor 1, factor 2 and factor 3 of SIS ($r=-0.517$, -0.391 and -0.320, respectively; $p<0.001$). A negative correlation was also found between the social loneliness of LSE and SIS sub-scales ($r=-0.687$, -0.509 and -0.216, respectively; $p< 0.001$).

The results of the confirmatory factor analysis for testing the original structure were as follows: GFI was 0.828 ($X^2=357.87$, $p<0.01$), CFI was 0.935 and RMSEA was 0.118.

Before the exploratory factor analysis, the KMO value was computed. The KMO score was 0.90, and Bartlett's test of sphericity reached significance ($p<0.001$), indicating that the sample was sufficiently large and adequate factorability of the correlation matrix was achieved to perform a satisfactory factor analysis.

Table 3 presents the item–factor loadings for the Turkish version of the SIS when the data from all 230 older persons aged ≥65 years were analysed. The 18 items of the SIS were analysed using a varimax

Table 2. Item analysis of the SIS (n=230).

		Mean (sd)	Corrected item-total correlation	Cronbach's Alpha if Item Deleted
S1	I have felt terribly lonely and isolated.	3.22 (1.03)	0.554	0.888
S2	I have felt accepted by my friends.	3.41 (0.86)	0.671	0.885
S3	I have been out socially with friends.	2.64 (1.17)	0.667	0.884
S4	I have felt that I play a useful part in society.	2.86 (1.12)	0.687	0.883
S5	I have friends I see or talk to every week.	2.94 (1.18)	0.702	0.883
S6	I have felt what I do is valued by others.	3.16 (1.03)	0.707	0.883
S7	I have been to new places.	2.34 (1.11)	0.627	0.886
S8	I have learnt something about other cultures.	2.18 (1.16)	0.625	0.886
S9	I have done some cultural activity (for example gone to a library, museum, gallery, theatre, concert).	1.93 (1.01)	0.511	0.889
S10	I have felt some people look down on me because of my age.	3.36 (0.98)	0.387	0.893
S11	I have felt unsafe to walk alone in my neighbourhood in daylight.	3.05 (1.20)	0.330	0.898
S12	I have felt accepted by neighbours.	3.56 (0.82)	0.529	0.889
S13	I have felt accepted by my family.	3.76 (0.56)	0.490	0.891
S14	I have felt clear about my rights.	3.22 (0.99)	0.649	0.885
S15	I have felt free to express my beliefs.	3.43 (0.94)	0.528	0.889
S16	I have felt insecure about where I live.	3.38 (1.01)	0.332	0.900
S17	I have done a sport, game or physical activity.	1.99 (1.13)	0.496	0.890
S18	I have helped out at a charity or those in need of help around me.	2.21 (1.20)	0.457	0.892

SIS=Social Inclusion Scale, SD=Standard Deviation

rotation. In this study, three factors with eigenvalues exceeding 1.00 were detected. At the end of varimax rotation, the factors clarified 55.14% of the variance. Factor loadings were significant with standardised loading ranging 0.437–0.829 (Table 3). According to the explanatory factor analysis, factor 1 consists of items 1, 2, 3, 5, 6, 10, 12, 13, 14 and 15; factor 2 consists of items 4, 7, 8, 9, 17 and 18 and factor 3 consists of items 11 and 16. Confirmatory factor analysis was followed by exploratory factor analysis.

As a result of confirmatory factor analysis, the model fit indices met the acceptability criteria (Figure 1).The GFI was 0.983 (X^2=379.862, p<0.01), the CFI was 0.986 and the RMSEA was 0.090 (Table 4).

DISCUSSION

Mental health problems are increasingly observed in older persons. Social inclusion may be useful for protecting mental health and guiding community-based health activities. For these reasons, the level of social inclusion must be determined to preserve and improve the mental health of older persons aged ≥65 years. Therefore, this new scale could be extremely useful as a sensitive and simple questionnaire for assessing social inclusion among older persons. The results of this study revealed the cross-cultural validation and psychometric properties of SIS, which is a rare instrument that measures social inclusion in older persons. Having a good level of income and education and being younger (aged 65-74), married and independent in daily living activities provided better social inclusion. This finding can be considered as an indicator of the selectivity of SIS.

