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Turkish Validity and Reliability Study of the Functional Independence and Difficulty Scale in Older Adults

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ABSTRACT

Aim: The aim of this study is to show the suitability of the Functional Independence and Difficulty Scale (FIDS) in the older adults for the Turkish version and Turkish society. In addition, it aims to question the effectiveness of its clinical use and bring it into the use of other researchers. Materials and Method: 140 older adults living in the society participated in the research. The physical characteristics and clinical states of the individuals were recorded, and their cognitive states were evaluated by the Mini-Mental State Examination (MMSE) during the first evaluation. The Functional Independence and Difficulty Scale (FIDS) was translated into Turkish by specialists in this field in order to investigate its validity and reliability. To test the convergent validity, the Barthel Index for Activities of Daily Living (Barthel ADL) and the Katz Index of Activities of Daily Living (Katz Index ADL) were applied in the study. For the test-retest reliability, a retest was performed two weeks later by the same physiotherapist. Results: The Intraclass Correlation Coefficient (ICC) value of the FIDS was found to be 0.999 (95% CI; 0.995-1.000 excellent agreement). According to the correlation analysis, a high correlation ($r=0.100$, $p<0.0001$) was detected between the first and second assessments of the FIDS. Cronbach's alpha coefficient was computed as 0.872. The scale's internal consistency was observed to be very high ($p<0.0001$). A moderate positive correlation was revealed between the FIDS and the Barthel ADL ($r=0.504$, $p=0.000$) and between the FIDS and the Katz Index ADL ($r=0.466$, $p=0.000$). The factor analysis demonstrated a three factor structure that explained 59.01% of total variance. Conclusion: This study demonstrated that the Turkish version of the FIDS was a valid and reliable scale concerning older adults.

Key words: Activity of daily living, Functional Independence and Difficulty Scale, Older adults, Reliability, Validity.

Yaşlı Bireylerde Fonksiyonel Bağımsızlık ve Zorluk Ölçeği'nin Türkçe Geçerlik ve Güvenirlik Çalışması

ÖZ

Amaç: Bu çalışmanın amacı, yaşlı bireylerde Fonksiyonel Bağımsızlık ve Zorluk Ölçeği (FBZÖ)'nin Türkçe versiyon ve Türk toplumu için uygunluğunu göstermektir. Ayrıca klinik olarak kullanılmasının etkinliğini sorgulayarak diğer araştırmacıların kullanımına kazandırmaktır. Gereç ve Yöntem: Bu çalışmaya toplumda yaşayan 140 yaşlı birey dâhil edildi. Bireylerin ilk değerlendirmelerinde fiziksel özellikleri ve klinik durumları kaydedilerek, bilişsel durumları Mini Mental Durum Testi (MMDT) ile değerlendirildi. FBZÖ'nin Türkçe Versiyonu, Geçerlilik ve Güvenilirliğinin araştırılması için uzman kişiler tarafından çevirisi yapıldı. Çalışmada, uyum geçerliğini test etmek için Barthel Günlük Yaşam Aktiviteleri Indeksi (Barthel ADL) ve Katz Günlük Yaşam Aktiviteleri Ölçeği (Katz Index ADL) kullanıldı. Test-tekrar test güvenilirliği için, tekrar test 2 hafta sonar aynı fizyoterapist tarafından yapıldı. Bulgular: Fonksiyonel Bağımsızlık ve Zorluk Ölçeği'nin Sınıfiçi Korelasyon Katsayısı (ICC) değeri 0.999 (95 %CI; 0.995- 1.000 mükemmel) olarak bulundu. Yapılan korelasyon analizine göre ilk ve ikinci değerlendirme sonrası FBZÖ arasında yüksek ilişki saptandı ($p<0.0001$). Cronbach alfa katsayısı 0.872 hesaplandı. Anketin iç tutarlılığı çok yüksek bulundu ($p<0.0001$). FBZÖ ile Barthel ADL ($r=0.504$, $p=0.000$) ve Katz İndeks ADL($r=0.466$, $p=0.000$) arasında, pozitif yönde orta düzeyde ilişki bulundu. Faktör analizinde, toplam varyansın %59.01'ini açıklayan üç faktörlü bir yapı gösterdi. Sonuç: Bu çalışma ile yaşlı bireylerde FBZÖ'nin Türkçe versiyonunun geçerli ve güvenilir olduğu gösterildi.

