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Development, Validity and Reliability of the Elderly Internalized Stigma Scale*

Gizem KARASOY [1], Hakan BAYDUR [2]

[1] Manisa Celal Bayar University, Institute of Health Sciences, Department of Social Work
[2] Manisa Celal Bayar University, Faculty of Health Sciences, Department of Social Work

ABSTRACT

Objective: The objective of this study is to develop the "Elderly Internalized Stigma Scale" (EISS) and to assess its validity and reliability. **Materials and Methods:** The study was conducted as a cross-sectional methodological study. In the study, the Elderly Internalized Stigma Scale (EISS) was developed, and its validity and reliability were tested. A total of 162 individuals aged 65 and above participated in the study. Participants administered a sociodemographic information questionnaire, the EISS, the World Health Organization Quality of Life Scale for Older Adults (WHOQOL-AGE), and the WHO-Europe Attitudes of Aging Questionnaire (EAAQ). The EISS consists of 17 items, three subdimensions (Awareness, Agreement, and Self-Application), and a total score designed to assess the level of internalized stigma among elderly individuals. The response options for the scale items are based on a three-point Likert-type scale, with higher scores indicating greater stigma. Psychometric analyses of the developed EISS were conducted using Lisrel 9.1 and SPSS 25.0 software. **Results:** Of the participants, 54.3% were women, with a mean age of 76.5 ± 7.9 years; 40.1% were uneducated, and 48.1% were currently married. The confirmatory factor analysis results indicated a good model fit, with RMSEA=0.042, chi-square/degrees of freedom=1.28, CFI=0.98, and Stand.RMR=0.052. For concurrent validity, there was a strong correlation between the EISS and the EAAQ (r=-0.83), while for discriminant validity, a strong correlation was observed between the EISS and WHOQOL-AGE scores (r=-0.78). The EISS demonstrated high discriminative power regarding variables such as age, education level, economic status, place of residence, and health perception. The scale's internal consistency coefficient (Cronbach's alpha) was 0.89 overall, with subdimension values of 0.82 for Awareness, 0.67 for Agreement, and 0.88 for Self-Application. **Conclusion:** The developed scale is a valid and reliable tool for measuring internalized stigma in elderly people.

Keywords: Aging, Internalized Stigma, Validity, Reliability.

Yaşlı İçselleştirilmiş Damgalanma Ölçeğinin Geliştirilmesi, Geçerlilik ve Güvenilirliği

ÖZ

Amaç: Araştırmanın amacı yaşlı içselleştirilmiş damgalanma ölçeğinin (YİDÖ) geliştirilmesi, geçerlilik ve güvenilirliğinin sınanmasıdır. **Gereç ve Yöntem:** Araştırma kesitsel olarak yürütülmüş metodolojik türdedir. Araştırmada YİDÖ geliştirilmiş, geçerlilik ve güvenilirliği sınanmıştır. Araştırmaya 65 yaş ve üzeri 162 birey katılmıştır. Katılımcılara sosyodemografik bilgileri anketi, YİDÖ, Yaşlılar İçin Yaşam Kalitesi Ölçeği (WHOQOL-AGE) ve Avrupa Yaşlanma Tutum Ölçeği (AYTA) uygulanmıştır. YİDÖ yaş almış bireylerde içselleştirilmiş damgalanma düzeyini belirlemek üzere 17 soru ve 3 alt boyut (farkına varma, onaylama ve kendine uygulama) ile bir toplam puandan oluşmaktadır. Ölçek maddelerinin yanıt seçenekleri üç noktalı likert tipindedir. Artan puan damgalanma durumunu gösterir. Geliştirilen YİDÖ ölçeğinin psikometrik analizlerinde Lisrel 9.1 ve SPSS 25.0 programları kullanılmıştır. **Bulgular:** Katılımcıların %54.3'ü kadın, yaş ortalaması 76.5±7.9, %40.1'i eğitimsiz, %48.1'i halen evlidir. Doğrulayıcı faktör analizi sonuçlarına göre RMSEA=0.042, ki-kare/serbestlik derecesi=1.28, CFI=0.98 ve Stand.RMR=0.052 düzeyinde iyi uyumu göstermekteydi. Eş zaman geçerliliğinde AYTA ve ayırt edici geçerlilikte WHOQOL-AGE puanları ile YİDÖ arasında yüksek düzeyde korelasyon (sırasıyla r=-0.83 ve r=-0.78) vardı. YİDÖ yaş, eğitim, ekonomik durum, yaşanılan yer ve sağlık algısı gibi durumları yüksek düzeyde ayırt edebilmekteydi. Ölçeğin iç tutarlılık katsayısı Cronbach's alfa değeri 0,89; farkına varma, onaylama ve kendine uygulama alt boyutları için sırasıyla 0.82, 0.67 ve 0.88'di. **Sonuç:** Geliştirilen ölçek yaşlılıkta içselleştirilmiş damgalanmayı ölçebilen geçerli ve güvenilir bir ölçektir.