Table 3. Factor loading values of the Turkish version of the Social Inclusion Scale [a] (n=230).

Item No	Factor 1	Factor 2	Factor 3
S12	0.777		
S13	0.735		
S2	0.703		
S6	0.663		
S5	0.618		
S3	0.595		
S10	0.593		
S1	0.576		
S14	0.496		
S15	0.437		
S8		0.829	
S9		0.813	
S7		0.782	
S4		0.578	
S17		0.555	
S18		0.546	
S16			0.785
S11			0.782
% Explained variance	**38.52**	**9.62**	**7.00**

[a]Exploratory factor analysis

Table 4. . Goodness-of-fit Indices for the SIS [a] (n=230).

Index	Original version	Turkish version
Goodness-of-fit index (GFI)	0.828	0.983
GFI adjusted for degrees of freedom (AGFI)	0.757	0.978
X^2-test	357.87	379.862
X^2- test DF	85	132
Pr> X^2	<0.01	<0.001
Root mean square error of approximation (RMSEA)	0.118	0.090
RMSEA 90% lower confidence limit	106	193
RMSEA 90% upper confidence limit	131	310
Bentler's comparative fit index	0.935	0.986
Bentler & Bonett's (1980) non-normed fit index	0.920	0.984
Bentler & Bonett's (1980) normed fit index	0.916	0.979

[a]Confirmatory factor analysis, SIS=Social Inclusion Scale

In this study, content validity was investigated using the CVI of six specialists. The value was 0.97 for SIS, which was in line with the suggested excellent content validity (14). The calculated KMO was 0.90, and the Bartlett's test sphericity value was 1807.77 (df=153, p<.001), indicating that the sample size was sufficient to perform a satisfactory factor analysis.

SIS exhibited adequate internal consistency which is an acceptable value for a scale (0.70) (22). The internal consistency was similar to that of the original version (Cronbach's alpha=0.85). In another study, Cronbach's alpha was 0.80 (6). All items of the SIS displayed appropriate corrected item-total correlations (0.33–0.70) (23). But the weakness of the internal consistency of the third factor may be due to the fact that it has only two items.

According to the correlation analysis, social inclusion is inversely associated with loneliness, as indicated by the negative high correlation between the SIS and LSE. This result confirms the criterion validity hypothesised in this study. In another study, the SIS was significantly and positively correlated with the Warwick-Edinburgh Mental Wellbeing Scale (r=0.674) (6). According to these results, loneliness should be reduced and well-being should be improved to increase social inclusion.

According to the results of the confirmatory factor analysis testing the original structure of the scale, model conformity indices did not meet the acceptability criteria. To assess the construct validity of the scale exploratory factor analysis was performed followed by confirmatory factor analysis. Exploratory factor analysis of the SIS was conducted using the principle component method with varimax rotation. All items in the SIS were clustered into three sub-scales, and they met the factor loading of items criterion of at least 0.30 (14). According to the

factor analysis, the factors explained 55.14% of the variance. It is sufficient that multi-factorial structures explain 40%–60% of the variance (21).

Confirmatory factor analysis demonstrated that the factor structure was broadly appropriate. The model fit indices exceeded the acceptable level excluding the RMSEA, the value of which was extremely close to the cut-off. This value was possibly lower than the acceptable criterion because the sample size was insufficient. According to Tabachnick and Fidell, the sample should consist of at least 300 individuals. Increasing the sample size is expected to increase the power of the analysis (24). Comrey and Lee described sample sizes of 100, 200, 300, 500 and 1000 or more as poor, fair, good, very good and excellent, respectively (25). It is predicted that the RMSEA will reach the cut-off in future studies with larger sample sizes.