Anahtar kelimeler: Fonksiyonel Bağımsızlık ve Zorluk Ölçeği, Geçerlilik, Günlük yaşam aktivitesi, Güvenilirlik, Yaşlı.

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INTRODUCTION

The aging of the world population is rapidly becoming a global problem. In 2019, the number of individuals aged 65 years and over were stated to be 703 million across the world (Nations 2019). It is predicted that the population aged 65 years and over will double and reach the number of 1.5 billion people by 2050. Worldwide, the geriatric population increased from 6% in 1990 to 9% in 2019. This rate is predicted to rise to 16% by 2050, with one in six people in the world aged 65 and over (Nations 2019). The number of individuals aged over 65 years in Europe is expected to represent 30% of its total population until 2050 (Palmer and Goodson 2015).Turkey is also among the countries which have a fast aging process. An increase of 201% is expected in the geriatric population in Turkey between the years of 2008 and 2040, and the aging index is predicted to reach 21.2% by 2025 (Mandıracıoğlu 2010). As the total number of older adults increases, the number of older adults with physical or mental disorders/disabilities increases as well. The functional independence of older adults is an important indicator of their health conditions. Therefore, it may be required to encourage people's productivity and participation in the labor force at their later ages (Paterson and Warburton 2010). Loss of independence is one of the most significant concerns of older adults (Yusif et al. 2016; Cornwell 2011).

Functional status means an individual's ability to fulfill the necessary duties to maintain his/her self-care and activities of daily living. A person's functional status is the measure of his/her general health (Wang 2004). Age-associated reduced skeletal muscle mass, reduced muscle strength and biological changes influence the physical fitness of older adults and their ability to fulfill daily activities, ranging from basic activities such as self-care, the use of house appliances, and using personal or public means of transportation to the most complicated activities (De Albuquerque et al . 2013; Silva and Farinatti 2007).

A decrease in the fulfillment of ordinary activities of daily living is more apparent at advanced ages (Vaughan and Giovanello 2010). Therefore, the need for scales that measure the activities of daily living and functional abilities of older adults has been increasing in recent years. Scales such as the Instrumental Activities of Daily Living (IADL), Basic Activities of Daily Living (BADL), Advanced Activities of Daily Living (AADL), Late Life Functional Disability Index (LLFDI), Barthel Index for Activities of Daily Living (Barthel ADL), Katz Activities of Daily Living Scale (Katz Index ADL), and the Functional Independence and Difficulty Scale (FIDS), which are designed to measure the activities of daily living and functional independence, are often used by researchers. Scales used for assessing the ADL specific to older adults are limited, and there is a need for constructing and using instruments regarding the evaluation of the ADL in older adults in Turkey. Meanwhile, assessing the ADL of older adults and determining difficulties and restrictions they may face in their daily activities will contribute to the improvement of the services given by healthcare professionals.

The FIDS is a useful scale for assessing both independence and difficulty in basic activities of daily living in older adults. Moreover, the clinical use of the scale, which is simple, easily applicable to older adults, and assesses the functional independence of individuals concerning the ADL in their own words, would be helpful for clinicians as well. In this regard, the current research aims to investigate the validity and reliability of the Turkish version of the Functional Independence and Difficulty Scale (FIDS), which was developed to evaluate the independence of older adults during daily activities; and the efficiency of its clinical use and bring it into use for other researchers.

