

# Cultural Adaptation of the Friendship Scale and Health-Related Quality of Life and Functional Mobility Parameters of the Elderly Living at Home and in the Nursing Home

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**Aim:** The aim of our study is to validate the Friendship Scale (FS) for the Turkish population and to evaluate the differences between the social isolation parameters, health-related quality of life, and functional mobility in the elderly people living at home and at the nursing home.

**Methods:** One hundred sixteen elderly people, 65 years and older, living at home and the nursing home were recruited in the study. Nottingham Health Profile was used to assess the health-related quality of life, Rivermead Mobility Index for mobility level, and FS for social isolation of the elderly in both groups.

**Results:** Mean age of the participants in the study was  $76.10 \pm 8.22$  years (63-97 years). Seventy-one of 116 cases (63.5%) were women and 45 (36.5%) were men. No differences were observed between the groups in terms of age and demographic and clinical characteristics ( $P < .05$ ).

Intraclass correlation coefficient score for test-retest reliability was 0.981 (95% confidence interval [CI] = 0.957-0.991) for the FS. The results showed concurrent validity of the Turkish version of FS and were significantly different between the groups ( $P = .006$ ). There was no difference between the groups in terms of Rivermead Mobility Index ( $P = .246$ ).

Although there was no difference between the groups in terms of Nottingham Health Profile total score ( $P = .290$ ), there was a significant difference in social isolation subscale ( $P = .028$ ).

**Conclusions:** It is thought that the inclusion of mobility, social participation, and integration in the rehabilitation programs of the elderly would be useful to maintain their functional independence, social participation, and psychosocial well-being and in increasing health-related quality of life. Regardless of where and in which circumstances they live, all of them have to be supported in their mobility, participation, and social well-being as early as they can.

**Key words:** elderly, mobility, nursing home, quality of life, social isolation

The elderly population has been increasing all around the world.<sup>1</sup> The percentage of geriatric people is increasing in Turkey, as well.<sup>2</sup> The proportion of Turkish people older than 65 years is 7.8% of the total population.<sup>1</sup> It is estimated that current population of those older than 65 years is 390 million now and will be twice in 2025.<sup>3,5</sup> It is estimated that the share of the elderly people in total population in our country will reach to 9.3% in 2025 (population statistics, 2005). According to the predictions, the life expectancy in Turkey will be 75 years in 2025 while it was 69 years in 1997.<sup>6</sup>

Elderly people are coping with many problems related to their lack of physical activity, functional mobility, health-related quality of life (HRQOL), and social isolation. The importance of physical, functional, psychological, and social factors in realizing a healthy old age is recognized by the elderly people,<sup>7,8</sup> health care professionals,<sup>9</sup> and policy makers.<sup>10</sup>

The concept of life satisfaction is also very important for the elderly people, whose life expectancy has been increased, to such an extent that life satisfaction has become one of the most significant objectives in the health care system.<sup>11-13</sup> Feeling worthless or exhausted for the elderly individuals is thought to be a significant obstacle in achieving a proper life satisfaction and participation.<sup>14,15</sup>

If it is not achieved, this will contribute to the social isolation in the elderly people, which refers to living without companionship, social support, or social connectedness. Social isolation which is defined as being not or no longer married, living alone, having a small social network, little participation in activities with others, or lack of social engagement has been shown to be associated with cognitive decline which will affect all domains in the elderly people.<sup>16</sup> It is also associated with poorer HRQOL, life meaning, and levels of satisfaction, well-being, and community involvement.<sup>17</sup> Satisfaction, which is also very associated with mobility, means ability to move is an important part of the physical functions and is necessary for participation to the social community.<sup>18</sup> Some studies show that most of the elderly people experienced a decline in mobility because of aging, and mobility disability is even more prevalent than the dependency in the activities of daily living.<sup>19-24</sup>

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The authors declare that there is no financial/conflict of interest.

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A high level of physical activity, functional mobility, and cognition are among the necessary factors for independence in daily life and a better quality and healthier aging.<sup>25,26</sup> The concepts of the level of functional mobility and level of physical activity are interrelated, and an insufficient level of physical activity results in loss of mobility, which causes dependency in the activities of daily living.<sup>27,28</sup> As a part of the chain, this will lead to social isolation which will affect the elderly people in their participation.

