Journal of Clinical Psychology Research · (2026), 10(1), 1–12
Doi: 10.57127/kpd.26024438.1574782

ORIGINAL PAPER

Turkish validation of the Multidimensional Individual and Interpersonal Resilience Measure: Unveiling connections to psychological resilience, social support, and quality of life

Banu Aslan*[1], Ozgur Onal[2]

[1] Süleyman Demirel University, Faculty of Health Sciences, Department of Midwifery, East Campus, Isparta, Türkiye
[2] Süleyman Demirel University, Faculty of Medicine, Department of Public Health, East Campus, Isparta, Türkiye

Abstract
This study assesses the validity and reliability of the Multidimensional Individual and Interpersonal Resilience Measure (MIIRM) for older adults in Türkiye, exploring its adaptability to Turkish culture and its association with psychological resilience, perceived social support, and quality of life. A total of 1251 individuals aged 60 and above participated, and data was collected online through snowball sampling. Self-report measures were evaluated using original scoring systems. Exploratory factor analysis revealed a seven-factor structure, explaining 62.971% of the variance. Internal consistency was confirmed by Cronbach's alpha (.794) and Spearman-Brown Split-Half coefficient (.628). A high positive correlation (r = .620) between Connor-Davidson Resilience Scale and MIIRM suggests their interchangeability. Confirmatory factor analysis affirmed the scale's consistency, with a good fit. Multivariate analysis revealed factors enhancing resilience: Economic status, positive relationships, social support, and quality of life. This study provides a culturally adapted tool for assessing resilience among older adults in Türkiye, contributing to a deeper understanding of strategies to enhance their psychological resilience and filling a significant gap in the literature.

Keywords: resilience, older adults, perceived social support, quality of life

Çok Boyutlu Bireysel ve Kişilerarası Dayanıklılık Ölçeği'nin Türkçe geçerlilik çalışması: Psikolojik dayanıklılık, sosyal destek ve yaşam kalitesi ile bağlantıların keşfi

Öz
Bu çalışma, Türkiye'deki ileri yetişkinlik dönemindeki bireyler için Çok Boyutlu Bireysel ve Kişilerarası Dayanıklılık Ölçeği'nin (ÇB-BKDÖ) geçerliliğini ve güvenirliğini değerlendirerek, Türk kültürüne adaptasyonunu ve psikolojik dayanıklılık, algılanan sosyal destek ile yaşam kalitesi arasındaki ilişkileri incelemektedir. 60 yaş ve üstü toplam 1251 birey katılmış ve veriler kar topu örnekleme yöntemiyle çevrimiçi olarak toplanmıştır. Kendini değerlendirme ölçümleri, orijinal puanlama sistemleri kullanılarak değerlendirilmiştir. Açımlayıcı faktör analizi, varyansın %62.971'ini açıklayan yedi faktörlü bir yapı ortaya koymuştur. İç tutarlılık, Cronbach alfa (.794) ve Spearman-Brown Split-Half katsayısı (.628) ile doğrulanmıştır. Connor-Davidson Dayanıklılık Ölçeği ve ÇB-BKDÖ arasında yüksek pozitif korelasyon (r = .620) bulunması, bu ölçeklerin birbiri yerine kullanılabileceğini göstermektedir. Doğrulayıcı faktör analizi, ölçeğin tutarlılığını iyi bir uyum ile doğrulamıştır. Çok değişkenli analiz, dayanıklılığı artıran faktörleri ortaya koymuştur: Ekonomik durum, olumlu ilişkiler, sosyal destek ve yaşam kalitesi. Bu çalışma, Türkiye'deki ileri yetişkinlik dönemindeki bireyler için dayanıklılık değerlendirmelerinde kültürel olarak uyarlanmış bir araç sunarak, bu kişilerin psikolojik dayanıklılıklarını artırma stratejilerine yönelik daha derin bir anlayış kazandırmakta ve literatürde önemli bir boşluğu doldurmaktadır.

Anahtar kelimeler: dayanıklılık, ileri yetişkinlik dönemindeki bireyler, algılanan sosyal destek, yaşam kalitesi

INTRODUCTION

The fact that the global population is aging at an accelerating pace is plainly projected in the World Health Organization (WHO) data. Accordingly, while the percentage of the population aged 60 years and older was demonstrated to be 14.2% globally, it became 13.1% in Türkiye in 2023 (World Health Organization, 2023). Old age is an inevitable process characterized by physical, psychological, social, and cognitive regression and increased vulnerability. Even some other factors (e.g., chronic conditions, sensory loss, physical activity deficiencies, loss of beloved ones, changes in interpersonal relationships, intergenerational value conflicts, retirement, insufficient income, lack of social support, need for care, family structure, loneliness) adversely affect older adults' quality of life (Kalinkara, 2014; Saygili, 2017). Yet, coping with these challenging situations is relatively linked with their degree of resilience and endurance (Kalinkara, 2014). Described as the capacity to adapt well to difficulties, resilience is a key to compensating for losses and declines in old age (Górska et al., 2022). The American Psychological Association (APA) defines resilience as the process and outcome of mental, emotional, and behavioral flexibility and thriving in adaptation to external and internal demands. In addition, the APA argues that this adaptation process is facilitated by one's perspective on the world, ways of interacting with the environment, social support sources, and strategies for coping with difficulties (American Psychological Association, 2023). Resilience can also act as a potential protective factor for older adults during their challenging times (Lima et al., 2023); however, it is not immune to the influences of some internal and external factors, including personal resources, environmental and social supports, and quality of life. While one's educational attainment, socioeconomic status (SES), self-control, ability to cope with problems,

*Corresponding Author. **E-mail:** banuaslan@sdu.edu.tr

Received: Oct 28, 2024 · **Revised:** Feb 18, 2025 · **Accepted:** Feb 20, 2025 · **Published Online**: Dec 28, 2025
Association of Clinical Psychology Research 2026

personality traits, spirituality, and physical health are considered within personal resources, environmental and social supports cover age-friendly environmental designs, convenience in access to medical facilities, close relationships with family members and friends, and the ability to access social support sources (Smith & Hollinger-Smith, 2015). These factors shed light on the complex nature of resilience, suggesting that we need to examine more deeply the ways individuals cope with stress and the resilience levels that develop as a result.

At this point, Almeida (2005) has explained the individual's resilient or vulnerable traits in response to stress through a model. According to this model, resilience is influenced by socio-demographic (age, gender, education, income, marital status, and family relationships), psychosocial (personality traits, mastery, chronic stress, and life purpose), and health-related (acute and chronic illnesses, mental health) variables (Almeida, 2005). Accordingly, the resilience-associated protective factors for older adults can be categorized as physical, psychological, social, cultural, environmental, financial, and mobility resilience (Wild et al., 2013). In this respect, physical and psychological well-being, the ability to access social support, and quality of life can be claimed to be associated with robust resilience among older adults (Färber & Rosendahl, 2020; Górska et al., 2022).

It is evident that aging reduces one's physical mobility due to accompanying chronic diseases (Tan et al., 2021), further undermining their quality of life and well-being. Improving resilience is, however, thought to contribute to one's self-efficacy skills and, thus, improve their quality of life (Van Leeuwen et al., 2019). It should be noted that the drop in quality of life is not only linked to physical mobility. Losses of beloved ones also steer older adults to become susceptible to mental problems and impair their quality of life. In particular, losses make them vulnerable to depression, significantly affecting their ability to function or cope with daily life. Hence, it is critical to elevate one's psychological resilience - a key to adapting to distressing events (de Souza Júnior et al., 2022). Besides, psychological well-being is largely linked with one's social network, and resilience is thought to be enhanced thanks to support systems underlying this social network. In other words, a social network indirectly promotes resilience by encouraging coping behaviors, providing instrumental support, and contributing to life satisfaction (Fuller-Iglesias et al., 2008; Hayman et al., 2017). Moreover, social support can be sought from family members, circle of friends, and organizations. A support network with family and interpersonal relationships functions as a protective factor for social and emotional well-being, life satisfaction, and self-confidence, fortifying resilience (Fuller-Iglesias et al., 2008).