Anahtar kelimeler: Yaşlılık, İçselleştirilmiş Damgalanma, Geçerlilik, Güvenilirlik.

Sorumlu Yazar / Corresponding Author: Hakan BAYDUR, Manisa Celal Bayar University, Faculty of Health Sciences, Department of Social Work, Manisa, Türkiye.
E-mail: hakan.baydur@cbu.edu.tr

INTRODUCTION

Population aging is defined as the increase in the number of elderly individuals (those aged 65 and older) alongside a decrease in the proportion of children and young people. If a country's population increasingly consists of individuals aged 65 and over, it indicates that the society is progressively aging (WHO, 2015).

According to the data from the Turkish Statistical Institute for the year 2019, the population of Turkey is 83,154,997. The elderly population, as of 2019, is 7,550,727. The proportion of the elderly population in relation to the total population is 9.1%. Of the elderly population, 44.2% are men and 55.8% are women. Although Turkey has a relatively young population structure, the number of elderly individuals within the total population is quite significant (TÜİK, 2020).

Aging is a multifaceted concept in social life, to which individuals assign their own meanings. During the aging process, a decline in an individual's ability to adapt to the environment, a reduced capacity to maintain balance in response to internal and external factors, and an increased probability of death are all defined as "aging." (Yumurtacı, 2013). The process that begins with birth and is measurable in years is defined as "age." Individuals whose age advances are referred to as "elderly," and the condition of being elderly is termed "old age" (Ak, 1991). The World Health Organization (WHO), in defining old age, bases its definition on chronological age, categorizing the period of old age as "65 years and older." This definition further categorizes the elderly population into subgroups: the 65-74 age group is classified as "young old," the 74-84 age group as "old," and the 85 and older age group as "oldest old" (Tezcan & Seçkiner, 2012).

Chronological age does not provide sufficient information about the process or nature of aging. For this reason, researchers do not approach aging solely from a biological or chronological perspective. Aging can also be understood when examined through psychological, social, and cultural dimensions. Therefore, it is suggested that researchers should focus on the experiences that give meaning to age rather than concentrating solely on chronological age. (Aközer et al., 2011). Old age, conceptually, refers to the physiological and biological changes that occur in an individual over time. It also represents a period in which people experience declines in physical and psychological abilities (Beğer & Yavuzer, 2012).

Gerontologists primarily focus on three fundamental questions regarding the aging process: understanding how aging processes develop, explaining why they occur in this manner, and determining whether it is possible to influence these processes. Geriatrics, on the other hand, approaches aging from a medical perspective, aiming to evaluate, treat, and prevent age-related diseases. The World Health Organization defines old age as a "decline in the capacity and ability to adapt to the environment." Aging is an irreversible process of decline that encompasses chronological, psychological, sociological, and biological dimensions. This process continues throughout an individual's lifetime (Ardahan, 2010). The aging period is characterized by various structural and physiological changes in the body. These include a decrease in muscle mass and bone density, a decline in vision and hearing abilities, and a loss of skin elasticity. Additionally, structural deterioration may manifest as slowed movements, reduced manual dexterity, and impaired walking abilities (Beğer & Yavuzer, 2012; Moreland et al., 2021; World Health Organization, 2015).