MATERIAL AND METHOD

Participants and Sample Selection

This study was conducted using the method of instant situation determination, a single survey model among the general survey models. The individuals were reached by the convenience (unbiased) sampling method. The study sample also constituted the study population. At least 5-10 individuals should be included for each scale item when forming the sample size in scale studies (Ercan and İsmet 2004). Therefore, to examine the validity and reliability of the 14-item Turkish version of the FIDS, it was planned to include at least 140 older adults, 10 times the number of items, in the study. The G*Power program (version 3.0.10 Universität Düsseldorf, Düsseldorf, Germany) was used for the post-hoc

power analysis. In the post-hoc power analysis, when the statistical significance of alpha was found to be 5% (effect size: 0.503) and the confidence interval was taken as 95%, the power (1-β) of the study was found to be 99%.

Inclusion Criteria

Volunteer individuals, who were aged 65 years and over, who could read and understand Turkish, with an MMSE score of 24 and above (Güngen et al. 2002) and were independent in mobilization, signed the consent form and enrolled in our research.

Exclusion Criteria

Patients who had cardiac diseases (a history of angina pectoris, acute myocarditis, myocardial infarction in the last three months, aortic aneurysm), a history of pulmonary emboli and deep vein thrombosis, cerebral aneurysm or intracranial hemorrhage in the last three months, acute retinal hemorrhage or previous ophthalmic surgery, active infection, malignancy, multiple organ failure, terminal disease, a history of fracture in the lower and upper extremities in the last three months, patients diagnosed with dementia, Alzheimer's disease, benign paroxysmal positional vertigo, Parkinson's disease, and older adults who received exercise training during the pandemic or in the last six months were excluded from the study.

Ethical Approval

The ethical permission for the study was received from the Clinical Research Ethics Committee of Bolu Abant Izzet Baysal University with the decision numbered 2020/166 on 07.07.2020. A written informed consent was obtained from all participants.

Procedure

Translation

We used the guidelines for cross-cultural adaptation in the translation process (Beaton et al 2000). The consent was obtained from the authors of the FIDS and the scale was finalized after completing its translation to Turkish. During the translation of the FIDS to Turkish, two experts with advanced knowledge of English first translated the scale from English to Turkish. The translations were examined by the researchers, and a single form was created. These translations were re-translated to English by two native English speakers with advanced knowledge of Turkish who had no relations with the medical field. The final Turkish form was sent to five acknowledged experts in order to be evaluated in terms of content and compatibility with Turkish. The pilot study was conducted with ten participants. The scale was observed to be comprehensible and was then finalized (Beaton et al., 2000).

Convergent Validity: The validity of a measurement instrument can be identified by comparing it with other known and accepted measurement tools. If there is a high correlation between the new scale and the criterion, it can be said that the new scale has criterion-related validity. The important point here is that the reliability and validity of the criterion were proved. To this end, the Barthel ADL and the Katz Index ADL were applied to test the covergent validity of the study (Alpar 2001).

Intra-Rater Reliability: One way to determine reliability is to reveal whether the person responding to the measurement instrument will respond to this instrument in the same way when it is re-applied. The Test-retest reliability is found by applying a measurement instrument to the same group under the same conditions twice and then calculating the correlation of the scores obtained in these two applications. The time between applications should be long enough to prevent significant recollections and short enough not to allow measurable changes. Considering this parameter in the study, 140 older adults were retested two weeks later by the same physiotherapist (PT) (Alpar 2001).

Study Design

The MMSE was applied by recording the individuals' physical characteristics and clinical states during their first evaluation. Afterward, the assessment parameters, Barthel ADL and Katz Index ADL, were applied. All of the scales were applied by a physiotherapist who had more than five years of physiotherapy experience.

Instruments

MMSE: It is comprised of eleven items categorized under five main headings, such as orientation, memory for registration,

attention, and calculation, recall and language, and is evaluated over the total score of 30. The ideal threshold value of the MMSE was found to be 24 (Folsteinet et al., 1975). Güngen et al. performed its Turkish validity and reliability study (2002).

