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Turkish Validity and Reliability Study of Resilience Scale for Older Adults

İleri Yetişkinler için Psikolojik Sağlamlık Ölçeğinin Türkçe Geçerlik ve Güvenirlik Çalışması

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ABSTRACT

Objective: The Resilience Scale for Older Adults (RSOA) is designed to assess the ability of older individuals to cope with difficulties, utilize social and family support, and evaluate their level of life satisfaction. This study aims to adapt the RSOA into Turkish and assess the scale's validity and reliability.

Method: The research was conducted between 2023 and 2024 with 337 individuals aged 60 to 97 living in Turkey (N=337). The data collection instruments used in the study included the Resilience Scale for Adults (RSA), the Brief Resilience Scale (BRS), and the Satisfaction with Life Scale (SWLS).

Results: The analyses indicated that the scale developed to measure psychological resilience retained its original four-factor structure. The scale's internal consistency reliability coefficient was found to be α = 0.88. While a positive correlation was found between individuals' self-reported general health and their psychological resilience, gender was not a predictor of resilience.

Conclusion: Based on the evaluations, the translated and adapted scale is a reliable and valid tool for measuring psychological resilience in older adults.

Keywords: Psychological Resilience Scale, RSOA, older adults, validity, reliability

ÖZ

Amaç: İleri Yetişkinler için Psikolojik Sağlamlık Ölçeği (İYPSÖ), yaşlı bireylerin zorluklarla başa çıkma, sosyal ve aile desteğinden yararlanma yeteneklerini ve yaşam doyum düzeylerini değerlendirmek üzere tasarlanmıştır. Bu çalışma, İYPSÖ'nün Türkçeye uyarlanmasını ve ölçeğin geçerlik ve güvenirlik değerlendirmelerini yapmayı amaçlamaktadır.

Yöntem: Araştırma, 2023 ve 2024 yılları arasında Türkiye'de yaşayan 60 ila 97 yaşları arasındaki 337 birey ile gerçekleştirilmiştir (N=337). Çalışmada kullanılan veri toplama araçları arasında Yetişkinler için Psikolojik Dayanıklılık Ölçeği (YPDÖ), Kısa Psikolojik Sağlamlık Ölçeği (KPSÖ) ve Yaşam Doyumu Ölçeği (YDÖ) yer almıştır.

Bulgular: Psikolojik sağlamlığı ölçmek amacıyla geliştirilen ölçeğin, orijinal dört faktörlü yapısını koruduğunu ortaya koymuştur. Ölçeğin iç tutarlılık güvenirlik katsayısı α=0,88 olarak bulunmuştur. Katılımcıların genel sağlık algıları ile psikolojik sağlamlıkları arasında pozitif bir ilişki bulunmuş, ancak cinsiyetin psikolojik sağlamlık üzerinde bir belirleyici rolü olmadığı saptanmıştır.

Sonuç: Değerlendirmelere dayanarak, çevrilen ve uyarlanan ölçeğin yaşlı bireylerde psikolojik sağlamlığı ölçmek için güvenilir ve geçerli bir araç olduğu sonucuna varılmıştır.

Anahtar sözcükler: Psikolojik Sağlamlık Ölçeği, İYPSÖ, yaşlı bireyler, geçerlik, güvenirlik

Introduction

Individuals may encounter negative events at certain points in their lives; however, each individual responds to these adversities in different ways. Similarly, individuals experience the effects of these negative situations in various ways. The basis of these differences lies in the concept of psychological resilience (Bonanno 2004).

Psychological resilience is defined as the ability of individuals to adapt to difficult events and recover from these negative experiences (Xing 2013). Resilience enables people to find opportunities for growth and learning through challenges (Ungar 2013). In this way, individuals can understand personal difficulties, seek support, find solutions, and enhance their development (Fredrickson et al. 2003). Research has shown that individuals with higher levels of resilience are less likely to experience mental health problems (Işık et al. 2021). Therefore, the impact of psychological resilience on mental health and well-being is considered significant.

Additionally, aging, a natural process, is another significant topic that requires attention. The global population of people over 60 is expected to nearly double, from 12% in 2015 to 22% in 2050 (WHO 2024). Due to the increasing life expectancy and the resulting rise in the elderly population, there has been a growing need for research on old age and healthy aging (Aslan and Hocaoğlu 2017). Investigating psychological resilience in older adults is crucial for understanding their capacity to cope with the physical, social, and emotional challenges specific to the aging process. Losses, health problems, and social isolation encountered during this period can