The results of this study provide evidence that the SIS is a valid instrument for determining the social inclusion status of older persons aged ≥65 years. This study confirmed that the Turkish version of the SIS was reliable for use in older persons aged ≥65 years. In summary, this study validates the SIS and supports its use as a practical, brief and simple instrument in Turkish populations. The Turkish version of the SIS exhibited good reliability and validity at statistically acceptable levels. However, the generalizability of the results of this study may be limited because the data were collected from a single city in Turkey. The RMSEA in confirmatory factor analysis approached the acceptable level. Test–retest reliability could not be assessed. Future studies should perform test–retest reliability

Figure 1. Factor loadings for the Social Inclusion Scale.

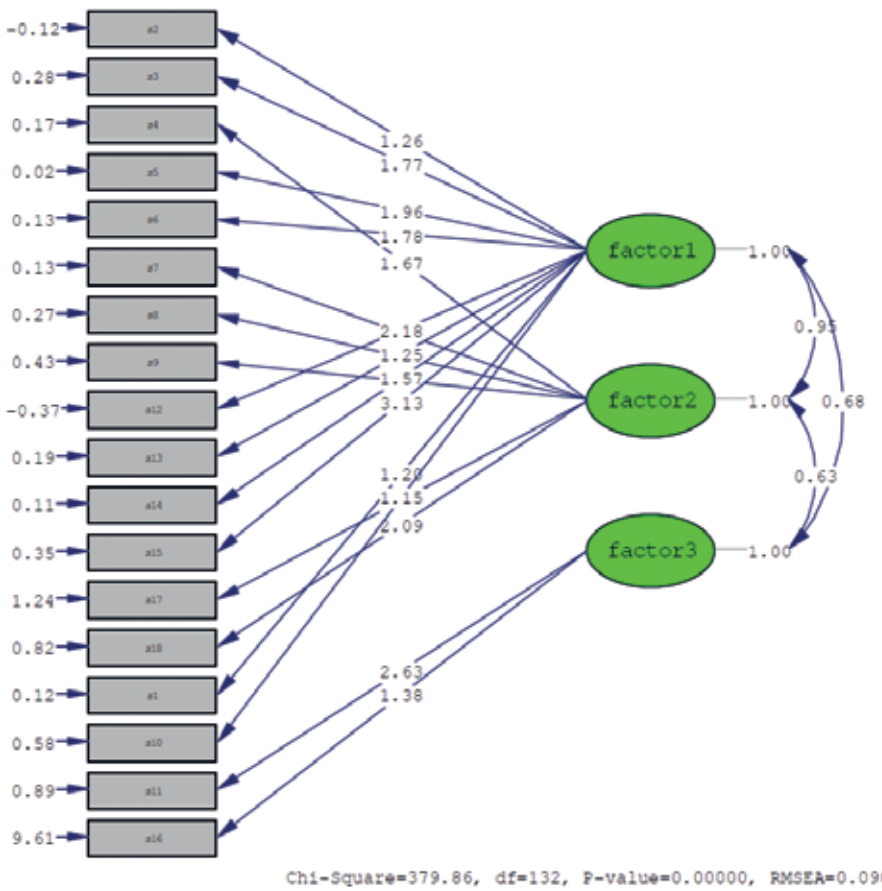

Table 5. Item analysis of the SIS (n=230).