FIDS: The FIDS is a scale consisting of 14 items in total, including the basic ADL. These items include getting up from bed, getting up from a chair, standing up from the ground, wearing trousers, eating and drinking, providing oneself with toilet hygiene, bathing, brushing teeth, opening a bottle lid, cutting toenails, walking indoors, walking outdoors, and taking 4 to 6 steps up and down.

The FIDS has two questions for each item: The first question provides information about independence (A), while the second question provides information about the subjective degree of difficulty expressed by the individual (B). Responses to each question are as follows: 'YES' means the individual needs help/ is unable or may have difficulty. 'NO' means the individual does not need help or does not experience any difficulty. Concerning the scoring, if the individual's response to item A is YES (activity-dependent or unable), 1 point is received. If the individual responds as NO (independent) to item A and 'YES' to item B, 2 points are received. If the individual responds as NO to items A and B, 3 points are received. Consequently, the FIDS score is assessed over a score of 14-42, and a higher score received by the individual indicates a better function (Saito et al. 2016).

Barthel ADL: It is a simple and comprehensible index containing all the parameters of the ADL. Küçükdeveci et al. (2000) conducted its Turkish validity and reliability study on neurological patients in 2000. The items include: eating and drinking, bathing, grooming, dressing, bladder control, bowel control, toilet use, chair/bed transfer, mobility, and the use of stairs. Scoring varies between 0 and 100. Scoring is not distributed equally. For example, while the patient can receive a maximum of 5 point for bath activity, the maximum mobility score is 15. A score of 0-20 means completely dependent, a score of 21-62 means severely dependent, a score of 62-90 means moderately dependent, a score of 91-99 means mildly dependent, and a score of 100 means completely independent (Küçükdeveci et al. 2000).

Katz Index ADL: It is a common instrument used to evaluate the independence level in older adults. Arik et al. (2015) conducted its Turkish validity study in 2015. The Katz ADL measures six self-care tasks using a dichotomous rating (dependent-0/ independent-1) in hierarchical order of decreasing difficulty in the following areas: bathing, dressing, using the toilet, transferring to and from a chair, maintaining continence and eating and drinking.6 points means being independent and 0 points means being fully dependent (Arik et al. 2015).

Statistical analysis

The statistical analysis was conducted using the IBM SPSS Statistics V23.0 software. To calculate the variable distribution, visual and analytical methods (Shapiro-Wilk's test) were used. The data was found to be normally distributed. In descriptive statistics, numbers, percentages, means and standard deviations were presented.

Reliability

In this study, Cronbach's alpha reliability coefficient was computed to evaluate the sufficiency, and the consistency of the questions with each other. The following ranges were considered as a reference for internal consistency: α =0-0.39 unreliable, α=0.40-0.59 less reliable,α=0.60-0.79 quite reliable, and α=0.80-1.00 highly reliable. For test-retest reliability, the ICC was computed. The ICC coefficient was accepted as follows: 0.50–0.75 as moderate agreement, 0.75–0.90 as good agreement, >0.90 as excellent agreement. Factor structure was assessed using factor analysis with Principal Components and Direct Oblimin (Alpar 2001).

For convergent validity, Spearman's correlation analysis was conducted to determine the correlation between the FIDS and the Barthel ADL and between the FIDS and the Katz Index ADL. For content validity, ceiling and floor effects were calculated. We hypothesized that the floor and ceiling effects would be less than 15%. Error probability was accepted as 5%.

RESULTS

This study included 140 older adults (mean age 70.29±5.34 years). The individuals' demographic information, marital status, education levels, chronic diseases, and use of assisting devices are demonstrated in Table 1. Of the older adults enrolled in the study, 49.3% were female, and 50.7% were male individuals. Furthermore, 74.3% were married, and

25.7% were single. Of the individuals, 46.4% had one chronic disease, and 53.6% had more than one chronic disease. With regards to activities of daily living, 85.7% did not use assisting devices, whereas 14.3% used walking sticks (Table 1).