Building resilience to balance challenges and protective factors will allow older people to overcome their problems, which enhances their functionality (Hayman et al., 2017). Therefore, resilience becomes an important niche to be addressed for cultivating ways of negotiation to ensure successful aging with efficient coping with probable physical and psychosocial losses (Resnick, 2014) since higher resilience is associated with positive outcomes such as decreased depression and longevity (MacLeod et al., 2016). In this concern, efficient tools are needed to accurately conceptualize and measure resilience to be able to identify protective factors and develop effective interventions (Angevaare et al., 2020; Cosco et al., 2016; Górska et al., 2022). In the literature, the leading measurement tools for resilience can be listed as follows: Wagnild and Young's 25-item Resilience Scale (RS) (Wagnild & Young, 1993) and its short 5- (RS-5) and 11- (RS-11) item versions (von Eisenhart Rothe et al., 2013), the Connor-Davidson Resilience Scale (CD-RISC) (Connor & Davidson, 2003) and its 10-item version (CD-RISC10) (Campbell-Sills & Stein, 2007), and the Brief Resilient Coping Scale (BRCS) (Sinclair & Wallston, 2004). A systematic review of these instruments frequently utilized in research on older adults emphasized that all of the mentioned instruments provide an acceptable level of internal consistency but that their factorial structures tend to differ compared to original development studies (Cosco et al., 2016). Indeed, some studies scrutinizing resilience-oriented instruments report that these instruments usually consider internal factors but tend to underestimate different aspects of resilience (e.g., family and social resources). In addition, the literature offers limited resilience-oriented tools designed for older adults (Hayman et al., 2017; Wild et al., 2013). In this regard, one may need to wear multifaceted lenses focusing on resources and structures to understand and design efforts to improve resilience among older adults. For example, only assessing physical resilience will help measure only the ability to walk, or endeavors to determine resilience and improve well-being will remain insufficient if the older adults cannot be offered suitable walking opportunities/facilities (Wild et al., 2013).

To remedy this gap, Martin et al. (2015) designed a resilience-measuring instrument for older adults with a multidimensional approach. The Multidimensional Individual and Interpersonal Resilience Measure (MIIRM) consists of subdimensions such as self-efficacy, access to support networks, optimism, perceived economic and social resources, spirituality and religiosity, relational harmony, emotional expression and communication, and emotional regulation. This scale stands out not only by measuring individual resilience against adverse life events but also by assessing the key protective factors that contribute to the multidimensional nature of resilience (Martin et al., 2015). The first adaptation of the MIIRM, which was developed in a population of community-dwelling older adults living in San Diego County, was conducted in Brazil (Ferreira et al., 2023). Examining its validity and reliability in the Turkish population is essential for assessing the cultural adaptability of the scale and determining its potential for use in different communities. The present study attempts to explore the validity and reliability of the MIIRM for older adults living in Türkiye, to examine its adaptability to the Turkish culture, and to reveal the relationships of participants' MIIRM scores with psychological resilience, perceived social support, and quality of life.

METHODS

Participants

The target population consisted of all individuals aged 60 and older who are capable of providing voluntary consent to participate in the study online and could express themselves in writing or verbally. We excluded participants who were younger than 60 years, had mental disorders, and experienced difficulties expressing themselves. The minimum sample size was decided to be ten times the number of items in the instrument with the highest number of items. However, despite attaining the target sample size, we did not finalize the data collection process to reach a broader sample.

A total of 1251 individuals participated in the study from seven regions of Türkiye. The participants' ages ranged from 60 to 99, with a mean and standard deviation of 67.22 ± 6.31. The majority of participants (64.7%) were female, with a significant portion (64.3%) having completed primary education. Approximately 60.1% of participants resided in the Mediterranean and Aegean regions, while 23.5% lived alone. The majority of participants (71.3%) were married, and 93.2% had children. Only 11.5% of participants were actively employed. In the study, 13.2% of participants reported their economic situation as low SES, and 5.9% indicated an inability to perform daily life activities independently. Chronic illness was present in 49.0% of participants, disability in 4.0%, and experience of painful events in 63.8% (Table 1).

Table 1. Participants' Sociodemographic Characteristics

	n/M	%/±SD
Age (years)	67.22	±6.31
Gender		
Female	810	64.7
Male	441	35.3
Educational attainment		
Primary school	805	64.3
Secondary school	158	12.6
High school	153	12.2
University	135	10.8
Marital status		
Married	892	71.3
Single-widow-divorced	359	28.7
Children		
Yes	1166	93.2
No	85	6.8
Region of residence		
Mediterranean region	571	45.6
Aegean region	182	14.5
Other regions	498	39.8
Cohabitants of the home		
Alone	294	23.5
With others	957	76.5
Employment status		
Unemployed-retired	1107	88.5
Employed	144	11.5
Socioeconomic status		
Low	165	13.2
Medium	814	65.1
High	272	21.7
I cannot perform daily living activities on my own.	74	5.9
Chronic disease	613	49.0
Disability	50	4.0
Having experienced a painful event	798	63.8
Family relationships (1-5 Likert)	3.63	±0.84
Interpersonal relationships (1-5 Likert)	3.60	±0.77
MSPSS total score	57.78	±14.99
OPQOL-Brief total score	48.53	±7.97
CD-RICS total score	58.96	±14.83

Note. MSPSS = Multidimensional Scale of Perceived Social Support, OPQOL-Brief = Older People's Quality of Life Questionnaire-Brief, CD-RISC = Connor-Davidson Resilience Scale.

Measures

Sociodemographic and Health-related Questions Participants were asked socio-demographic questions including gender, age, education level, marital status, having children, province of residence, employment status, and perception of economic status. Health-related questions included the ability to perform daily life activities, presence of chronic illnesses, diagnosed psychiatric disorders, disability, and the presence of an event that deeply affected the individual. Additionally, general questions were asked about self-perceived resilience, evaluation of family relationships, and assessment of interpersonal relationships.

Multidimensional Individual and Interpersonal Resilience Measure Martin et al. (2015) designed the 22-item MIIRM in 2015. While items 1-11 are rated on a 5-point Likert-type scale (items 1-8: "Not true at all" - "True nearly all the time"; items 9-11: "Strongly disagree" - "Strongly agree"), statements in items 12 and 13 are structured on a linear scale rated between 1-10. Items 14-22 are rated on a 4-point Likert-type scale (items 14-20: "Never" - "Frequently"; items 21 and 22: "Not at all" - "Very"). In the original study, the exploratory factor analysis (EFA) of the MIIRM revealed an eight-factor structure, which was then confirmed via confirmatory factor analysis (CFA): self-efficacy (items 1–3; Cronbach's alpha = 0.79), access to a support network (items 15–18; Cronbach's alpha = 0.67), optimism (items 9–11; Cronbach's alpha = 0.58), perceived economic and social resources (items 12, 13, and 14 [reverse scored]; Cronbach's alpha = 0.55), spirituality and religiosity (items 21 and 22; Cronbach's alpha = 0.73), relational accord (items 19 and 20 [both reverse scored]; Cronbach's alpha = 0.58), emotional expression and communication (items 6–8 [all reverse scored]; Cronbach's alpha = 0.39), and emotional regulation (items 4 and 5; Cronbach's alpha = 0.43). The authors also reported good reliability for the total MIIRM score (Cronbach's α = .72). It was emphasized that these eight components of the scale offer a multidimensional measurement of resilience, from individual resilience factors to factors related to interpersonal or relational resilience. The authors also noted that interpersonal resilience can be re-

garded from the family resilience perspective. On the MIIRM, the total score is calculated by summing all items, and higher scores indicate a higher level of resilience (Martin et al., 2015). The Turkish adaptation of the MIIRM is presented in Appendix 1.