There are some studies in the literature showing the associations and/or correlations between the HRQOL, mobility, level of independence, and falls in the elderly people. But there is no study showing the associations and/or correlations between social isolation and these parameters. So, the aim of our study is to validate the Friendship Scale (FS) for the Turkish population and to evaluate the correlations and differences between the social isolation parameters and HRQOL and functional mobility in the elderly people living at home and nursing home.

## METHOD

The study was carried out in 2 steps: the first was the linguistic and cultural translation of the FS from English into Turkish and the second was an investigation of the statistical validity and reliability of the Turkish FS.

### Translation process

Permission for the usage of the FS was obtained from Hawthorne<sup>17</sup> via e-mail before the study. During the translation period, cross-cultural adaptation design proposed by Beaton et al<sup>29</sup> was used. Translation from English to Turkish was performed by 2 different bilingual translators whose mother language was Turkish. One of the translators was blind to the purpose of the study and the concepts being examined in the questionnaire. This was for providing equivalency from a clinical perspective rather than a literal equivalence. The other translator was informed about the purpose of the study and the concepts being quantified. This was for reflecting the language that is used by the population and highlighting ambiguous meanings in the original questionnaire. The 2 translations were compared with each other to eliminate any possible discordance. Both of the translations were then back-translated into English by 2 native English speakers who were totally blind to the original version of the questionnaire and did not know the purpose of the study. The 2 back-translated English versions were then compared with the original version of the FS. A bilingual team consisted of 4 translators, and 3 physiotherapists reviewed the Turkish version of the questionnaire to ensure cross-cultural equivalence and form the prefinal version for field-testing. The Turkish version of the questionnaire was then compared with the original one to achieve semantic, idiomatic, experimental, and

conceptual equivalence. The last stage of the process was to test the prefinal version.

Eight volunteers completed the translated questionnaire to determine any misunderstandings and deviations in the translation. The acceptability and comprehensibility of the translation were tested item by item. The modifications were done in the final adaptation.

## VALIDITY AND RELIABILITY INVESTIGATIONS

### Participants

One hundred sixteen elderly people, aged 65 years and older, living at home and nursing home were recruited in the study. Inclusion criteria for the study were the following: demonstrating the ability to follow verbal requests for movement and voluntary participation. Exclusion criteria were the following: having dementia and/or cognitive problem, impaired visual/auditory acuity, and acute medical problems.

The study was approved by the Ethics Committee of the Fatih University and was performed in accordance with the Declaration of Helsinki. Written informed consent was obtained from all patients to participate in the study. Demographic characteristics and other related history were recorded for each patient.

### NOTTINGHAM HEALTH PROFILE

This is a self-administered questionnaire and 2-part instrument; part I was used in this study. It comprises 38 statements that convey limitations of activity or aspects of distress in 6 dimensions: physical mobility, pain, sleep, energy, social isolation, and emotional reactions. Patients indicated a yes/no answer for the problems they were experiencing when completing questionnaire. A score ranging between 0 and 100 can be calculated for each dimension. Higher score means greater limitations in activity and social or emotional problems.<sup>30</sup>

### RIVERMEAD MOBILITY INDEX

The Rivermead Mobility Index (RMI) is mainly used to measure the level of mobility. It consists of 14 questions and 1 observation, including a series of hierarchical activities, from turning in bed to running. One point is given for each "Yes" answer and the score range is between 0 and 15. A score of 15 points indicates that there is no mobility problem, while scores of 14 and less indicate that there is a mobility problem.<sup>31</sup> Validity and reliability of this test were conducted in Turkey.<sup>32</sup>

### FRIENDSHIP SCALE

This is a valid user-friendly scale and assesses aspects of both perceived social isolation and loneliness, composed of 6 items, and measures 6 important dimensions that

contribute to social isolation and its opposite, social connection. The psychometric properties suggest that it has excellent internal structures. These dimensions are relation with others, feeling of isolated from others, sharing of feelings, getting in touch with others, feeling of separated from others, and feeling of loneliness and friendless. Responses are categorized into 5 levels of perceived social isolation (almost always/most of the time/about half the time/occasionally/not at all). Scoring involves reversal of items 1, 3, and 4, followed by summation across all items. The score range is 0 to 24. A high score represents social connectedness and a score of "0" represents complete social isolation. The suggested cut points are as follows: very isolated 0 to 11, isolated 12 to 15, some isolation 16 to 18, socially connected 19 to 21, and very connected 22 to 24.<sup>17</sup>

### Statistical analysis

The statistical analysis of the data was performed using SPSS (Statistical Package for the Social Sciences, Chicago, Illinois) for Windows 15 package program. Kolmogorov-Smirnov/Shapiro-Wilk test was used to investigate normality of the distribution of the continuous variables. The descriptive statistics were given as the mean  $\pm$  SD for the continuous variables and as number of patients and percent (%) for the categorical variables.