Table 1. Socio-demographic characteristics of individuals and the related items used in the questionnaire

Age, (years) (x̄±s.d)		70.29±5.34
BMI, (kg/m2) (x̄±s.d)		28.25±4.31
Mini-Mental Test Examination (x̄±s.d)		27.10±2.19
FIDS score (x̄±s.d)		37.83±5.30
Barthel ADL Index (x̄±s.d)		93.00±11.10
Katz Index ADL (x̄±s.d)		5.68±0.65
Gender, n (%)	Female Male	69 (49.3) 71 (50.7)
Marital status, n (%)	Married Single	104 (74.3) 36 (25.7)
Education Level, n (%)	Illiterate Elementary School Middle School High School College	18 (12.9) 76 (56.3) 18 (12.9) 20 (14.3) 8 (5.7)
Chronic Disease, n (%)	No such disease Hypertension (HT) Diabetes (DM) Rheumatic disease Cardiac insufficiency Chronic lung disease Coronary artery disease	4 (2.9) 33 (23.6) 10 (7.1) 5 (3.6) 5 (3.6) 6 (4.3) 2 (1.4)

x̄±s.d: Mean±Standard Deviation, n: participant, %: percentage, cm: centimeter, kg: kilogram, BMI: Body Mass Index; FIDS: Functional Independence and Difficulty Scale; ADL: Independence in Activities of Daily Living.

Reliability

The test-retest method was used in the estimation of test measurement reliability. The ICC values for the individual test were 0.999 (95% CI; 0.995-1.000 (excellent agreement). In line with the correlation analysis, a very high correlation was revealed between the 1st and 2nd evaluation of the FIDS (r=1.000) (Table 2). Cronbach's alpha coefficient was 0.872. Ten items had correlation values above 0.90, which indicated a very high correlation for intra-rater reliability (Table 2).

Convergent validity

A moderate positive correlation was determined between the FIDS and the Barthel ADL (r=0.504, p=0.000) and between the FIDS and the Katz Index ADL (r=0.466, p=0.000) (Table 3).

Table 2. Intra-rater correlation coefficients for the FIDS Test items and total score (n=140)

FIDS	Correlation coefficients (rho) First evaluation vs Second evaluation (intra-rater)	p
1. Item	0.999	<0.0001
2. Item	0.973	<0.0001
3. Item	0.999	<0.0001
4. Item	0.969	<0.0001
5. Item	0.999	<0.0001
6. Item	0.999	<0.0001
7. Item	0.999	<0.0001
8. Item	0.984	<0.0001
9. Item	0.999	<0.0001
10. Item	0.999	<0.0001
11. Item	0.999	<0.0001
12. Item	0.999	<0.0001
13. Item	0.999	<0.0001
14. Item	0.999	<0.0001
Total Score	0.1000	<0.0001
	Cronbach's Alpha	
FIDS	**1st evaluation**	**2nd evaluation**
Total Score	0.872	0.872

FIDS: Functional Independence and Difficulty Scale

In order to determine whether the data used in the factor analysis was obtained from a suitable sample group, the Kaiser–Meyer–Olkin (KMO) test was performed. The Barlett test was also performed to show whether the correlation between the factors in the test was adequate. The significance rate of the Bartlett test and a KMO value that is larger than 0.50 are necessary for the suitability of the sample (Tezbasaran 1997). The KMO value was 0.846 and the results of the Barlett test were found to be significant. These results showed that the sample size was very good and that the scale items were suitable for factor analysis. Finding a p value that is smaller than the $p<0.05$ significance level showed that there was a sufficient correlation between the variables to perform factor analysis. The factor analysis revealed a satisfactory percentage of total variance explained by the three factors at 59.01 %.

Table 3. The FIDS correlation coefficients (n=140)

	FIDS Re-Test	Barthel ADL Index	Katz Index ADL
FIDS	r= 0.1000 p=0.000**	r=0.504 p=0.000**	r= 0.466 p=0.000*

**p<0.001; FIDS:Functional Independence and Difficulty Scale.

The scree plot occurred at the third point (Figure 1). The item loading for the three-factor solution for the Principal components method and average score for each item are shown in Table 4.