Linguistic Adequacy of the MIIRM While the first phase of ensuring linguistic adequacy of the MIIRM covered the translation of the original scale items into Turkish by a professional linguist, the Turkish draft form was submitted to another linguist specialized in Turkish for linguistic checks in the second phase. In the third phase, the draft form was submitted to a different linguist to be translated back into English. In the fourth phase, the back-translated draft was sent back to the corresponding author to confirm no alterations in the scale contents. Then, we initiated the data collection procedure.

Connor-Davidson Resilience Scale Karairmak (2010) carried out the Turkish validity and reliability study of the CD-RISC (Connor & Davidson, 2003). Twenty-five items on the instrument are rated on a 5-point Likert-type scale from 0 (No true at all) to 4 (True all the time). The scale covers no reverse-scored items. In the adaptation study, the internal consistency coefficient for the scale was reported to be .92, and one can obtain a score on the scale between 0 and 100. Higher scores on the scale indicate higher resilience (Karairmak, 2010).

Multidimensional Scale of Perceived Social Support The MSPSS was developed by Zimet et al. (1988) and adapted into Turkish by Eker and Arkar (1995). Eker et al. (2001) revised the adapted version of the scale. The scale is a 12-item measure of the perceived adequacy of social support from three sources. The items are rated on a 7-point Likert-type scale; one can score between 12-84 points on the scale. Higher scores suggest a higher level of perceived social support. In the previous research, Cronbach's alpha values of the MSPSS were reported to be .80-.95 (Eker et al., 2001).

Older People's Quality of Life Questionnaire-Brief Validated by Bowling et al. (2013), the OPQOL-Brief was adapted into Turkish by Caliskan et al. (2019). Thirteen items on the questionnaire are scored on a 5-point Likert-type scale (5 = "Strongly agree," 1 = "Strongly disagree"). One can score between 13-65 points, and a higher total OPQOL-Brief score implies a higher quality of life. Cronbach's alpha for the scale was reported to be .876. In the adaptation study, the authors indicated that the interclass correlation coefficient (ICC) yielded high test-retest reliability and that the OPQOL-Brief demonstrated acceptable validity/reliability for the Turkish culture (Caliskan et al., 2019).

Procedure

Prior to the research, the Clinical Research Ethics Board of Medical Faculty at Suleyman Demirel University granted ethical approval for our study (Approval decision no: 300; Date: December 29, 2023). The present study employs a methodological research design. Permission was obtained from the corresponding author who developed the MIIRM for its adaptation into Turkish. Approval for the use of the other instruments was also secured from their respective authors. Participants were administered the sociodemographic and health status questionnaires, as well as the MIIRM, CD-RISC, the MSPSS, and the OPQOL-Brief. Informed consent was obtained from participants, confirming their voluntary participation in the research. The data collection process was conducted using snowball sampling through a link generated in Google Forms. The initial distribution was carried out via university students residing in the seven regions of Türkiye, who were asked to share the link within their social circles. Subsequently, each participant was requested to forward the link to their contacts via mobile phones and/or social media platforms. This method enabled us to reach a broad range of participants from various regions. The self-report measures were evaluated according to their original scoring systems.

Data Analysis

The study presented nominal data as frequency and percentage, while metric data were presented as mean and standard deviation. The entire dataset was entered into a Microsoft Excel spreadsheet. Afterwards, the data was exported to three separate statistical software platforms for analysis: SPSS (version 28.0, SPSS Inc., Chicago, IL, USA), Stata (version 17.0, StataCorp, College Station, TX), OriginPro (version 2021, OriginLab Corporation, Northampton, Massachusetts, USA), and MedCalc (version 20.0, MedCalc Software, Mariakerke, Belgium). Additionally, confirmatory factor analysis was conducted using the SPSS AMOS (version 24, IBM, Chicago, IL, USA) in the study. As model fit indices, CMIN/df (Chi-square/Degrees of freedom), Root Mean Square Error of Approximation (RMSEA), Incremental Fit Index (IFI), Comparative Fit Index (CFI), and Normed Fit Index (NFI) were utilized. The accuracy of estimates was expressed using 95% confidence intervals (CIs). In assessing the scale's validity, construct validity was examined through various methods, including scree plot, Kaiser-Meyer-Olkin measure of sampling adequacy, Bartlett's test of sphericity, % of variance, and Reliability Statistics such as Cronbach's alpha, Spearman-Brown split-half coefficient, Hotelling's T-squared test (F, p), and parallel test with Bland-Altman plot. Pearson correlation analysis was utilized to explore the relationships between variables, while linear regression analysis was used to investigate factors impacting the dependent variable.

RESULTS

Intra-family, and interpersonal relationships were assessed using a 5-point Likert scale, yielding mean standard deviations of 3.44 (0.95), 3.63 (0.84), and 3.60 (0.77) respectively. The perceived level of social support had a mean total score and standard deviation of 57.78 (14.99), while the mean total score and standard deviation for quality of life were 48.53 (7.97). The CD-RISC yielded a mean total

Table 2. Results of Exploratory Factor Analysis and Internal Consistency Measurements

Factors	Items	*M*	*SD*	Factor Loading	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha-Spearman Brown Split-Half Coefficients
F1 (Self Efficacy-Emotional Regulation)	I-1	3.43	0.87	.665	.436	.768	.777-.729
	I-2	3.08	1.00	.773	.412	.769	
	I-3	3.35	0.97	.654	.433	.768	
	I-4	3.26	0.96	.778	.476	.765	
	I-5	3.31	1.06	.621	.434	.767	
F2 (Emotional Expression)	I-6	3.18	0.97	.785	.167	.783	.579-.572
	I-7	3.78	1.07	.734	.236	.780	
	I-8	3.45	1.06	.603	.230	.780	
F3 (Optimism)	I-9	4.08	0.88	.821	.353	.773	.693-.771
	I-10	3.47	0.91	.599	.514	.764	
	I-11	3.77	0.88	.827	.463	.767	
F4 (Perceived Emotional and Social Resource)	I-12	5.28	1.74	.842	.431	.769	.643-.326
	I-13	5.20	1.97	.868	.405	.776	
	I-14	2.40	0.79	.398	.274	.777	
F5 (Access to Support Network)	I-15	3.14	0.81	.763	.287	.776	.793-.754
	I-16	3.20	0.81	.788	.376	.772	
	I-17	3.31	0.76	.748	.482	.767	
	I-18	3.33	0.76	.738	.491	.767	
F6 (Relational Accord)	I-19	2.25	0.77	.787	.113	.794	.476-.476
	I-20	2.37	0.75	.820	.150	.782	
F7 (Spirituality and Religiosity	I-21	3.05	0.72	.910	.231	.779	.794-.795
	I-22	3.06	0.71	.881	.311	.775	
Total		74.78	9.41				.794-.628

Note. Kaiser-Meyer-Olkin Measure of Sampling Adequacy: .807, Bartlett's Test of Sphericity Approx. Chi-Square: 7447.117, p < .001.

score and standard deviation of 58.96 (14.83) (Table 1).

Within the scope of the study, EFA was conducted on the MIIRM scale. In the EFA, inter-factor correlations of MIIRM were assessed using the direct Oblimin test, one of the Oblique Rotation Methods. When Eigenvalue 1 was considered, the 22-item scale revealed a seven-factor structure, accounting for 62.971% of cumulative variance. The model exhibited a Kaiser-Meyer-Olkin Measure of Sampling Adequacy of .807, and Bartlett's Test of Sphericity yielded an Approximate Chi-Square of 7447.117, with p < .001. The factor loadings of items in the scale ranged from .599 to .910, except for item I14 (.398). In the research, Hotelling's T-squared test, which evaluates whether individuals' responses to scale items are equal, resulted in a significance level of p < .05 (Hotelling's T-Squared: 8091.123, F: 379.127). According to this result, it was determined that there was no response bias in the scale. In the context of reliability assessment, Cronbach's Alpha and Spearman Brown Split-Half coefficients were computed to measure internal consistency, with these values obtained from Factor 6 as the lowest and Factor 7 as the highest. The Cronbach's Alpha-Spearman Brown Split-Half coefficients for the total scale were .794 and .628, respectively (Table 2).