	1= Not at all, 2= Not particularly, 3= Yes a bit, 4= Yes definitely **1= Hiç, 2= PekDeğil, 3= Biraz, 4= Evet Kesinlikle**	**1**	**2**	**3**	**4**
1	I have felt terribly lonely and isolated. *Son derece yalnız ve dışlanmış hissediyorum.*	4	3	2	1
2	I have felt accepted by my friends. *Arkadaşlarım tarafından kabulgördüğümü hissediyorum*	1	2	3	4
3	I have been out socially with friends. *Arkadaşlarımla dışarıda vakit geçiriyorum*	1	2	3	4
4	I have felt that I play a useful part in society. *Toplum dayararlı bir rol oynadığımı hissediyorum.*	1	2	3	4
5	I have friends I see or talk to every week. *Her hafta görüştüğüm ve konuştuğum arkadaşlarım var.*	1	2	3	4
6	I have felt what I do is valued by others. *Yaptıklarıma başkaları tarafından değer verildiğini hissediyorum.*	1	2	3	4
7	I have been to new places. *Yeni yerlerde bulunuyorum.*	1	2	3	4
8	I have learnt something about other cultures. *Başka kültürler hakkında birşeyler öğreniyorum.*	1	2	3	4
9	I have done some cultural activity (for example gone to a library, museum, gallery, theatre, concert). *Bazı kültürel aktivitelerde* *(örneğin kütüphane, müze, galeri, tiyatro ve konsere gitmek) bulunuyorum.*	1	2	3	4
10	I have felt some people look down on me because of my age. *Yaşım nedeniyle bazı insanların beni küçümsediğini hissediyorum.*	4	3	2	1
11	I have felt unsafe to walk alone in my neighbourhood in daylight. *Yaşadığım mahallede gündüz tek başına dolaşırken kendimi güvende hissetmiyorum.*	4	3	2	1
12	I have felt accepted by neighbours. *Komşularım tarafından Kabul gördüğümü hissediyorum.*	1	2	3	4
13	I have felt accepted by my family. *Ailem tarafından Kabul gördüğümü hissediyorum*	1	2	3	4
14	I have felt clear about my rights. *Haklarımı net bir şekilde biliyorum.*	1	2	3	4
15	I have felt free to express my beliefs. *İnançlarımı ifade etmekte kendimi özgür hissediyorum.*	1	2	3	4
16	I have felt insecure about where I live. *Yaşadığım yerde kendimi güvende hissetmiyorum.*	4	3	2	1
17	I have done a sport, game or physical activity. *Bir spor, maç ya da fiziksel aktivite yapıyorum.*	1	2	3	4
18	I have helped out at a charity or those in need of help around me. *Bir yardım kuruluşuna veya yakınımda ihtiyacı olanlara yardımda bulunuyorum.*	1	2	3	4

analyses and utilise larger sample sizes from various populations.

Valid and reliable measurement tools are needed to determine the social inclusion status of older persons in disadvantaged groups in terms of psychological problems. We have developed a reliable and valid scale for assessing the social inclusion level. The SIS is a simple, short and easy measurement tool for examining social isolation, interpersonal relations and social acceptance among individuals. Its use is recommended in all areas. Researchers, community leaders and mental health providers can use the SIS to assess the social inclusion levels of older persons. After implementing the SIS, individuals with low social inclusion levels should be identified early, and necessary precautions should be taken to improve their social inclusion.

Limitations

There are certain limitations to our study. The fact that individuals under the age of 65 years could not be included in the study is considered to be a limitation. Further, very elderly group could not be evaluated in sufficient numbers because they experienced difficulty in reaching FHC. In this study, the fact that the factor structure of the original SIS was not confirmed can be considered as a limitation. However, explanatory factor analysis supported three sub-dimensional structures, and these structures were supported by confirmatory factor analysis. It is recommended that researchers who want to use the adapted SIS should evaluate the total score.

Conflict of interest

The authors stated that there is no potential conflict of interest in relation to the research.

REFERENCES

1. European Commission. Joint report on social inclusion. 2004. [Internet] Available from: http://ec.europa.eu/employment_social/social_inclusion/docs/final_joint_inclusion_report_2003_en.pdf. Accessed:1.8.2016.
2. Levitas R, Pantazis C, Fahmy E, Gordon D, Lloyd E, Patsios D. The multi-dimensional analysis of social exclusion. 2007. [Internet] Available from: http://dera.ioe.ac.uk/6853/1/multidimensional.pdf. Accessed: 2.7.2017.
3. Barnes M, Blom A, Cox K, Lessof C. The social exclusion of older people: evidence from the first wave of the English Longitudinal Study of Ageing (ELSA), final report. Office of the Deputy Prime Minister. 2006. [Internet] Available from: https://www.ifs.org.uk/docs/odpm_social_exclusion.pdf. Accessed: 3.6.2016.
4. Le Boutillier C, Croucher A. Social inclusion and mental health. Br J OccupTher 2010;73(3):136-39. (PMID:20592591).
5. Alma MA, Van der Mei SF, Groothoff JW, Suurmeijer TP. Determinants of social participation of visually impaired older adults. Qual Life Res 2012;21(1):87-97. (PMID:21633880).
6. Wilson C, Secker J. Validation of the Social Inclusion Scale with students. Social Inclusion 2015;3(4):52-62.
7. Dwyer P, Hardill I. Promoting social inclusion? The impact of village services on the lives of older people living in rural England. Ageing Soc 2011;31(2):243-64.
8. International Federation on Ageing. Social inclusion for an ageing population. 2010. [Internet] Available from: https://www.ifa-fiv.org/wp-content/uploads/2012/11/SOM-Country-Report-Final.pdf. Accessed:8.8.2016.
9. Secker J, Hacking S, Kent L, Shenton J, Spandler H. Development of a measure of social inclusion for arts and mental health project participants. J Ment Health 2009;18(1):65-72.
10. Margrove KL, Heydinrych K, Secker J. Waiting list-controlled evaluation of a participatory arts course for people experiencing mental health problems. Perspect Public Health 2013;133(1):28-35. (PMID:23034832).
11. Fatma G, Küçük E, Osman O. Comparisons of social support perceptions of the elderly living in nursing homes and at home. Cumhuriyet Nursing Journal 2015;4(2):47-53.