Reliability was evaluated by measuring both the internal consistency and test-retest reliability. Internal consistency was assessed using item-total correlation and Cronbach  $\alpha$ . A Cronbach  $\alpha$  coefficient more than 0.7 was regarded as satisfactory. Test-retest reliability was determined by using intraclass correlation coefficient (ICC) and Spearman correlation analysis. Significance of difference between baseline and 7 days was investigated with Wilcoxon signed rank test.

Concurrent validity was examined by comparing FS with RMI and Nottingham Health Profile (NHP). Concurrent validity was investigated using Spearman correlation test. A correlation coefficient ( $r$ ) greater than 0.50 was regarded as a strong correlation,  $r$  equal to 0.3 to 0.5 was regarded as a moderate correlation, and  $r$  less than 0.3 was regarded as a weak correlation. Nonparametric test was conducted to compare parameters. The Mann-Whitney  $U$  test was used to compare variables between the groups.  $P < .05$  was regarded as statistically significant.

## RESULTS

Of the 116 participants, 57 were living at home and 59 were living at nursing home. Mean age of the cases who participated in the study was  $76.10 \pm 8.22$  years ranging from 63 to 97 years. Seventy-one of 116 cases (63.5%) were women and 45 (36.5%) were men. In home group, 27% were married and 73% were widowed. In nursing home group, 20.2% were married, 6.1% were divorced, and 73.7% were widowed. In home group, 13.5% were living at home alone, 79.4% were living at home with their family, and 8.1% were

living at home with care. No difference was observed between the nursing home group and the home group in terms of age and demographic and clinical characteristics ( $P < .05$ ). Table 1 shows the demographic and the clinical characteristics of the groups.

### Reliability of Turkish version of FS

The range of the "if item-deleted  $\alpha$  values" was 0.863 to 0.890 for FS in the analysis of the internal consistency reliability. All of the  $\alpha$  values were found to be smaller than the overall  $\alpha$  values (Table 2). Cronbach  $\alpha$  coefficient was 0.890 for the FS in the analysis of scale reliability (Table 2).

Intraclass correlation coefficient score for test-retest reliability was 0.981 (95% confidence interval = 0.957-0.991) for the FS. According to Spearman correlation analysis,  $r$  value was 0.943 ( $P < .05$ ) for the FS. There was no difference between test-retest scores ( $P > .05$ ).

### Validity of Turkish version of FS

When the correlation between the FS and the RMI was investigated, the  $r$  value was 0.369 (moderate  $P < .05$ ).

<b>TABLE 1 Demographic and Clinical Characteristics of the Study Sample</b>		
<b>Variable</b>	<b>Home Group (n = 57)</b>	<b>Nursing Home Group (n = 59)</b>
<b>Gender</b>		
Male	22 (32.4%)	23 (39.0%)
Female	35 (67.6%)	36 (61.0%)
<b>Marital status</b>		
Married	20 (27.0%)	15 (20.2%)
Divorced	37 (73.0%)	33 (73.7%)
Widowed	0	11 (6.1%)
Age, y, mean $\pm$ SD	$76.95 \pm 7.76$ (66-96)	$75.58 \pm 8.52$ (65-97)
<b>Hypertension</b>		
Absent	30 (54.1%)	30 (51.5%)
Present	27 (45.9%)	29 (48.5%)
<b>Diabetes mellitus</b>		
Absent	36 (70.3%)	33 (60.6%)
Present	21 (29.7%)	26 (39.4%)
<b>Osteoporosis</b>		
Absent	40 (81.1%)	40 (78.8%)
Present	17 (18.9%)	19 (18.2%)
<b>Falling down</b>		
Absent	36 (70.3%)	32 (57.6%)
Present	21 (29.7%)	27 (42.4%)

TABLE 2 Reliability of the FS	
	Value
Internal consistency: Cronbach $\alpha$ (N = 116)	
FS	0.89
Test-retest reliability: ICC	
FS	0.98
Test-retest reliability: correlation, $r$	
FS	0.94
Abbreviations: FS, Friendship Scale; ICC, intraclass correlation coefficient.	