A scree plot graph was generated for the scale in the study. The scree plot typically displays a "bend" or "inflection" point. This point can indicate the optimal number of factors to consider. At this bend point, further addition of factors does not notably enhance the total variance. This observation can offer guidance in determining the appropriate number of factors. In the scale examined in this study, the slope became horizontal around a seven-factor structure.

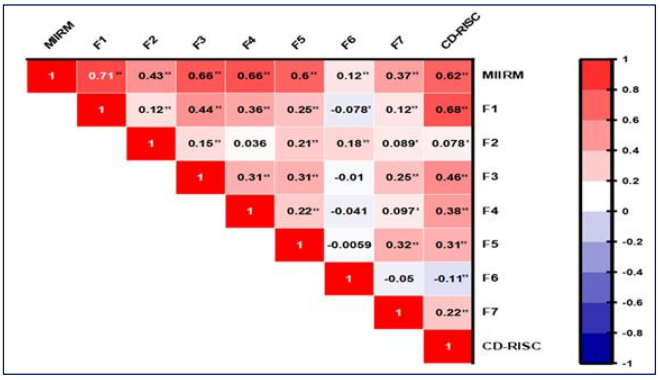

Figure 1. Correlation Matrix of the MIIRM, MIIRM Subgroups, and the CD-RISC. Note. *p < .05, **p < .001. MIIRM = Multidimensional Individual and Interpersonal Resilience Measure**,** CD-RISC = Connor-Davidson Resilience Scale.

The correlation coefficient between the MIIRM scale considered a parallel/equivalent test for determining reliability, and CD-RISC has been examined. The correlation between the two scales is positively and significantly (p < .001) high (r = .620). Additionally, the correlation of the scale with its subscales has also been investigated in the study. There is a relationship between the total score of the scale and Factor 1 the most (r = .710) and the least with Factor 6 (r = .12). The correlation between the total scale score and all subscales is statistically significant (p < .001) (Figure 1).

A Bland-Altman analysis was conducted to assess the agreement and discrepancy between the MIIRM and the CD-RISC, which was evaluated as a parallel/equivalent measure. This analysis compared Z-score values of measurement values to establish a standard between the two

measurements. The analysis resulted in the determination that the two measurements can be used interchangeably (p > .05) (Figure 2).

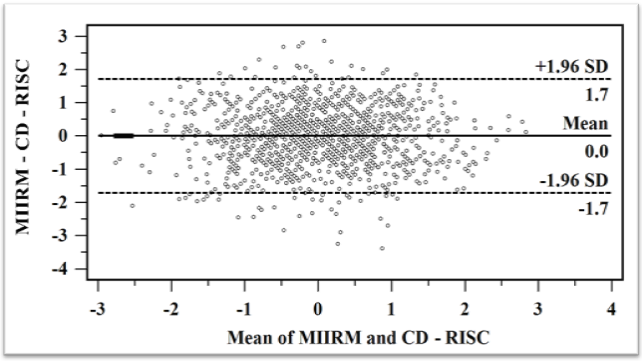

Figure 2. Bland-Altman Plot of the MIIRM and the CD-RISC. ***Note.*** MIIRM = Multidimensional Individual and Interpersonal Resilience Measure**,** CD-RISC = Connor-Davidson Resilience Scale.

In the study, confirmatory factor analysis was conducted using the Maximum Likelihood (ML) estimation method, and model fit coefficients were determined as follows: CMIN = 897.370, Df = 189, CMIN/df = 4.748 (<3.0 good fit, 3.0-5.0 acceptable fit), RMSEA = .055 (≤.050: good fit, .050-.080: acceptable fit), IFI = .903 (>.95: good fit, .90-.95: acceptable fit), CFI = .902 (>.95: good fit, .90-.95: acceptable fit), NFI = .880 (>.95: good fit, .90-.95: acceptable fit). In the CFA, the unstandardized estimate values for the items are as follows: I1 (1.00), I2 (1.21), I3 (1.08), I4 (1.22), I5 (1.02), I6 (1.00), I7 (1.42), I8 (1.37), I9 (1.00), I10 (1.34), I11 (1.38), I12 (1.00), I13 (1.03), I14 (0.11), I15 (1.00), I16 (1.19), I17 (1.26), I18 (1.25), I19 (0.70), I20 (0.70), I21 (1.00), and I22 (1.20). All factor loadings were found to be statistically significant. The standardized values of the items are presented in Figure 3.

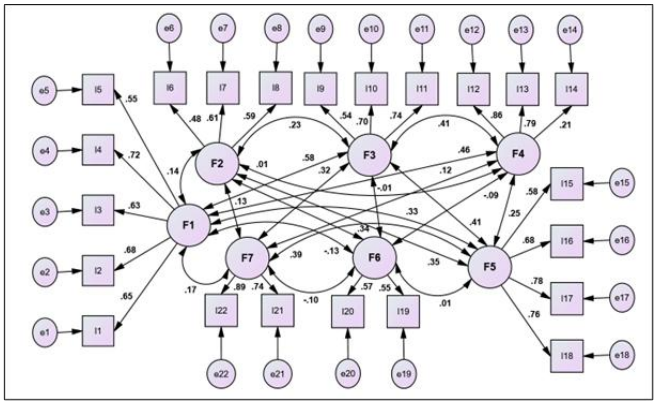

Figure 3. Confirmatory Factor Analysis of the MIIRM

Based on these values, the scale is considered to be consistent in measuring the relevant behavior. The analysis revealed that while the factors are consistent with their respective sub-dimensions, the relationships between the factors themselves are not as strong. This suggests that the factors measure different sub-dimensions in assessing resilience.

The study examined the impact of independent variables on the MIIRM scale. Univariate analysis revealed that decreasing age, higher education levels, being married, having children, not living alone, being employed, improving economic status, being able to perform daily life activities independently, having positive family and interpersonal relationships, and perceiving an increase in social support were associated with increased resilience. Significant variables identified in the univariate analysis were included in the multivariate analysis. Due to the high correlation between marital status (VIF = 3.576) and living arrangements (VIF = 3.412), only marital status was included in the multiple regression to avoid multicollinearity issues. Conor Davidson resilience, which exhibited high correlation and was considered as a parallel/equivalent test (VIF = 1.852), was not added to the model. After these adjustments, the VIF values of independent variables ranged from 1.101 to 1.589. The results of the multivariate regression analysis showed that among older adults, an increase in economic status (B = 2.028; 95% CI: 1.515-2.541), positive family relationships (B = 2.010; 95% CI: 1.483-2.538), improved interpersonal relationships (B = 2.362; 95% CI: 1.788-2.937), perceived social support (B = .147; 95% CI: 0.119-0.175), and enhanced quality of life (B = .356; 95% CI: 0.305-0.408) contribute to increased resilience. The multiple regression model's R^2 was .528, Adjusted R^2 was .524, Durbin Watson Test was 1.853, and Model ANOVA indicated significance with p < .001 (Table 3).

DISCUSSION

Resilience Scores

While we calculated participants' mean MIIRM score to be 74.78±9.41, the original study reported it as 67.3±7.6 (Martin et al., 2015). Another study using the Brazilian version of the scale found the mean resilience score to be 90.38±11.067 (Ferreira et al., 2023). In this study, we concluded that our older adult participants' mean resilience score was higher than that of the sample in the original study and lower when compared to that of the Brazilian sample. The differences between resilience scores can be attributed to cultural differences, linguistic differences in the adapted versions, sample size, methodological differences, and diverse socioeconomic conditions of the research country.