It is well known that various psychological issues arise during the aging period. These include depression, anxiety, loneliness, and cognitive decline. Specifically, geriatric depression, cognitive impairments, the development of Alzheimer's disease, increased physical limitations, and social isolation are significant problem areas for this stage of life (Luppa et al., 2012; Panza et al., 2010). Despite this general information, it has also been reported that the prevalence of depression and anxiety decreases with increasing age during the aging period (Streiner et al., 2006).

Stigma, in its literal sense, refers to meanings such as "wound, mark, stain, puncture, black mark" (Öztürk & Uluşahin, 2011). Stigmatization is a concept used to describe actions that harm individuals and communities, such as humiliating, demeaning, discriminating, and perceiving them as inferior (Yaman & Güngör, 2013). Stigmatization is defined as a form of differentiation or discrimination that arises from stereotypical thoughts related to certain characteristics of individuals (Çam & Çuhadar, 2011). The stigma refers to the perception that a person, group, or community is different. These differences attach many negative attributes to the stigmatized individual or group (Taşkın, 2007).

The existing literature defines three types of stigma: structural stigma, social stigma, and internalized stigma. "Structural stigma" is related to systems, "social stigma" pertains to groups, and "internalized stigma" involves individuals (Doğanavşargil Baysal, 2013). Internalized stigma is defined as the process by which individuals adopt negative stereotypes present in society, leading to feelings of shame, worthlessness, and inadequacy, and consequently withdrawing from social life. In simpler terms, internalized stigma refers to an individual stigmatizing themselves (Corrigan, 1998).

Internalized stigma refers to the process in which individuals adopt negative labels imposed by society or their environment, integrating them into their sense of self and allowing these labels to influence their behavior. This phenomenon has significant implications in both psychological and social contexts, as carrying an internalized stigma can damage individuals' self-perception and lead to

various negative outcomes in their social interactions (Corrigan & Watson, 2002; Livingston & Boyd, 2010).

Internalized stigma in old age refers to the adoption of negative perceptions attributed to older individuals by society. Like other members of society, older individuals acquire numerous stereotypes throughout their developmental stages. Inevitably, they internalize stereotypes related to aging and older individuals, identifying themselves as part of that group (Çam & Çuhadar, 2011).

The process of internalized stigma in old age unfolds in three stages: awareness of stereotypes, acceptance of stereotypes, and application of stereotypes to oneself. Stereotypes are understood as beliefs that are resistant to change once they are formed. They represent thoughts and statements supported by negative biases, assumed to be true, and widely accepted by large segments of society (Doğanavşargil Baysal, 2013). Older adults are exposed to and internalize various stereotypes about aging and old age over the course of their lives. These stereotypes are often reinforced and disseminated through multiple cultural and social mechanisms, including media, literature, and traditional customs. As individuals age, they may unconsciously adopt these societal narratives, normalize the attributed stereotypes, and adjust their behavior to align with these preconceived notions. This process not only shapes their self-perception but also facilitates the internalization of stigma associated with aging.

The aim of this study is to develop an elderly internalized stigma scale and to test its validity and reliability.

MATERIALS AND METHODS
Study design
This study is methodological research aimed at developing the Elderly Internalized Stigma Scale (EISS) and evaluating its validity and reliability.
Study group
The study group consisted of 162 elderly individuals. The size of the research group was determined based on the guideline of including a number of participants equal to at least 5 to 10 times the number of items in the scale (Tavşancıl, 2005). Participation in the study was based on voluntary consent. The Mini-Mental State Examination (MMSE) (Keskinoğlu et al., 2009) was administered to identify participants, and elderly individuals aged 65 and above who did not meet the criteria for dementia were included in the research. Among the participants who met these criteria, 54.3% (n=88) were women, with a mean age of 76.5±7.9 years. The age range spanned from 65 to 94 years. Of the elderly individuals, 40.1% had no formal education, 43.2% had completed primary education, and 16.7% had attained secondary education or higher. Additionally, 48.1% were currently married, 72.8% resided in urban areas, and 16.7% reported their economic status as insufficient/poor.