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negatively impact the quality of life in older adults. Psychological resilience enhances individuals' ability to cope with these challenges and maintain their well-being (Wagnild and Young 1993). As a result, studies on psychological resilience in older adults contribute significantly to developing healthy aging strategies. Research shows a strong relationship between psychological resilience and healthy aging, with psychological resilience being considered an indicator of healthy aging (Jeste et al. 2013). Lamond et al. (2008) found that older adults exhibit higher levels of psychological resilience compared to younger adults, which is suggested to stem from their greater life experience. Similarly, Wells (2009) suggests that older adults exhibit higher psychological resilience than younger adults due to their larger social support networks and their ability to utilize these resources effectively. Literature reviews on older adults and psychological resilience indicate that this topic plays a critical role in maintaining mental health and enhancing the quality of life during the aging process. These studies show that older adults with high levels of psychological resilience experience lower levels of depression and anxiety. Additionally, older adults with higher resilience have better life satisfaction and overall health (Wagnild and Young 1993). Life experiences and the lessons learned from them are crucial to psychological resilience. Therefore, older adults are better equipped to cope with new challenges due to the experiences they have gained throughout their lives (Jeste et al. 2013). Studies on psychological resilience in older adults are of great importance in improving the well-being of the aging population. These studies help enhance the quality of life for older adults, making the aging process a more positive experience. Moreover, increasing psychological resilience in older adults can help them cope more effectively with the challenges they face during aging (Byun and Jung 2016). These studies can also strengthen social support systems for older adults, helping them maintain their connections with society. The increasing importance of research on aging and the ability to maintain psychological balance in the face of challenges (Bonanno 2005) necessitates the development of a scale to assess psychological resilience in older adults.

Psychological resilience, regarded as a key indicator of healthy aging, is measured using specific scales. Although resilience scales are primarily developed for children and adolescents (Li and Ow 2022), there are also scales designed for adults (Işık et al. 2021). Some of the scales developed for adults, such as the Connor-Davidson Resilience Scale (CD-RISC), Resilience Scale (RS), and the Brief Resilient Coping Scale (BRCS), also include older adults. However, the insufficient representation of older adults in their samples and the exclusive focus on internal factors (e.g., meaning and purpose in life) while neglecting external factors (e.g., social support) are considered limitations of these scales (Li and Ow 2022). Although the CD-RISC, RS, and BRCS have been adapted into Turkish, these adaptations also lack an adequate representation of older adults in their samples. Based on this gap, this study aims to conduct the Turkish translation and adaptation of the Psychological Resilience Scale for Older Adults (Li and Ow 2022), the only existing scale developed for this purpose, into Turkish to facilitate its use in field studies.

Method

Sample

To accurately determine the sample size, a G*Power analysis was conducted. The results indicated that, with a desired power of 0.95, an effect size of 0.25, and a significance level of 0.05, the minimum required sample size was 197 (Faul et al. 2009). Additionally, A review of relevant literature suggests that a minimum of 300 participants is recommended for an adequate sample size (Hair et al. 2010). Therefore, in this study, conducted in 2023-2024, data collection aimed to include at least 300 individuals. To prevent sampling loss due to incomplete or inaccurate data, data were collected from 350 participants. The accuracy of the data entry was checked, and responses from participants with more than 5% missing data were excluded from the analysis. Similarly, responses from participants who selected the same answer for all questions, including reverse-coded ones, were also excluded. As a result, data from 13 participants were excluded from the analysis, and the final dataset consisted of 337 participants aged 60 and above (Table 1). Unlike the original scale study, participants were not selected from nursing homes or elderly care centers but were chosen from the general population. This approach was intended to facilitate a broader generalization of the findings. In this study, the Barthel Index (BI) was used to assess personal care abilities, and the Pfeiffer's Short Portable Mental Status Questionnaire was used to evaluate cognitive functions, ensuring participants were cognitively healthy and able to answer the questions accurately (Mahoney and Barthel 1965, Pfeiffer 1975). Information regarding the psychiatric conditions of the participants was collected through the questions "Do you have any psychological disorders?" and "Are you receiving treatment for any physical or psychological conditions?" A total of 7.7% (N=26) of the participants reported having a psychological disorder. Among these individuals, the most commonly reported conditions were depression (N=8), anxiety disorders (N=5), panic attacks (N=5), sleep problems (N=3), and

social phobia (N=1). Regarding treatment status, 4.5% (N=15) stated that they had a condition but were not receiving treatment, 4.2% (N=14) reported receiving treatment exclusively for psychological disorders, 13.6% (N=46) reported treatment solely for physical conditions, and 1.8% (N=6) indicated receiving treatment for both physical and psychological conditions. For illiterate participants, the questionnaire was read aloud by an impartial individual not involved in the study, ensuring that the questions were answered accordingly. Additionally, the informed consent form was also read aloud and explained to the participants. Data were collected through two methods: online data were gathered via Google Forms, while face-to-face data were collected using a random sampling method. Regarding the participants, 228 (67.7%) reside in the Aegean Region, 44 (13%) in the Marmara Region, and 65 (19.3%) in other regions of Turkey. The participants live in the following cities: 145 (43%) in Izmir, 41 (12.2%) in Muğla, 38 (11.3%) in Aydın, 28 (8.3%) in Ankara, and 21 (6.2%) in Istanbul. The remaining 64 participants live in other cities in Turkey. Participants were initially contacted and informed about the research either face-to-face or online. No payment was provided for participation. Participants' ages ranged from 60 to 97, with an average age of 67.42.