Adequacy of Sample Size

A measurement tool confirmed to measure the target construct is expected to yield similar factorial outcomes results within a relative standardization when administered to diverse sample groups (Nunnally, 1978). Thus, choosing an appropriate sample size and group increases the power of the research and its generalizability to the general population. As a rule of thumb, a sample size is classified as follows: 50 = very poor, 100 = poor, 200 = fair, 300 = good, 500 = very good, and 1000 and above = excellent (Comrey & Lee, 1992). While we decided on a sample size of 1251 people in this study, it was 1006 in the original study (Martin et al., 2015) and 187 in the Brazil-based research (Ferreira et al., 2023). Moreover, a large sam-

Table 3. Univariate and Multiple Regression Analyses of Factors Affecting The MIIRM

	Univariate regression			Multiple regression (Backward LR)		
	β	95% CI	*p*	*B*	95% CI	*p*
Age (years)	-.115	-0.197--0.032	**.006**	-	-	-
Gender (female: 0, male: 1)	.682	-0.411-1.775	.221	-	-	-
Educational attainment (per 1 level increase)	1.526	1.037-2.036	**<.001**	-	-	-
Marital status (single-widow-divorced: 0, married: 1)	3.296	2.156-4.436	**<.001**	-	-	-
Children (no: 0, yes: 1)	2.802	0.732-4.872	**.008**	-	-	-
Region of residence (Mediterranean region: 0, Aegean region: 1, other regions: 2)	.193	-0.373-0.759	.503	-	-	-
Cohabitants of the home (alone: 0, with others: 1)	3.598	2.382-4.814	**<.001**	-	-	-
Employment status (unemployed-retired: 0, employed: 1)	1.979	0.346-3.613	**.018**	-	-	-
Socioeconomic status (per 1 level increase)	4.469	3.804-5.133	**<.001**	2.028	1.515-2.541	**<.001**
I cannot perform daily living activities on my own.	3.583	1.377-5.788	**.001**	-	-	-
Chronic disease (no: 0, yes: 1)	-.869	-1.913-0.174	.103	-	-	-
Disability (no: 0, yes: 1)	-1.829	-4.494-0.836	.178	-	-	-
Having experienced a painful event (no: 0, yes: 1)	-.808	-1.894-0.278	.145	-	-	-
Family relationships (per 1 level increase)	5.412	4.870-5.953	**<.001**	2.010	1.483-2.538	**<.001**
Interpersonal relationships (per 1 level increase)	6.000	5.414-6.586	**<.001**	2.362	1.788-2.937	**<.001**
MSPSS total score (per 1 point increase)	.330	0.300-0.359	**<.001**	.147	0.119-0.175	**<.001**
OPQOL-Brief total score (per 1 point increase)	.641	0.586-0.696	**<.001**	.356	0.305-0.408	**<.001**
CD-RISC total score (per 1 point increase)	.393	0.365-0.421	**<.001**	-	-	-

Note. R^2: .528, Adjusted R^2: .524, Durbin Watson statistic: 1.853, Model ANOVA: $p < .001$. MIIRM = Multidimensional Individual and Interpersonal Resilience Measure, MSPSS = Multidimensional Scale of Perceived Social Support, OPQOL-Brief = Older People's Quality of Life Questionnaire-Brief, CD-RISC = Connor-Davidson Resilience Scale.

ple size contributes to the generalizability of factor analysis results since the factorial pattern attained with a large sample size is always more consistent than that obtained with a smaller sample. Furthermore, the higher the number of factors the scale includes, the higher the number of subjects needs to be recruited (DeVellis, 2017). Generally, a ratio of 5 to 10 subjects per item is recommended until reaching 300 participants (Tinsley & Tinsley, 1987). In this study, there were about 57 subjects per item on the scale with the highest number of items. Finally, we can claim that our sample has excellent power to represent the target population since the present study can be considered field research.

Construct Validity

To provide evidence for the construct validity of the MIIRM, we calculated item loadings, generated a scree plot, and considered the KMO measure of sampling adequacy and Bartlett's test of sphericity. Construct validity is the utmost level of empirical evidence of how accurately the items of an instrument correspond to its fundamental theoretical structure (Stein et al., 2013). Besides, factor analysis is a methodological procedure that reduces a large number of variables to a smaller set of them by identifying key dimensions between observed variables and latent constructs, thereby providing evidence of the construct validity of self-report scales. This procedure also contributes to the design and development of a particular theory (Williams et al., 2010). In this analysis, items with a factor loading of .30 or higher need to be considered when interpreting a factor (Tinsley & Tinsley, 1987). In this study, the items on the MIIRM were all found to yield .30 and higher factor loadings. The original study proposed an eight-factor structure for the MIIRM (self-efficacy, access to social support network, optimism, perceived economic and social resources, spirituality and religiosity, relational accord, emotional expression and communication, and emotional regulation; Martin et al., 2015). However, our analysis showed that the items of Factor 1 (items 1, 2, and 3) and Factor 2 (items 4 and 5) loaded under the same factor, suggesting a seven-factor structure for the adapted MIIRM. This difference can be attributed to the potential cultural context that may influence how these constructs are understood or experienced by participants. Bandura (2012) emphasizes that the management of emotional states enhances an individual's capacity to cope with challenges and strengthens their sense of self-efficacy. Similarly, in Turkish culture, emotional regulation and self-efficacy are perceived as interconnected and overlapping concepts, which may directly influence individuals' ability to cope with challenges in their daily lives. Especially for older individuals, emotional regulation skills and perceptions of self-efficacy are often considered to be key components, reinforced by social support, that strengthen individual resilience. In this context, the conceptual overlap between emotional regulation and self-efficacy in Turkish society might have led to their merging into a single factor. Moreover, in Turkish culture, individual resilience is often shaped by social bonds, family relationships, and social support. These factors can serve as important elements that enhance emotional regulation and self-efficacy. These observations can be considered as a cultural reflection of the merging of the two factors. This suggests that in the Turkish context, these two factors might be understood as interrelated aspects of an individual's overall resilience, thus supporting their merging into one factor. Future studies may explore whether this overlap is consistent across different cultural contexts.

The results of the KMO measure of sampling adequa-

cy and Bartlett's test of sphericity are considered to decide the suitability of data for factor analysis. Ranging between 0 and 1, a KMO index above .50 indicates the suitability of data for factor analysis (Williams et al., 2010). While this index was calculated to be .68 in the original study (Martin et al., 2015) and .66 in the Brazilian adaptation research (Ferreira et al., 2023), we found it to be .80, implying that our data were rather suitable for factor analysis. Bartlett's test of sphericity calculates the probability of significant correlations among variables in a dataset, a prerequisite for factor analysis; thus, the test needs to yield a statistically significant result to recruit the data for factor analysis. In this study, the test yielded a significant result ($p < .001$), as well as in the original ($p < .01$) and Brazilian adaptation studies ($p < .001$).

In this study, we calculated the cumulative variance explained by the MIIRM to be 62.97%, satisfying the recommended criteria. In the original study, while the initial model for the instrument explained 58.6% of the variance, it went up to 62.3% in the subsequent analysis. In addition, the original study reported that all communalities of the items were above .45 and that all items had factor loadings above .61 (Martin et al., 2015). In this study, except for item 14 (.398), the factor loading of the items was calculated to be above .60. Item 14's low factor loading may suggest that this particular item does not align well with the intended construct, or that cultural or contextual factors may be influencing participants' responses differently compared to the original sample. Additionally, the slight increase in cumulative variance compared to the original study could indicate that, even when adapted to a different context or sample, the MIIRM still explains a substantial portion of the variance, thus reinforcing the robustness of the instrument. However, it would be valuable to explore whether further modifications to the model could increase the explained variance without overfitting the data.