Data collection tools
The data for this study were collected using the following tools:

Elderly Internalized Stigma Scale (EISS): The Elderly Internalized Stigma Scale (EISS) was developed by researchers to assess the level of internalized stigma associated with aging among older individuals. The scale has undergone validity and reliability testing. It consists of 17 items grouped into three subdimensions—awareness of stereotypes, agreement with stereotypes, and self-application of stereotypes—in addition to providing a total score. The total score serves as an indicator of the overall level of internalized stigma.

The response options for the items on the scale are designed as a three-point Likert type. These options are coded as "Agree" (2 points), "Neither Agree Nor Disagree" (1 point), and "Disagree" (0 points). If at least 75% of the responses for a specific sub-dimension are marked, the score for that sub-dimension is calculated. In the scoring process, the average of the items within the relevant sub-dimension is first calculated. The resulting value, which ranges between 0 and 2, is then multiplied by 50 to obtain a rescaled sub-dimension score ranging from 0 to 100. The mean of the scores for the three sub-dimensions is calculated to determine the total score of the scale, referred to as the "Elderly Internalized Stigma Scale" total score. A higher total score indicates a greater level of negative stigma. In other words, it reflects a stronger awareness, acceptance, and application of stereotypes within the sub-dimensions, as well as a higher overall level of internalized stigma (Appendix 1).

The World Health Organization Quality of Life Scale for Older Adults (WHOQOL-AGE) : The scale developed for older adults is a quality of life scale specifically designed for individuals aged 60 and above (Caballero et al., 2013). The WHOQOL-AGE, developed based on the WHOQOL-OLD and EUROHIS scales, is a 13-item, 5-point Likert scale designed to assess the quality of life in older adults. Participants are asked to select the most appropriate response for each question based on their feelings, with scores ranging from 1 to 5. The response options vary according to the phrasing of each question. The scale consists of two subdomains. The WHOQOL-AGE, for which validity and reliability analyses were conducted by Özcan and Eser (2020), has Cronbach's alpha coefficients of 0.90 for the first dimension and 0.86 for the second dimension. The scale was used to test the discriminant validity of the developed EISS.

Mini Mental State Examination (rMMSE-T): The mental functioning status of participants, which was one of the inclusion criteria for the study, was assessed using the Mini Mental Test. The validity and reliability study of the Turkish version of the rMMSE-T, which was designed for both educated and uneducated groups, was conducted by Keskinoğlu and colleagues in 2009 (Keskinoğlu et al.,

2009). The rMMSE-T consists of 19 questions, with a total score of 30 points. The scores are calculated based on orientation (10 points), registration memory (3 points), attention and calculation (5 points), recall (3 points), and language (9 points). The cutoff score is 22/23 for the educated group and 18/19 for the uneducated group. The tests were administered to the elderly participants based on their educational status. If the elderly participant scored above the cutoff, they were included in the study.

WHO-Europe Attitudes of Aging Questionnaire (EAAQ): The Turkish version of the World Health Organization- Europe Attitudes of Aging Questionnaire (EAAQ) is a scale adapted by Eser and colleagues in 2011. The scale consists of three dimensions, each containing 8 questions. It includes 24 items in total, covering psychosocial loss, bodily change, and psychosocial development. Each question has Likert-type response options ranging from 1 to 5. The dimension scores are calculated by summing the relevant items. The total score for attitude towards aging is the sum of the dimensions scores (Eser et al., 2011). In this study, the WHO-EAAQ was used for the analysis of convergent validity.

Development Process of the Elderly Internalized Stigma Scale (EISS) : In the scale development process, the conceptual framework was initially established, an item pool was created, and a content analysis was conducted. Subsequently, validity and reliability analyses were performed following the pilot study and field application of the obtained form.

Development of the conceptual framework for the Elderly Internalized Stigma Scale (EISS*) :*A comprehensive review of the literature on stigma was undertaken to explore its conceptual framework, including its components, characteristics, dimensions, and types. This analysis provided a foundation for understanding the multifaceted nature of stigma and its relevance to the study (Öztürk & Uluşahin, 2011). Subsequently, the focus shifted to the concept of internalized stigma, a specific type of stigma, to examine how it has been addressed across various groups. This exploration provided insights into the application and impact of internalized stigma in different contexts (Corrigan, 1998).