Procedure

This study adapted the 'Resilience Scale for Older Adults' developed by Li and Ow (2022) into Turkish. To ensure the linguistic validity of the scale, a comprehensive review of the relevant literature was conducted, following the steps outlined by Sousa and Rojjanasrirat (2011). The scale was translated into Turkish by two bilingual experts proficient in both English and Turkish. The translation was then compared to the original text, and an English teacher back-translated the Turkish version into English. Then, an expert with a degree in English Language and Literature reviewed the translations. In the final step, a professor specializing in this area supervised the translations and ensured the clarity of the items in the scale. To test the comprehensibility of the Turkish version, a pilot study was conducted with 15 individuals who were not included in the main research. In the pilot study, the mean age of the sample (n = 15; 8 women, 7 men) was 69.8 years. Feedback from this pilot study indicated that the linguistic validity of the scale was adequate.

Table 1. Demographic characteristics of the participants

Variable	Items	N (%)
Sex		
	Female	152 (54.9)
	Male	185 (45.1)
Participation method		
	Onlin	170 (50.45)
	Face-to-face	167 (49.56)
Marital status		
	Married	247 (73.3)
	Single	8 (2.4)
	Divorced	32 (9.5)
	Widowed	50 (14.8)
Education level		
	Illiterate	10 (3)
	Literate	1 (0.3)
	Primary school	69 (20.5)
	Middle school	15 (4.5)
	High school	62 (18.4)
	University	151 (44.8)
	Master's	20 (5.9)
	PhD	8 (2.4)
Employment status		
	Employed	41 (12.2)
	Unemployed	50 (14.8)
	Retired	231 (68.5)
	Retired and Employed	14 (4.2)

Data collection began following the approval of the Altınbas University Scientific Research and Publication Ethics Committee (Decision Date and Number: 28.11.2023-2023/33). Data were collected from volunteers aged 60 and above, both online and in person, between December 2023 and May 2024. Participants signed an Informed Consent Form, and their identities were kept anonymous. The application took approximately 25 minutes. The study consisted of 73 items in total. To prevent participant fatigue or boredom and ensure these factors did not influence the analysis, the order of presentation for each scale was randomized. Inclusion and

exclusion criteria were established to ensure the quality and reliability of the data. Participants with severe physical limitations, as determined by the Barthel Index (BI), and those with significant cognitive impairments, as assessed by Pfeiffer's Short Portable Mental Status Questionnaire, were excluded from the study to ensure they could adequately complete the survey. Additionally, responses with more than 5% missing data and those where participants selected the same answer for all items, including reverse-coded ones, were excluded from the analysis.

Measures

In this study, scales deemed relevant were used, with careful consideration given to the criteria established in the original study. Necessary permissions were obtained before using the scales.

Demographic Information Form

This form collected information about the participants' age, gender, marital status, educational level and employment status.

Resilience Scale for Older Adults (RSOA)

The scale, adapted in this study, was originally developed by Li and Ow (2022) to measure older individuals' psychological resilience and life satisfaction. The RSOA consists of 15 items across four factors: social support, family support, meaning and purpose of life, and personal strength. It is a 5-point Likert-type scale (1: Strongly disagree; 5: Strongly agree). The sample of the RSOA consists of 368 individuals residing in private and state-affiliated elderly care homes in Taipei and New Taipei City, Taiwan. Developed by Li and Ow (2022), the maximum score that can be obtained from this scale is 75, while the minimum score is 15. This scale does not include any reverse-coded items. The original study reported a Cronbach's alpha reliability coefficient of $\alpha = 0.88$.

Brief Resilience Scale (BRS)

The Brief Resilience Scale, developed by Smith et al. (2008), was used to assess the validity of the Resilience Scale for Older Adults. The scale was developed using four study groups: the first two consisted of university students and the next two groups included cardiac and fibromyalgia patients. It consists of 6 items in total, with 3 positively worded and 3 negatively worded items, and is rated on a 5-point Likert scale. Items 2, 4, and 6 are reverse-coded. The total score is calculated after reversing the coded items, with higher scores indicating greater psychological resilience. The validity and reliability of the scale were determined by Doğan, T. (2015). The internal consistency of the scale was reported as .83.