In factor analysis, the fit indices considered to assess how well a model fits the data typically range between 0 and 1; a high fit index value indicates that the model explains a large portion of the variance in the data. Additionally, large residual values generally indicate a poor model-data fit (Beran & Violato, 2010). In CFA in this study, all goodness-of-fit indices (e.g., CMIN/df, RMSEA, IFI, and CFI), except for NFI (.880), suggested an acceptable to good model-data fit. In the original study, the authors confirmed the eight-factor structure of the MIIRM with the following fit indices: NNFI = .92, CFI = .94, and RMSEA = .037 (Martin et al., 2015). In the Brazilian adaptation study, EFA generated a five-factor (access to support network, interpersonal relationship, self-efficacy, optimism, perceived social and economic resources) model with the following fit indices in CFA: RMSEA = .030; TLI = .959; $\chi^2 = 151.590$, $p > .05$ (Ferreira et al., 2023). Since the models set for the MIIRM in the three studies showed at least acceptable goodness-of-fit indices, we can claim that the scale can validly be adopted to measure resilience. The cut-off criteria for fit indices are estimated to be above .90 for CFI, close to .06, and usually below .08 for RMSEA (Hu & Bentler, 1999). A more precise proposition may be that a CFI value of ≥ .90 and an RMSEA value of < .05 are sufficient (Beran & Violato, 2010; Hu & Bentler, 1999). In addition, for a good model-data fit, it is often recommended that NFI and IFI are greater than .90 (Manrique-Ruiz Tapia et al., 2022) and that CMIN/df is between 2-5 (Mia et al., 2019).

Reliability

Cronbach's alpha coefficient is used to assess the internal consistency of a measurement tool, with recommended classifications: unacceptable (< .60), minimally acceptable (.60-.70), respectable (.70-.80), and very good (.80-.90) (DeVellis, 2017). While the original study reported Cronbach's alpha coefficient of the MIIRM to be .72 (Martin et al., 2015), it was reported as .70 in the Brazilian adaptation study (Ferreira et al., 2023). In this study, we calculated the scale's internal consistency to be .79, slightly higher than that reported in the original scale. Overall, the internal consistency of the MIIRM was respectable in the original study, the Brazilian adaptation research, and the present study.

On the other hand, it is not reasonable to depend on a single technique when interpreting the reliability of a measurement tool. In this concern, a researcher can also calculate the Spearman-Brown coefficient to seek split-half reliability of a test (Ozdamar, 2017). The coefficient assumes a value between 0-1, and it is desirable for a test to have a split-half reliability coefficient close to 1. The closer this value is, the higher internal consistency the test offers (Streiner, 2003). In this study, we calculated the Spearman-Brown split-half reliability coefficient of the MIIRM to be .62, an acceptable value regarding internal consistency. However, neither the original development study nor the Brazilian adaptation research reported the Spearman-Brown split-half coefficient of the scale.

Response bias in a measurement is assessed by the consistency of responses to each scale item, which mandates identifying significant differences in mean scores between items (Ozdamar, 2017; Turkmen et al., 2023). As an extension of the independent samples *t*-test, Hotelling's T-squared is a multivariate test used to compare the differences between group response means in a large sample size (Hotelling & Pabst, 1936). The test also allows the evaluation of the difficulty level for each item and whether participants have a common perception of items (Ozdamar, 2017; Turkmen et al., 2023). In this study, the test yielded no response bias for the self-report MIIRM ($p < .05$), implying that participants responded to the scale items truthfully.

The CD-RISC was adopted as a parallel measurement tool in this study, and we concluded a high, positive correlation between the MIIRM and the CD-RISC. The Bland-Altman analysis is also recommended to assess the interchangeability of the two measurement methods. In this regard, the Bland-Altman plot was designed to evaluate the absolute agreement between two measurements on the same scale. The method distinguishes instrument bias from random error, thus keeping the advantage of intra-class correlation over Pearson correlation (Streiner et al., 2015). The Bland-Altman analysis showed that the MIIRM and CD-RISC can be adopted interchangeably as parallel/equivalent tests ($p > .05$).

Multidimensional Individual and Interpersonal Resilience, Perceived Social Support, and Family and Interpersonal Relationships

Our analyses yielded that as scoring higher in perceived social support, participating older adults got increased resilience scores, suggesting that perceived social support may emerge as a protective factor for psychological resilience. The presence and quality of social support mechanisms among older adults are likely to contribute to their resilience in coping with difficulties (Netuveli & Blane, 2008; Wen et al., 2023). A previous meta-analysis reported that older adults with convenient access to social support sources tend to exhibit higher levels of resilience (Górska et al., 2022). In this study, we also discovered that robust family and interpersonal relationships appeared as other protective factors for resilience among our participants. Social networks and participation have a boosting effect on overall well-being (Kusz & Ahmad, 2020). Family is one's key social support source, and sharing life with the spouse promotes solidarity and resilience, particularly among older adults. In social support, the bond with children should also not be underestimated. In addition, the quality of relationships with significant other support sources (e.g., friends, neighbors, and relatives) may be considered a factor in increasing one's motivation. The breadth of a social network with family and the environment is thought to make older adults individually and interpersonally more resilient in coping with problems (Kalinkara, 2014).

Multidimensional Individual and Interpersonal Resilience and Quality of Life

Similar to our findings in the previous section, high quality of life emerged as another protective factor for resilience in older adults. One's life expectancy may increase; nevertheless, what is key is to have enough quality of life to spend each year in prosperity (Cosco et al., 2017). Older people often develop diverse reactions to cope with adverse life events and re-evaluate the meaning of life as getting older. If such a reactive shift is called "resilience," the way older adults attain an improved quality of life goes through establishing social contact with their family members, friends, and neighbors, maintaining functional health, improving financial conditions, and participating in social activities (Netuveli & Blane, 2008). The findings of a previous meta-analysis suggested that psychological well-being and quality of life are positively associated with resilience (Górska et al., 2022); therefore, resilience can assume a pivotal role in maintaining quality of life (Netuveli & Blane, 2008). In this sense, the ultimate goal of any intervention aiming to enhance resilience should be to contribute to one's quality of life (Cosco et al., 2017).

Multidimensional Individual and Interpersonal Resilience and Socioeconomic Status

Socioeconomic status emerged as the only significant variable associated with psychological resilience among participants' sociodemographic characteristics in the multivariate analysis. A cohort study discovered that individuals with a higher socioeconomic status adapt better to difficulties in life (Cosco et al., 2018). Since people with a high socioeconomic status are thought to be less likely to confront poverty and poverty-related difficulties in old age, they are likely to be competent enough to cope with stressful life events and have a more robust resilience capacity. Yet, vulnerability is believed to lead to fragility (Lai & Li, 2022). It was emphasized that resilience is a fundamental factor in improving the quality of life of those with low SES (Lai & Li, 2022). Thus, good socioeconomic status affects older people's well-being and, thus, can be considered a protective factor for their resilience.

Interpreting the findings of the present study warrants consideration of several limitations. The development of this scale was conducted within a single cross-sectional time frame. It was not feasible to administer test-retest procedures in the study. This limitation was addressed by calculating internal consistency coefficients and comparing them with parallel tests. Additionally, the cross-sectional design of the study complicates establishing a causal relationship in the comparisons made. Due to the utilization of an online platform for the survey in the study, there is a possibility of excluding individuals who do not have access to the internet or have limited proficiency in using technology. To mitigate the potential impact of this situation on the representativeness of the sample, efforts were made to increase the sample size. Notwithstanding these limitations, the study possesses strong aspects that will significantly contribute to the literature. It is believed that due to its nature as the first scale to assess resilience in older adults in Türkiye in a multidimensional manner, it will guide future research. The large sample size in the study and ensuring participation from diverse regions are considered important in representing the overall country.

Conclusions

The characteristics of the MIIRM were examined, confirming its validity and reliability for use in individuals aged 60 and over in Türkiye. This study found that perceived social support, strong family and interpersonal relationships, high quality of life, and improved economic status significantly enhance resilience among older adults. The MIIRM can serve as a crucial tool for healthcare, clinical psychology, and social service professionals to assess resilience levels in older adults. Moreover, this research addresses a significant gap in the literature by providing insights into culturally relevant factors that contribute to resilience, thereby informing interventions aimed at promoting successful aging in Türkiye.