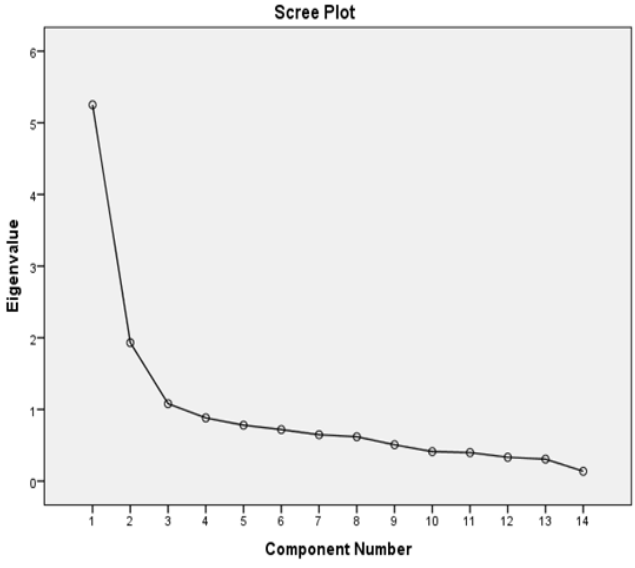

Figure 1. Scree plot of the factor analysis

Content validity

There were no floor and ceiling effects. No participant received the maximum and minimum scores from the scale

Table 4. Factor loadings of theFunctional Independence and Difficulty Scale

Items	Factors		
	1	2	3
3. Item	0.755		
1. Item	0.746		
4. Item	0.621		
8. Item	0.592		
2. Item	0.573		
7. Item	0.511		0.415
12. Item		-0.884	
13. Item		-0.807	
10. Item		-0.761	
14. Item	0.327	-0.627	
5. Item	0.517	0.553	
11. Item	0.402	-0.492	
9. Item			0.759
6. Item			0.702

DISCUSSION

In this study, the Turkish version of the FIDS was shown to be a valid and reliable scale regarding older adults. In our scale study consisting of 14 items, it was checked whether each item was valid and reliable within itself, and each item was found to be valid and reliable. As a result of the present study, the Turkish adaptation of the FIDS showed good internal consistency. Cronbach's alpha coefficient was 0.872 and exhibited a high correlation.

Older adults need to be independent in activities of daily living. Therefore, evaluating their independence in the ADL is

important for both older adults and clinical research. There are various scales to evaluate independence in older adults. The FIDS is a scale which is easy to use and applyto older adults. To facilitate the applicability of the scale, responses were structured as "yes" and "no"(Saito et al. 2016).

In the last two decades, the literature has indicated the importance of existing functional capacityin older adults (Ambrose et al. 2013; Arnau et al. 2016). Fieo et al. examined the ADL-IADL scales aiming to evaluate the daily activities of daily living in the geriatric population (2011). As a result of their study, conventional disability instruments were found to have poor response rates when administered to older adults with a relatively high functional capacity. Moreover, the researchers also reported that the scales were based on duties not responding to changes in the individual's level of competency (Fieo et al. 2011). In the FIDS, questions about getting up from bed, getting up from a chair, standing up from the ground, wearing trousers, eating and drinking, providing oneself with toilet hygiene, bathing, brushing teeth, opening a bottle lid, cutting toenails, walking inside, walking outside and taking steps are related to the activities frequently performed in daily life. It is questioned whether the individual needs someone else's help to perform each activity (Saito et al. 2016). Therefore, this study aimed to confirm the suitability of the Turkish version of the FIDS which is designed to assess difficulties in the ADL in functionally independent older adults and which is clinically completed in a short time. In the original study in which the FIDS was developed for older adults, the internal consistency of the scale was determined as highly reliable (Cronbach's alpha = 0.92) (Saito et al. 2016). Likewise, the internal consistency of the FIDS in older adults was also revealed to be highly reliable in our study (Cronbach's alpha = 0.872). Furthermore, in the present study, the test-retest reliability was examined separately for all items of the FIDS and found to be highly reliable. In the study in which this scale was developed, inter-item correlations and item total correlations were examined (Saito et al. 2016). The correlation coefficients between each item were found to be excellent. These results also showed that the FIDS structure was well-designed (Saito et al. 2016). Likewise, the correlation coefficients between each item and their own field were observed to be excellent in our study.