Resilience Scale for Adults (RSA)

Another scale used to assess the validity of the Resilience Scale for Older Adults was the Resilience Scale for Adults, developed by Friborg et al. (2003). This scale consists of 37 items and is rated on a 7-point Likert scale. The scale consists of 16 reverse-coded items. The scoring method for the scale has been left flexible. Two groups of participants, aged 18-25 and 21-37, are included in the sample of this study. It was translated into Turkish by Basım and Çetin (2011). The internal consistency coefficient of the scale was found to be .86.

Satisfaction with Life Scale (SWLS)

Satisfaction with Life Scale, developed by Diener et al. (1985) was also used to assess the validity of the Resilience Scale for Older Adults. This unidimensional scale consists of 5 items. In the first two studies, the sample consisted of college students, while the third study used a geriatric population, with 53 participants having an average age of 75. According to the adaptation and validity-reliability study by Dağlı and Baysal (2016), a 5-point Likert scale was found to be more suitable for Turkish culture than a 7-point scale. Therefore, the Turkish adaptation study of the SWLS was evaluated using a 5-point Likert scale. The highest possible score is 25, and the lowest is 5, with higher scores indicating greater life satisfaction. The reliability coefficient was found to be .84.

Statistical Analysis

In this study, which aimed to determine the Turkish validity and reliability of the Resilience Scale for Older Adults, Jamovi 2.5.6 was used for confirmatory factor analysis, and IBM SPSS 22 was used for all other analyses. The normality of the data was tested using the Shapiro-Wilk test and visual inspection of Q-Q plots. A p-value greater than 0.05 was considered indicative of a normal distribution. The suitability of the data for factor analysis was evaluated through the Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's test of sphericity. For

Confirmatory Factor Analysis (CFA), model fit indices, including comparative, absolute, and residual fit values, were considered. Convergent validity was assessed via Pearson Correlation Analysis. The convergent validity of the Resilience Scale for Older Adults (RSOA) was tested using previously translated and validated scales, such as the Resilience Scale for Adults (RSA), the Brief Resilience Scale (BRS), and the Satisfaction with Life Scale (SWLS). Reliability was tested using Cronbach's α, Spearman-Brown, and Guttman coefficients. An Independent Samples t-test was performed to compare psychometric measurement averages across sociodemographic characteristics. The required sample size was determined using the G*Power program, which indicated a minimum of 197 participants. The study was conducted with 337 participants.

Results

Construct Validity

To determine the construct validity, evaluate the adequacy of the sample, and assess the suitability of the data for factor analysis, the Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's test of sphericity were examined. The KMO value is 0.896. This value indicates suitability for principal component analysis and is classified as 'excellent' in the 0.80-0.90 range (Field 2009). Similarly, the Bartlett test result was $x^2(105)=2629.70$; $p<0.05$, showing that the sample size is adequate and appropriate for factor analysis.

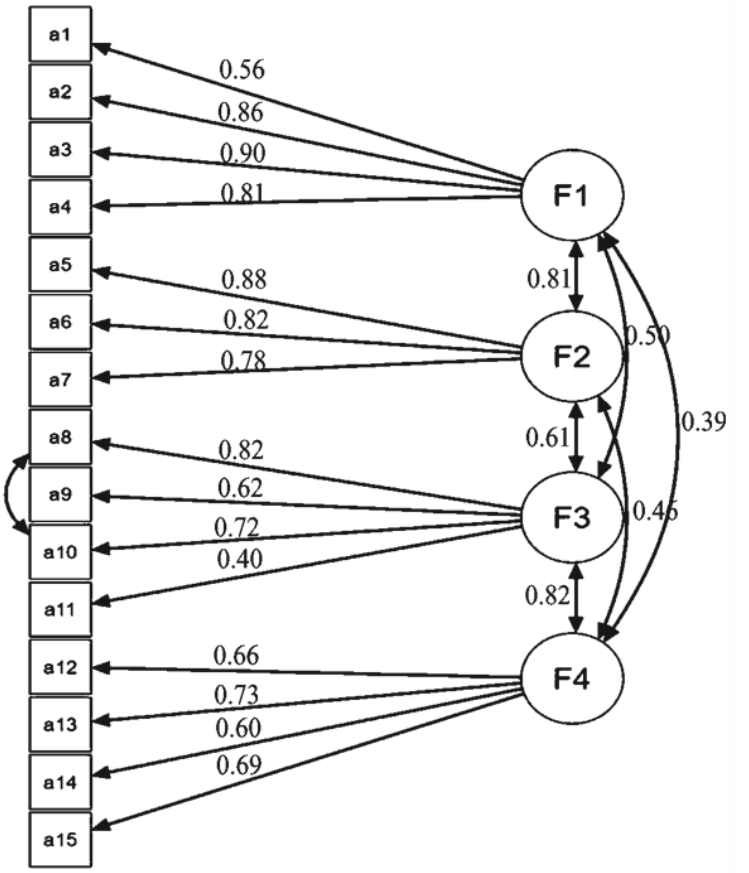

Figure 1. Confirmatory factor analysis

Factor Analysis

Exploratory factor analysis conducted on data from 337 participants revealed that the factors explained 69.04% of the total variance. The first factor explained 40.89% of the variance, the second factor 15.95%, the third factor 6.58%, and the fourth factor 5.62%. The high total explained variance indicates that the construct is well-measured.