Future studies should focus on implementing the MIIRM scale in intervention programs designed to enhance resilience in the older adult population, ultimately promoting successful aging. Additionally, the scale's applicability to diverse populations can provide valuable insights into its effectiveness and reliability. To strengthen older adults' resilience, society and institutions must work to enhance their social support networks. Measures should be taken to improve intra-family communication and relationships through socio-cultural activities. Further-

more, institutional and social support programs should ensure economic security for older adults. Raising awareness at individual, familial, and societal levels is essential for integrating older adults into social life, boosting their self-confidence, promoting coping skills, and encouraging active engagement in the aging process. This study paves the way for future research to further explore and expand upon the connections between resilience and various socio-cultural factors impacting older adults in Türkiye.

DECLARATIONS

Ethics Committee Approval: Prior to the research, the Clinical Research Ethics Committee of Medical Faculty at Suleyman Demirel University granted ethical approval for our study (Approval decision no: 300; Date: December 29, 2023).

Conflict of Interest: There was no conflict of interest to be disclosed.

Informed Consent: The participants were informed and voluntary consent was obtained prior to their involvement in the study.

Project/Funding: The authors declare that they have not received any financial support for this research.

Data Sharing/Availability: The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Authors' Contributions: First author: Designing the study, data collection, analysis and interpretation, manuscript writing, coordinating and managing the article. Second author: Statistical analysis and interpretation.

Use of Artificial Intelligence: The authors declare that no artificial intelligence (AI) tools were used in the writing, analysis, data interpretation, or preparation of this manuscript.

REFERENCES

Almeida, D. M. (2005). Resilience and vulnerability to daily stressors assessed via diary methods. *Current Directions in Psychological Science*, *14*(2), 64–68.

American Psychological Association. (2023). *Resilience*. American Psychological Association.

Angevaare, M. J., Roberts, J., van Hout, H. P. J., Joling, K. J., Smalbrugge, M., Schoonmade, L. J., Windle, G., & Hertogh, C. M. P. M. (2020). Resilience in older persons: a systematic review of the conceptual literature. *Ageing Research Reviews*, *63*, 101144.

Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited. *Journal of management*, *38*(1), 9-44.

Beran, T. N., & Violato, C. (2010). Structural equation modeling in medical research: a primer. *BMC Research Notes*, *3*(1), 1–10.

Bowling, A., Hankins, M., Windle, G., Bilotta, C., & Grant, R. (2013). A short measure of quality of life in older age: the performance of the brief older people's quality of life questionnaire (OPQOL-brief). *Archives of Gerontology and Geriatrics*, *56*(1), 181–187.

Caliskan, H., Sengul Aycicek, G., Ozsurekci, C., Dogrul, R. T., Balci, C., Sumer, F., Ozcan, M., Karabulut, E., Halil, M., Cankurtaran, M., & Yavuz, B. B. (2019). Turkish validation of a new scale from older people's perspectives: older people's quality of life-brief (OPQOL-brief). *Archives of Gerontology and Geriatrics*, *83*, 91–95.

Campbell-Sills, L., & Stein, M. B. (2007). Psychometric analysis and refinement of the connor–davidson resilience scale (CD-RISC): validation of a 10-item measure of resilience. *Journal of Traumatic Stress*, *20*(6), 1019–1028.

Comrey, A. L., & Lee, H. B. (1992). *A first course in factor analysis* (Second Edition). Lawrence Erlbaum Associates Inc.

Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: the connor-davidson resilience scale (CD-RISC). *Depression and Anxiety*, *18*(2), 76–82.

Cosco, T. D., Cooper, R., Kuh, D., & Stafford, M. (2018). Socioeconomic inequalities in resilience and vulnerability among older adults: a population-based birth cohort analysis. *International Psychogeriatrics*, *30*(5), 695–703.

Cosco, T. D., Howse, K., & Brayne, C. (2017). Healthy ageing, resilience and wellbeing. *Epidemiology and Psychiatric Sciences*, *26*(6), 579–583.

Cosco, T. D., Kaushal, A., Richards, M., Kuh, D., & Stafford, M. (2016). Resilience measurement in later life: a systematic review and psychometric analysis. *Health and Quality of Life Outcomes*, *14*(1), 1–6.

de Souza Júnior, E. V., Cruz, D. P., Silva, C. dos S., Rosa, R. S., Peloso-Carvalho, B. de M., & Sawada, N. O. (2022). Depression implications on older adults' quality of life: a crosssectional study. *Enfermería Global*, *21*(1), 460–472.

DeVellis, R. F. (2017). *Scale development theory and applications* (trans. edit. Tarık Totan, Ed.; Third Edition). Nobel Academic Publishing Education Consultancy Inc.

Eker, D., & Arkar, H. (1995). Perceived social support: psychometric properties of the MSPSS in normal and pathological groups in a developing country. *Social Psychiatry and Psychiatric Epidemiology*, *30*(3), 121–126.

Eker, D., Arkar, H., & Yaldiz, H. (2001). Factorial structure, validity, and reliability of revised form of the multidimensional scale of perceived social support. *Turkish Journal of Psychiatry*, *12*(1), 17–25.

Färber, F., & Rosendahl, J. (2020). Trait resilience and mental health in older adults: a meta-analytic review. *Personality and Mental Health*, *14*(4), 361–375.

Ferreira, J. D. R., Miranda, M. F., Miranda, M. F., Romano-Silva, M. A., Bicalho, M. A. C., & Viana, B. de M. (2023). Translation and validity of the multidimensional individual and interpersonal resilience measure. *Revista Brasileira de Enfermagem*, *76*(4), e20220696.

Fuller-Iglesias, H., Sellars, B., & Antonucci, T. C. (2008). Resilience in old age: social relations as a protective factor. *Research in Human Development*, *5*(3), 181–193.

Górska, S., Singh Roy, A., Whitehall, L., Irvine Fitzpatrick, L., Duffy, N., & Forsyth, K. (2022). A systematic review and correlational meta-analysis of factors associated with resilience of normally aging, community-living older adults. *The Gerontologist*, *62*(9), e520.

Hayman, K. J., Kerse, N., & Consedine, N. S. (2017). Resilience in context: the special case of advanced age. *Aging & Mental Health*, *21*(6), 577–585.

Hotelling, H., & Pabst, M. R. (1936). Rank correlation and tests of significance involving no assumption of normality. *The Annals of Mathematical Statistics*, *7*(1), 29–43.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55.

Kalinkara, V. (2014). Basic Gerontology: The Science of Aging (2nd ed.). Nobel Publishing.

Karairmak, O. (2010). Establishing the psychometric qualities of the connor–davidson resilience scale (CD-RISC) using exploratory and confirmatory factor analysis in a trauma survivor sample. *Psychiatry Research*, *179*(3), 350–356.

Kusz, H., & Ahmad, A. (2020). Preserving engagement, nurturing resilience. *Clinics in Geriatric Medicine*, *36*(4), 601–612.

Lai, D. W. L., & Li, J. (2022). Personality and health-related quality of life (HRQoL) of Hong Kong Chinese older people: resilience as a mediator and financial status as a moderator. *Aging & Mental Health*, *26*(12), 2424–2431.

Lima, G. S., Figueira, A. L. G., Carvalho, E. C. de, Kusumota, L., & Caldeira, S. (2023). Resilience in older people: A concept analysis. *Healthcare (Basel, Switzerland)*, *11*(18), 1–16.

MacLeod, S., Musich, S., Hawkins, K., Alsgaard, K., & Wicker, E. R. (2016). The impact of resilience among older adults. *Geriatric Nursing*, *37*(4), 266–272.

Manrique-Ruiz Tapia, M. A., Macías-López, M. P., Murcia-Casas, D. Z., Ramírez, G. L., Barreto, K. T., Torres, L. C. B., Munevar, F. R., & Soares-Filho, P. S. D. (2022). Adaptation and psychometric properties of the electronic cigarette dependence index (ECDI) in a Colombian sample. *International Journal of Psychological Research*, *15*(1), 20–29.