Previous studies have demonstrated strong correlations between functional status scales (Forrest et al. 2013; Saito et al. 2017). Fioravanti et al. compared the response capability of the Assessment of Motor and Process Skills (AMPS) and the FIM in the inpatient rehabilitation unit and reported no significant difference in the ability of these scales to detect a change (2012). In a study involving 1,542 individuals, Eichhorn-Kissel et al.compared the Responsiveness of the Care Dependency Scale for Rehabilitation (CDS-R) and the Barthel Index in rehabilitation. As a result of the study, the Barthel Index was found to be slightly more responsive than the CDS-R, and both scales were suitable for evaluating changes in individuals over time (Eichhorn-Kissel et al. 2011). In their study conducted on adult patients discharged to the service after mechanic ventilation treatment for >24 hours in the intensive care unit, Silveira et al., compared the Barthel Index and the Katz Index scores according to the difficulty level and as distinctive parameters by conducting an analysis based on the item response theory (IRT). The researchers reported that both scales could identify the impairment in functional status after discharge from the intensive care unit. They emphasized that the Barthel Index could perform better than the Katz Index in evaluating the functional status of patients discharged from the intensive care unit (Silveira et al. 2018). Hopman-Rock et al. suggested the Functional Autonomy Measurement System (SMAF) and the FIDS for ADL screening and assessment in older adults (2019). As a result of the same study, they recommended using the Barthel Index and the 5-item Katz Index carefully due to the statements and elements which they contained. In their study carried out on 225 older adults, Saito et al. reported that the FIDS, a Barthel ADL scale, could predict adverse health-related events in older adults (2017). No gold standard tests are available to measure the functional status (Arik et al. 2015). Therefore, for a comparison with the FIDS, Turkish reliability and validity tests were performed, and the common Barthel ADL and Katz Index ADL were used (Arik et al. 2015; Küçükdeveci et al. 2000). As a result of the comparison, a moderate positive correlation was determined between the FIDS and the Barthel ADL and between the FIDS and the Katz Index ADL. This showed that the FIDS was a reliable scale to use in older adults.

The scoring system of the FIDS is mostly based on whether

an individual has a better function regarding daily activities. Therefore, the highest score indicates that the individual is active and independent in his/her activities of daily living. This is a simple, easy-to-use scale which measures functional independence, requires no special expertise or training for application, and takes only 3 to 5 minutes. We think that it will enable determining older adults with functional incapacity in activities of daily living.

The Limitations of the Study

Our study has a relatively large and homogenous sample, which can be regarded as a strenght of this work. The use of more than one common scale enriched the study further. The limitation of the study is that the inter-rater reliability was not examined because there was no second or third evaluator in this test. We believe that defining the cut-off value in older adults will provide analternative way ofinterpreting results in future studies.

CONCLUSION

The present research demonstrated that the Turkish version of the FIDS was valid and reliable. In the literature, the validity and reliability studies of the FIDS were carried out on Japanese older adults. Our study is important because it is the first study conducted in terms of the validity and reliability of the FIDS in the Turkish language and its Turkish version is highly valid and reliable. This scale is of great significance because healthcare professionals working in the field of geriatric rehabilitation can demonstrate changes in the functional independence of individuals in the ADL by employing this scale before and after rehabilitation programs for older adults.

AUTHOR CONTRIBUTION

Idea/Concept: MS, ETT; Design: MS, AÖ; Data Collection and/or Processing: ETT, AÖ; Analysis and/or Interpretation: MS; Writing the Article: MS, ETT, AÖ; Critical Review: MS, ETT, AÖ.

CONFLICT OF INTEREST

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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