Confirmatory factor analysis (CFA) supported the original four-factor structure. The model fit indices were acceptable and good without the need for modifications (Figure 1). The CFA results were χ^2/df: 2.40, Comparative Fit Index (CFI): 0.95, Tucker-Lewis Index (TLI): 0.94, Root Mean Square Error of Approximation

(RMSEA): 0.06, and Standardized Root Mean Square Residual (SRMR): 0.06. The analysis demonstrated that the four-factor structure fit the data well, as in the original study.

Table 2. Correlation between RSOA, RSA, SWLS, and BRS				
	RSOA	**RSA**	**SWLS**	**BRS**
RSOA	1	-	-	-
RSA	.45**	1	-	-
SWLS	.55**	.42**	1	-
BRS	.37**	.43**	.39**	1

**p< .001; RSOA, resilience scale for older adults; RSA, resilience scale for adults; SWLS, satisfaction with life scale; BRS, brief resilience scale

Convergent Validity Analysis

To assess the convergent validity of the Resilience Scale for Older Adults (RSOA), Pearson Correlation Analysis was performed. The analysis revealed positive and significant ($p<0.05$) correlations between RSOA, RSA, SWLS, and BRS (Table 2).

Reliability

To determine the reliability of the RSOA, Cronbach's Alpha was calculated, resulting in a reliability coefficient of $\alpha = 0.88$. This indicates that the RSOA is a highly reliable scale. Additionally, the reliability coefficients for the sub-factors were $\alpha=0.85$ for family support, $\alpha=0.89$ for social support, $\alpha=0.69$ for meaning and purpose of life, and $\alpha=0.78$ for personal strength. Therefore, the RSOA, including its sub-dimensions, is considered a reliable measurement tool (Table 3).

It was noted that the reliability of the life purpose factor was lower than that of other factors, and it was observed that Item 11 ('There are many interesting things in my life') reduced the reliability. Removing Item 11 and repeating validity and reliability tests showed that although the reliability increased, validity decreased. The RSOA still passed validity and reliability analyses without removing any items. Therefore, despite the reduction in Cronbach alpha (α) due to Item 11, it was decided to retain Item 11 in the scale, as the α value remained acceptable. Furthermore, the item-total correlation values ranged from 0.36 to 0.83. Since no item had a correlation value below 0.30, no items were excluded from the scale..

Table 3. Mean, standard deviation, and reliability coefficients for total score, factors, and all items of Resilience Scale for Older Adults (RSOA)				
	Mean ($\bar{x}$)	Standard Deviation (SD)	Cronbach's α	Item-Total Correlation
RSOA Total Score	63.42	8.84	.88	-
Family Support Factor	17.48	3.33	.85	-
Item 1	4.13	1.20	.88	.55
Item 2	4.49	.91	.77	.78
Item 3	4.56	.89	.78	.77
Item 4	4.30	.97	.79	.71
Social Support Factor	13.27	2.43	.89	-
Item 5	4.57	.83	.88	.74
Item 6	4.37	.90	.80	.83
Item 7	4.33	.94	.85	.78
Meaning and Purpose of Life Factor	15.75	2.96	.69	-
Item 8	4.27	.87	.61	.52
Item 9	4.04	1.07	.59	.54
Item 10	4.11	1.00	.61	.51
Item 11	3.32	1.13	.71	.36
Personal Strength Factor	16.95	2.73	.78	-
Item 12	4.26	.84	.70	.64
Item 13	4.16	.91	.66	.70
Item 14	4.54	.72	.77	.49
Item 15	3.99	1.00	.76	.53