12. Ülgen SY. Examining the factors affecting social participation in the elderly living at home.Pamukkale University Health Sciences Institute 2012. [Internet] Available from: http://acikerisim.pau.edu.tr/xmlui/handle/11499/384. Accessed: 8.7.2017.

13. Grove SK, Burns N, Gray J. The practice of nursing research: appraisal, synthesis, and generation of evidence. 7th edition, Elsevier, Saunders, USA 2012, pp 367-71.

14. Avşar H. Association between socioeconomic status, economic environment and obesity in adults. Baskent University Health Sciences Institute 2010. [Internet] Available from: https://angora.baskent.edu.tr/acik_arsiv/ozet_goster.php?pno=2409&yno=282. Accessed: 27.8.2017.

15. Jong-Gierveld JD, van Tilburg T. Manual of the loneliness scale. 1999. [Internet] Available from: https://research.vu.nl/ws/portalfiles/portal/1092113. Accessed:8.8.2016.

16. Akgül H, Yeşilyaprak B. Adaption of loneliness scale for elderly into Turkish culture: Validity and reliability study. Elderly Issues Research Journal 2015;8(1):34-45.

17. World Health Organization. Process of translation and adaptation of instruments. 2017. [Internet] Available from: http://www.who.int/substance_abuse/research_tools/translation/en/.Accessed:8.8.2016.

18. Capik C, Gozum S, Aksayan S. Intercultural scale adaptation stages, language and culture adaptation: Updated guideline. Florence Nightingale Journal of Nursing 2018;26(3):199-210.

19. Özdamar K. Statistical data analysis with packet programs. 5th edition, Kaan Publisher, Turkey 2004, pp 510-45.

20. Yong AG, Pearce S. A beginner's guide to factor analysis: Focusing on exploratory factor analysis. Tutorials in quantitative methods for psychology 2013;9(2):79-94. [Internet] Available from: http://www.tqmp.org/RegularArticles/vol09-2/p079/p079.pdf. Accessed: 28.8.2016.

21. Çokluk Ö, Şekercioğlu G, Büyüköztürk Ş. Multi variable statistics for social sciences: SPSS and LISREL applications. 3rd edition, Pegem Academy, Turkey 2014, pp 270-90. (in Turkish).

22. Polit DF, Beck CT. Essentials of nursing research: Appraising evidence for nursing practice.7th edition, Wolters Kluwer Health, Lippincott Williams & Wilkins, USA 2010, pp 370-80.

23. Raykov T, Marcoulides GA. Introduction to psychometric theory.1st edition, Routledge, Taylor and Francis Group, USA 2011, pp 130-45.

24. Tabachnick BG, Fidell LS. Using Multivariate Statistics. 6th edition, Pearson Education, Harlow, England 2012, pp 660-70.

25. Comrey A, Lee H. A First Course in Factor Analysis. 2nd edition, Routledge, Lawrence Erlbaum, USA 1992, pp 210-20.