When the relation between the FS and the NHP was investigated,  $r$  value was  $-0.580$  (strong  $P < .05$ ). These results showed concurrent validity of the Turkish version of the FS (Table 3).

### SOCIAL ISOLATION

FS score was significantly different between the nursing home group and the home group ( $P = .006$ ) and was higher in the home group (Table 4).

### HEALTH-RELATED QUALITY OF LIFE

No difference was observed between the groups in terms of NHP except in social isolation subscale. Social isolation subscale score of NHP was significantly different between the nursing home group and the home group ( $P = .028$ ) and was higher in the nursing home group. Higher score represents greater limitations in the activity and having social problems (Table 4).

### MOBILITY

There was no difference between the 2 groups in terms of RMI ( $P = .246$ ). The comparison results of the 2 groups are illustrated in Table 4.

TABLE 3 Validity of the FS		
	Correlation, $r$	$P$
FS		
NHP pain	$-0.333$	.005 <sup>a</sup>
NHP sleep	$-0.283$	.017 <sup>b</sup>
NHP energy	$-0.417$	.000 <sup>a</sup>
NHP social isolation	$-0.759$	.000 <sup>a</sup>
NHP physical activity	$-0.458$	.000 <sup>a</sup>
NHP total	$-0.580$	.000 <sup>a</sup>
RMI	0.369	.002 <sup>a</sup>
Abbreviations: FS, Friendship Scale; NHP, Nottingham Health Profile; RMI, Rivermead Mobility Index.		
<sup>a</sup> $P < .001$ .		
<sup>b</sup> $P < .05$ .		

## DISCUSSION

This study showed that Turkish version of FS is a valid and reliable tool for measuring social isolation in the elderly people. It is short, user-friendly, stand-alone scale measuring felt social isolation with good psychometric properties and can be easily incorporated into epidemiological studies and clinical trials. This study is also representing the comparison of the social isolation, HRQOL, and functional mobility of the Turkish elderly living at home and nursing home. Elderly people living in nursing home are more socially isolated than those living at home.

Availability of the scale in several languages facilitates universality of the results from clinical trials. Adequate translation procedures have to be used to achieve cross-cultural equivalence when translating patient-reported outcome measures. The results of reliability and validity testing are in line with previous study, which is evidence that our translation procedure was adequate.

Item-total correlation measures the strength of association between an item and the remainder of its scale, and correlations of 0.4 or above are considered acceptable. Cronbach  $\alpha$  assesses the overall correlation between items within a scale, and values of 0.7 or more are considered acceptable. In our study, Cronbach  $\alpha$  coefficient was 0.89 and accepted as good reliability.

Hawthorne,<sup>17</sup> who developed the scale, found the Cronbach  $\alpha$  coefficients as 0.83. Intraclass correlation coefficients can vary from 0.00 to 1.00, in which values of 0.60 to 0.80 are regarded as evidence of good reliability, with those greater than 0.80 indicating excellent reliability. Portney and Watkins<sup>33</sup> claim that for most clinical measurements, reliability should exceed 0.90 to ensure reasonable validity. In our study, ICCs were above 0.90 and reliability exceeded 0.90.

Hawthorne<sup>17</sup> conducted a study concerning psychometric properties of FS, SF-36<sup>®</sup> health status scale, Assessment of Quality of Life utility measure, and World Health Organization Quality of Life Group's Questionnaire (WHOQOL-BREF) to evaluate validity. In our study, we used NHP and RMI for construct validity assessment of FS. FS was highly correlated with all subparameters of the NHP. But in the study that was conducted by Hawthorne,<sup>17</sup> generally correlations were moderate. Especially, social isolation subparameter of the NHP highly correlated with the FS suggests that the FS is measuring social isolation in relation to how persons feel about themselves, their social role, and their need for belongingness.