Table 4. Independent samples T-test analysis results					
Questions/Factors	**Answers**	**N**	**$\bar{x}$ (SD)**	**t**	**p**
How do you assess your health?	Very good	23	67 (5.79)	2.86	<.005
RSOA_Total	Fair	147	61.78 (8.42)		
How do you assess your health?	Very good	23	67.00 (5.79)	4.11	<.001
RSOA_Total	Bad	8	53.25 (13)		
How do you assess your health?	Good	158	64.80 (8.76)	3.06	<.005
RSOA_Total	Fair	147	61.78 (8.42)		
How do you assess your health?	Good	158	64.80 (8.76)	3.54	<.001
RSOA_Total	Bad	8	53.25 (13)		
Do you have any psychological disorders?	No	311	63.76 (8.75)	3.15	<.005
RSOA_Total	Yes	26	58.15 (8.26)		
Employment status?	Employed	41	17.14 (2.53)	3.14	<.005
RSOA_Life	Retired	231	15.58 (2.98)		
Employment status?	Employed	41	17.14 (2.53)	3.74	<.001
RSOA_Life	Unemployed	50	14.88 (3.12)		
Marital status?	Divorced	32	18.18 (1.82)	3.44	<0.01
RSOA_Personal	Widowed	50	16.14 (3.03)		
Marital status?	Married	247	17.82 (2.88)	3.23	<.001
RSOA_Family	Divorced	32	15.93 (4.52)		
Who do you live with?	With your spouse	187	17.82 (2.87)	4.12	<.001
RSOA_Family	Alone	55	15.67 (4.76)		
Who do you live with?	With your children	24	18.08 (2.48)	2.33	<.005
RSOA_Family	Alone	55	15.67 (4.76)		

RSOA, resilience scale for older adults; Life, meaning and purpose of life factor; Personal, personal strength factor; Family, family support factor.

Composite Reliability

To evaluate the reliability and internal consistency of the factors in the RSOA, exploratory factor analysis was performed. The composite reliability (CR) and average variance extracted (AVE) values were examined. The composite reliability of the RSOA ranged from 0.72 to 0.86. In this context, the RSOA is considered to have acceptable composite reliability.

The AVE values ranged from 0.40 to 0.68. According to the literature, an AVE value below 0.50 is acceptable if the CR is above 0.60 (Fornel ve Larcker 1981). Therefore, the obtained values were found to be at an acceptable level, indicating that the similarity among the scale items was satisfactory. In this regard, the RSOA demonstrated good convergent validity, indicating that the scale items were meaningfully related.

Sociodemographic Findings

This study revealed that individuals who rated their health as "very good" or "good" demonstrated significantly higher levels of psychological resilience. Additionally, individuals living with a spouse scored higher in the family support dimension of psychological resilience compared to those living alone. A statistically significant difference in psychological resilience levels was observed between individuals with and without psychological disorders (Table 4). However, gender was not identified as a significant predictor of psychological resilience. Similarly, no significant differences were identified based on income or educational level.

Discussion

In this study, the Resilience Scale for Older Adults was evaluated for validity and reliability with a sample of 337 individuals aged 60 and above in Turkey. Psychological resilience is essential for healthy aging, yet few scales specifically measure it in older adults. Many widely used scales, such as the CD-RISC and RS, primarily focus on younger populations and tend to emphasize internal factors, like life purpose, over external factors, such as social support. These limitations hinder the comprehensive assessment of resilience in older adults. While some scales have been adapted for Turkish, they still lack sufficient representation of this age group. To address this gap, this study focuses on the Turkish adaptation of the Psychological Resilience Scale for Older Adults, the only scale specifically developed for this demographic. Validity is a key criterion that determines how accurately a

scale measures the concept it is designed to assess. A valid scale enhances consistency in scientific research by providing accurate and reliable measurements (Ercan and Kan 2004). In this study, language validity, construct validity, discriminant validity, and convergent validity analyses of the Resilience Scale for Older Adults (RSOA) were conducted. To evaluate the suitability of the scale for factor analysis, the Kaiser-Meyer-Olkin (KMO) coefficient was calculated, and Bartlett's test of sphericity was performed. The KMO value indicated that the data were suitable for factor analysis, and the sample size was deemed sufficient.

The results of the Exploratory Factor Analysis demonstrated that the scale fits well with the original four-factor structure: family support, social support, purpose and meaning in life, and personal strength. The literature suggests that these factors are strongly associated with psychological resilience. For example, family support enhances psychological resilience by reducing feelings of loneliness and isolation, especially in older adults (Taylor 2011, Pietrzak and Southwick 2011). Similarly, social support systems play a critical role in promoting psychological resilience (Windle 2011). Moreover, finding meaning and purpose in life has been frequently shown to strengthen individuals' ability to cope with stress and increase psychological resilience (Frankl 1985, Ryff and Singer 1998). Additionally, personal characteristics such as positive thinking, an internal locus of control, and optimism have been found to support psychological resilience (Connor and Davidson 2003).