Martin, A. S., Distelberg, B., Palmer, B. W., & Jeste, D. V. (2015). Development of a new multidimensional individual and interpersonal resilience measure for older adults. *Aging & Mental Health*, *19*(1), 32–45.

Mia, M., Majri, Y., & Rahman, I. K. A. (2019). Covariance based-structural equation modeling (CB-SEM) using AMOS in management research. *IOSR Journal of Business and Management (IOSR-JBM)*, *21*(1), 56–61.

Netuveli, G., & Blane, D. (2008). Quality of life in older ages. *British Medical Bulletin*, *85*(1), 113–126.

Nunnally, J. C. (1978). *Psychometric Theory* (2d ed.). New York: McGraw-Hill.

Ozdamar, K. (2017). *Scale and Test Development Structural Equation Modeling*. Sözkesen Printing.

Resnick, B. (2014). Resilience in older adults. *Topics in Geriatric Rehabilitation*, *30*(3), 155–163.

Saygili, S. (2017). *Psychology of Aging*. Türdav Publications.

Sinclair, V. G., & Wallston, K. A. (2004). The development and psychometric evaluation of the brief resilient coping scale. *Assessment*, *11*(1), 94–101.

Smith, J. L., & Hollinger-Smith, L. (2015). Savoring, resilience, and psychological well-being in older adults. *Aging & Mental Health*, *19*(3), 192–200.

Stein, F., Rice, M. S., & Cutler, S. K. (2013). *Clinical research in occupational therapy* (Fifth Edition).

Streiner, D. L. (2003). Starting at the beginning: an introduction to coefficient alpha and internal consistency. *Journal of Personality Assessment*, *80*(1), 99–103.

Streiner, D. L., Norman, G. R., & Cairney, J. (2015). *Health measurement scales* (Fifth Edition). Oxford University Press.

Tan, J. Y., Tam, W. S. W., Goh, H. S., Ow, C. C., & Wu, X. V. (2021). Impact of sense of coherence, resilience and loneliness on quality of life amongst older adults in long-term care: a correlational study using the salutogenic model. *Journal of Advanced Nursing*, *77*(11), 4471–4489.

Tinsley, H. E. A., & Tinsley, D. J. (1987). Uses of factor analysis in counseling psychology research. *Journal of Counseling Psychology*, *34*(4), 414–424.

Turkmen, H., Eksioglu, A., Tuna Oran, N., & Erdogan, A. (2023). Readiness for weaning scale: development and psychometric measurement study. *Infant and Child Development*, 33, e2471, 1–15.

Van Leeuwen, K. M., Van Loon, M. S., Van Nes, F. A., Bosmans, J. E., De Veti, H. C. W., Ket, J. C. F., Widdershoven, G. A. M., & Ostelo, R. W. J. G. (2019). What does quality of life mean to older adults? A thematic synthesis. *Plos One*, *14*(3), e0213263.

von Eisenhart Rothe, A., Zenger, M., Lacruz, M. E., Emeny, R., Baumert, J., Haefner, S., & Ladwig, K.-H. (2013). Validation and development of a shorter version of the resilience scale RS-11: results from the population-based KORA–age study. *BMC Psychology*, *1*(1), 1–7.

Wagnild, G. M., & Young, H. M. (1993). Development and psychometric evaluation of the resilience scale. *Journal of Nursing Measurement*, *1*(2), 165–178.

Wen, Z., Peng, S., Yang, L., Wang, H., Liao, X., Liang, Q., & Zhang, X. (2023). Factors associated with social isolation in older adults: a systematic review and meta-analysis. *Journal of the American Medical Directors Association*, *24*(3), 322-330.

Wild, K., Wiles, J. L., & Allen, R. E. S. (2013). Resilience: thoughts on the value of the concept for critical gerontology. *Ageing & Society*, *33*(1), 137–158.

Williams, B., Onsman, A., & Brown, T. (2010). Exploratory factor analysis: a five-step guide for novices. *Journal of Emergency Primary Health Care (JEPHC)*, *8*(3), 1–13.

World Health Organization. (2023). *Maternal, newborn, child and adolescent health and ageing*. World Health Organization. https://shorturl.at/3jHps

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment*, *52*(1), 30–41.

APPENDICES

Appendix 1. Çok Boyutlu Bireysel ve Kişilerarası Dayanıklılık Ölçeği (ÇB-BKDÖ) (Multidimensional Individual and Interpersonal Resilience Measure – MIIRM). Lütfen, aşağıdaki her bir soru için cevabınızı içeren kutucuğu işaretleyin.

S.NO	MADDELER	DERECELENDİRME				
		Hiç doğru değil	Nadiren doğru	Bazen doğru	Çoğu zaman doğru	Neredeyse her zaman doğru
1	Yoluma çıkan her şeyle başa çıkabilirim.					
2	Değişime ayak uydurabilirim.					
3	Yaşadığım bir hastalık ya da zorluktan sonra toparlanma eğilimindeyimdir.					
4	Bir sorun karşısında yaptığım ilk şeylerden biri durumu ve durumla ilgili tüm bilgileri değerlendirmektir.					
5	Birini eleştirmeden önce onun yerinde olsam nasıl hissedeceğimi hayal etmeye çalışırım.					
6	Bazen olayları başkasının bakış açısından görmekte zorlanıyorum.					
7	Çoğu zaman bir başkasını teselliye ihtiyacı varken teselli etmedim.					
8	Bazen insanlar benimle konuşurken, kendimi onların gitmesini dilerken buluyorum.					
		Kesinlikle katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle katılıyorum
9	Genel olarak, başıma kötü şeylerin değil, iyi şeylerin gelmesini umarım.					
10	Geleceğimden her zaman umutluyum.					
11	Belirsiz zamanlarda genellikle en iyisini umarım.					
12	Hayatınızın şu anki döneminde Türkiye'de yaşayan insanlara göre hangi seviyede olduğunuzu düşünüyorsunuz? (10 puan en fazla paraya, en yüksek eğitim seviyesine ve en saygın işlere sahip olmak anlamına gelir. Ne kadar yüksek puan verirseniz, zirvedeki insanların seviyesine o kadar yakınsınız demektir.) 1 2 3 4 5 6 7 8 9 10 En düşük — En yüksek					
13	Genel olarak maddi durumunuzdan ne kadar memnunsunuz? 1 2 3 4 5 6 7 8 9 10 Hiç memnun değilim — Oldukça memnunum					
		Asla	Nadiren	Bazen	Sıklıkla	
14	Ne sıklıkla kendinizi yalnız hissediyorsunuz?					
15	Eşiniz, çocuklarınız, yakın arkadaşlarınız ve/veya akrabalarınız size tıbbi, maddi veya ailevi sorunlarınız ile ilgili ne sıklıkla tavsiye veya bilgi veriyor?					
16	Eşiniz, çocuklarınız, yakın arkadaşlarınız ve/veya akrabalarınız alışveriş, bir yere uğramak, veya ev işleri gibi günlük işlerde ne sıklıkla yardımcı oluyor?					
17	Kaygılarınız veya sorunlarınızı paylaşmanız gerektiğinde eşiniz, çocuklarınız, yakın arkadaşlarınız ve/veya akrabalarınız ne sıklıkla sizi dinlemeye istekli oluyor?					
18	Eşiniz, çocuklarınız, yakın arkadaşlarınız ve/veya akrabalarınız size sevildiğinizi ve önemsendiğinizi ne sıklıkla hissettiriyor?					
19	Eşiniz, çocuklarınız ve/veya yakın arkadaşlarınız ne sıklıkla sizden çok fazla talepte bulunuyor?					
20	Eşiniz, çocuklarınız, yakın arkadaşlarınız ve/veya akrabalarınız yaptıklarınızı ne sıklıkla eleştiriyor?					
		Hiç	Biraz	Orta derecede	Çok	
21	Kendinizi ne ölçüde dindar biri olarak görüyorsunuz?					
22	Kendinizi ne ölçüde maneviyat sahibi biri olarak görüyorsunuz?					