The number of the elderly people living all over the world is increasing.<sup>1</sup> Hardship in the living standards, transportation problems, diseases, and stress makes the life difficult in the elderly population. Diminishment in the core family and increased working loads and responsibilities destroy the relationships of adult family members with their elderly parents and/or relatives. That is one of



**TABLE 4** The Results of the Comparisons Between the 2 Groups<sup>a</sup>

Variable	Home Group (n = 57)	Nursing Home Group (n = 59)	z	P
FS	18.27 ± 5.13	13.98 ± 5.80	-2.742	.006 <sup>b</sup>
NHP—total score	254.59 ± 152.59	294.96 ± 156.92	-1.059	.290
NHP—physical mobility	39.24 ± 29.06	49.40 ± 23.86	-1.451	.147
NHP—pain subscale	45.29 ± 37.03	48.29 ± 36.46	-0.396	.692
NHP—sleep subscale	45.22 ± 25.95	43.30 ± 31.92	-0.514	.607
NHP—energy subscale	58.70 ± 41.66	67.88 ± 40.97	-1.111	.267
NHP—social isolation	32.34 ± 36.62	51.78 ± 39.55	-2.192	.028 <sup>b</sup>
NHP—emotional reactions	37.63 ± 27.38	43.40 ± 31.92	-0.618	.536
RMI	11.32 ± 3.95	9.94 ± 4.69	-1.162	.246
= 15	21 (29.7%)	20 (21.2%)		
≤14	36 (70.3%)	39 (78.8%)		

Abbreviations: FS, Friendship Scale; NHP, Nottingham Health Profile; RMI, Rivermead Mobility Index.

<sup>a</sup>Values given are mean ± SD unless indicated otherwise.

<sup>b</sup>P < .05.

the important reasons of the elderly people establishing in the nursing homes. There are some studies, which are in line with our results, investigating the life satisfaction of the elderly individuals living in family environment and nursing homes and the authors stated that elderly living in a family environment had higher life satisfaction than those living in nursing homes.<sup>34,35</sup> Those elderly, living in nursing home, feel more lonely and isolated. Although they live in a crowded surrounding, living away from their family members, neighbors, and relatives may contribute to feel more isolated. Also, living in a nursing home is an undesirable taboo in our country for the public. This reflection also affects the psycho-emotional well-being of the elderly people, which has a direct affect on the social isolation.

Elderly people may cope with some mobility problems in years. There are some studies showing that the elderly people living in a nursing home were found to be more dependent than those living in home environment.<sup>27,29,36,37</sup> Karakaya et al<sup>2</sup> claimed that the elderly people living in nursing home are more dependent than those living in their home, which is contrary to our results. This may be because of the modernization of the recent established nursing homes in Turkey. Furthermore, we may say that the elderly people in both groups scored less than 14, which demonstrates that they have the same mobility problems. Also, there are some studies in the literature confirming that the elderly people living at home are more dependent, which is not in line with our results<sup>38,39</sup> but in line with the results of Karakaya et al<sup>2</sup> Modernization of the nursing homes by more social and recreational activities may contribute to have a more dynamic life, as well as those living at home. In addition, establishment of physiotherapy units in the nursing home also contributes for

living a more active life in nursing home for the elderly people. This result is confirmed with both RMI and physical mobility subscale of NHP. There some results in the literature that are controversial to our results.<sup>27,29,36,37</sup> This may be because of the age range and the environment of the elderly people in which they live.

It is reported that the physical activity and capacity affect HRQOL to a significant extent in old age.<sup>26,40</sup> So, there is also an association between the mobility parameters and QOL. Since the mobility level seems to be the same in this study in both groups, the QOL parameters are the same as well for both groups. Therefore, health care providers and professionals should encourage the elderly people for improving their physical activity level and fitness.

Although the elderly living in their own home have lower scores from NHP, there were no difference between the groups. Except social isolation subscale, there was no significant difference in all the other subscales of NHP. Sociodemographic characteristics of the elderly people are a good indicator of their QOL. Since there was no difference between the groups according to their sociodemographic characteristics, their QOL is almost parallel to each other. In the study of Yumin et al,<sup>28</sup> it is concluded that there is a correlation between mobility and HRQOL. Since there was no significant difference in the mobility level of both groups, their QOL is also the same.

It is thought that the inclusion of mobility, social participation, and integration in the rehabilitation programs of the elderly would be useful to maintain their functional independence and social and psychological well-being and in increasing their HRQOL. It is also concluded that, regardless of where and in which circumstances the elderly people live, all of them have to be supported in

their mobility, participation, and social well-being as early as they can. All caregivers, family members, professionals, and educators should be informed about the results for a healthy elderly population and ageing.

The limitation of this study is the lack of assessment of the psychological status of the elderly people. Although there was no observable psychological instability or problems at all, this should be taken into account while talking about social isolation and HRQOL.

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