The convergent validity analysis revealed that the RSOA showed a strong positive and significant correlation with the Satisfaction with Life Scale (SWLS) ($r=0.55$, $p<.01$). Furthermore, the "purpose and meaning in life" factor of the RSOA demonstrated a significant positive correlation with the SWLS. The analysis between the Brief Resilience Scale (BRS) and the RSOA's 'personal strength' factor revealed a moderate positive and significant correlation ($r=0.44$, $p<.01$). The items in the 6-item, one-factor structure of the BRS were found to be similar to those of the 'personal strength' factor of the RSOA. For example, the BRS item "I tend to bounce back quickly after difficult times" is similar to the RSOA item "I can come up with my own solutions in the face of challenges." This analysis further supports the convergent validity between the two scales. Additionally, the RSOA exhibited a moderate and significant correlation with the Resilience Scale for Adults (RSA). ($r=0.45$, $p<.01$). There are similarities between the four factors of the RSOA and the six factors of the RSA. The family support factor of the RSOA is similar to the family cohesion factor of the RSA; the social support factor of the RSOA resembles the social resources factor of the RSA; the purpose and meaning of life factor of the RSOA is similar to the future perspective factor of the RSA (concerning one's goals and beliefs about the future); and the personal strength factor of the RSOA shares similarities with the self-concept factor of the RSA. Therefore, a convergent validity analysis was conducted to examine the similarity between the corresponding factors of the RSOA and the RSA. The results showed a significant correlation between the factors of the two scales ($r=0.46$, $r=0.30$, $r=0.38$, $r=0.43$, $p<.01$). In this study, it was found that the purpose and meaning of life subscale strongly predicted life satisfaction in older adults. This result is consistent with another study showing a positive relationship between meaning and purpose in life and life satisfaction in older adults (Oliveira et al. 2019).

The convergent validity analysis revealed that RSOA is related to factors such as family support, social support, meaning and purpose of life, and personal strength in psychological resilience. The analyses also indicated that due to the high item-total correlation coefficients, no items needed to be removed from the scale, as each item adequately measured the intended variable. The first factor consists of 4 items (items 1-4), the second factor includes 3 items (items 5-7), the third factor comprises 4 items (items 8-11), and the fourth factor also includes 4 items (items 12-15). Factor loadings ranged from 0.89 to 0.39, and all factors were considered to meet the minimum acceptable level. The lower factor loading of Item 8 (0.39) compared to other items may be attributed to a language factor. In the original scale, item 8 was phrased as 'I feel like I lead a purpose-driven life' but to enhance comprehensibility for older adults, it was modified to 'I have always had goals in my life'.

The reliability of a scale is measured by whether it gives similar results when repeated under the same conditions (Karakoç 2014). This study used the methods from the original research when evaluating the reliability of the Resilience Scale for Older Adults (RSOA). The analyses conducted showed that the RSOA is a highly reliable scale. The Cronbach Alpha reliability value of the RSOA was found to be $\alpha=0.88$, which indicates that the scale has high reliability (Özdamar 2002). When the subscales are examined, it is seen that the subscales of family support ($\alpha=0.85$), social support ($\alpha=0.89$), purpose in life and meaning in life ($\alpha=0.69$), and personal power ($\alpha=0.78$) have high reliability. The social support factor had the highest internal consistency, while the purpose and meaning in life factor had the lowest internal consistency. Split-half Reliability results were above 0.80 (0.89 and 0.80), which shows that the scale is consistent and highly reliable. The Spearman-Brown (0.63) and the Guttman coefficients (0.62) also support reliability. The composite reliability (CR) values ranged from 0.72 to 0.86, confirming that composite reliability ensures internal consistency. The average variance extracted (AVE) values ranged from 0.40 to 0.68, and because the CR value was above 0.60, these values were considered acceptable.

These findings confirm that the similarity and reliability between the items on the scale are at an appropriate level.

Psychological resilience levels can vary greatly among individuals in the aging process and may be influenced by factors such as health status, social connections, and individual personality traits (Smith and Hayslip 2012). In this study, similar to previous studies, gender differences were not found to be a predictor of psychological resilience (Aras et al. 2023). Previous studies have found that income level (Çataloğlu 2011) and educational level (Khampirat 2020) are related to psychological resilience; however, this study did not find significant differences based on income level and educational level.

When examining the relationship between psychological resilience and self-assessed health status, research generally shows that increased psychological resilience is associated with improved general health status (Smith and Hayslip 2012). This study also found that individuals who rated their health as 'very good' and 'good' had significantly higher psychological resilience levels. A review of the literature reveals no studies measuring the relationship between who individuals live with and psychological resilience. This study found that individuals living with a spouse had higher psychological resilience in the family support factor compared to those living alone. In a review study by Bonanno, Westphal, and Mancini (2011), it is emphasized that psychological resilience plays an important role in coping with losses and traumas and that individuals without psychological disorders tend to cope with such stressful situations more effectively. In this study, in line with the relevant literature, it was observed that individuals without psychological disorders have higher levels of psychological resilience compared to those with psychological disorders.

According to sociodemographic results, participants who rated their health as 'very good' or 'good,' and those without psychological disorders, have significantly higher psychological resilience. Employed individuals have a significantly higher sense of purpose in life compared to those who are unemployed or retired. Divorced individuals have significantly higher personal strength compared to widowed individuals. Those living with their spouses or children report greater family support compared to those living alone. However, gender, education level, income level, number of children, and presence of physical discomforts did not show significant relationships with psychological resilience levels.

The findings of this study were largely consistent with those of the original study. The Confirmatory Factor Analysis (CFA) results of this study are as follows: χ^2/df: 2.40, CFI: 0.95, TLI: 0.94, RMSEA: 0.06, SRMR: 0.06. The original study's CFA results were reported as χ^2/df: 3.15, CFI: 0.93, TLI: 0.91, RMSEA: 0.07, SRMR: 0.07. The Cronbach's Alpha reliability coefficient of the RSOA was calculated as α=0.88; similarly, the original study found a Cronbach's Alpha of α=0.88. Additionally, the composite reliability (CR) values for the four subdimensions of RSOA were found to range between 0.72 and 0.86. In the original study, these values ranged from 0.72 to 0.90. The average variance extracted (AVE) values for RSOA ranged from 0.40 to 0.68, and similarly, the original study reported AVE values between 0.40 and 0.70. One limitation of this study is its focus primarily on the Aegean region of Turkey. Future research should aim to include a more representative sample covering the entire country. Additionally, the average age of participants in this study was 67.42, with a greater number of participants aged 60-70 and fewer aged over 70. Future studies should aim to increase the number of participants over the age of 70. Considering these limitations, it is recommended that future research using RSOA address these issues and explore the findings with broader and different methodological approaches.

The Resilience Scale for Older Adults (RSOA) consists of 4 factors, whereas the Resilience Scale for Adults (RSA) includes 6 factors. The Social Adequacy and Social Resources factors, which focus on social aspects in RSA, are absent in RSOA. The Social Adequacy factor measures individuals' abilities to interact effectively with their social environment, such as extraversion, cheerfulness, and strong communication skills, while the Social Resources factor evaluates the support individuals receive from friends and close circles and how they utilize that support. The exclusion of these two factors may result in a gap in assessing the impact of social support on the psychological resilience of older adults. Given the significant role of social factors in psychological resilience, incorporating these factors into RSOA enhances its comprehensiveness and validity as a measurement tool. Therefore, future studies should consider incorporating these factors. Another limitation of this study is the lack of an assessment of the test-retest reliability of the scale. Test-retest procedures can present challenges, such as participants recalling their initial responses and becoming more familiar with the testing process (Röseler et al., 2020). However, the absence of a test-retest reliability evaluation is one of the limitations of our study. Despite certain limitations, our study contributes valuable insights into the psychological resilience of older adults by providing a reliable and culturally adapted measurement tool, which can contribute to future research in this field.

Conclusion

The results indicate that the Resilience Scale for Older Adults is a valid and reliable tool for assessing psychological resilience in older adults in Turkey. The analyses showed that the scale is consistent with both its original form and theoretical foundation. The Turkish version of the scale demonstrated high validity and reliability. This study contributes significantly to the literature by providing a more suitable resilience measurement tool for older adults.

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Addendum 1. Resilience Scale for Older Adults (Turkish Version)

Psychological Resilience Scale for Older Adults (Turkish Version)

1	2	3	4	5
Kesinlikle Katılmıyorum	Katılmıyorum	Kısmen katılıyorum	Katılıyorum	Kesinlikle katılıyorum

Sorular	**1**	**2**	**3**	**4**	**5**
1. Ailem bana refakat eder.					
2. Ailem beni önemser.					
3. Hasta veya bakıma muhtaç olduğumda ailem yanımdadır.					
4. Sorunlarım varken veya kafamı meşgul eden şeyler olduğunda ailem beni dinler.					
5. Acil durumlarda yardım isteyebileceğim birileri var.					
6. Zorluklar yaşadığımda tavsiye isteyebileceğim birileri var.					
7. Sıkıntılı hissettiğimde güvenimi tazeleyip bana cesaret verecek birileri var.					
8. Hayatımda her zaman amaçlarım oldu.					
9. Hayatımın kontrolünün benim ellerimde olduğunu düşünüyorum.					
10. Hayatımdan memnunum.					
11. Hayatımda ilginç pek çok şey var.					
12. Zorluklar karşısında kendi çözümlerimi üretebilirim.					
13. Aksiliklerin üstesinden kendi başıma gelebilirim.					
14. İnsanlar zor zamanlarında bana güvenebilirler.					
15. Sorunlarla uğraşırken bardağın dolu tarafına bakarım.					

Scoring

There are no reverse items in the scale. The scale can be computed as a total score.

Family support (Items 1,2,3,4)

Social support (Items 5,6,7)

Meaning and purpose of life (Items 8, 9, 10, 11)

Personal strength (Items 12, 13, 14,15)