The "Why Try Effect" model was used as the basis for identifying the conceptual dimensions of internalized stigma. According to this model, internalized stigma comprises three stages: "awareness of stereotypes," "acceptance of stereotypes," and "application of stereotypes" (Corrigan et al., 2009). In this model, whether an individual has internalized stigma is determined based on their acceptance of these stages. Concrete characteristics related to aging, organized under three dimensions, were used as scale items to assess the individual's internalization of stigma.

Development of EISS dimensions and related items
To identify which characteristics of aging could be associated with stigma, a comprehensive review of the aging literature was conducted. In order to conceptualize the tangible attributes that lead to stigma, the physical, psychological, cognitive, and social aspects of aging were examined based on some of the most widely accepted definitions of aging (Pehlivan & Karadakovan, 2013).

A pool of 62 items addressing the physical, psychological, cognitive, and social dimensions of aging was developed. Based on the literature review, these 62 items were drafted in alignment with the subdimensions of the "Why Try Effect" model: awareness of stereotypes, acceptance of stereotypes, and application of stereotypes. This process resulted in the creation of the initial scale draft (Corrigan et al., 2009).

Testing content validity
At this stage, expert opinions were sought to evaluate the relevance of the scale items to the subject, their necessity, simplicity, clarity, comprehensibility, and suitability for the target audience (Karakoç & Dönmez, 2014). The number and qualifications of experts are crucial for testing content validity and ensuring that the calculations yield objective results (Yurdugül, 2005). The content validity of the scale was evaluated by consulting experts in the fields of gerontology, psychology, health and social sciences. Ten experts in the field were contacted via email to participate in the evaluation process. The experts were asked to assess the scale items in terms of their relevance to stigma, simplicity, clarity, and the appropriateness of the response options. Additionally, they were requested to indicate whether any items were similar to others and to provide suggestions, if applicable (Polit & Beck, 2006).

The Item Content Validity Index (I-CVI) and the Scale Content Validity Index (S-CVI) were calculated. An I-CVI value > 0.78 and an S-CVI value > 0.80 were considered acceptable (Çapık et al., 2018; Polit & Beck, 2006; Yeşilyurt & Çapraz, 2018). Items with an S-CVI ≤ 0.80 and I-CVI ≤ 0.78 were removed from the item pool based on expert feedback. Additionally, 24 items were reported by experts to be similar to others. Following the recommendations provided by the experts, the item pool was revised, and the draft scale was reduced to 37 items.

Pilot and field testing of the EISS
The 37-item EISS form was administered to 10 older adults who achieved sufficient scores on the Mini-Mental Test during cognitive interviewing. For each participant, a Cognitive Interviewing Form was completed, noting gender, chronic illnesses, survey completion time, and general observations. Participants were asked questions such as, "Was the explanation of the survey difficult?", "Did you find this question hard to understand?", "How else could this question be asked?", and "Do you think the

response options are clear and consistent?". Their answers were recorded. Based on the feedback from the cognitive interviews, the scale form was revised and finalized. The response options were structured as follows: 1-Agree, 2-Neither Agree nor Disagree, 3-Disagree.

The field application of the scale was conducted with elderly individuals who achieved sufficient scores on the Mini-Mental Test. Along with the 37-item scale, sociodemographic characteristics form and other scales used for comparisons were administered concurrently. Additionally, scale items were re-administered to 30 randomly selected participants two weeks after the initial session.

Validity and reliability analysis of the EISS

In the validity and reliability analyses of the Elderly Internalized Stigma Scale (EISS), a combination of exploratory and confirmatory approaches was employed to develop its final version. Initially, the item pool, consisting of 37 statements, underwent exploratory factor analysis (EFA). Principal component analysis was utilized as the extraction method, and varimax rotation was applied for factor rotation.

In parallel with the EFA, items representing the scale's dimensions were individually analyzed in terms of internal consistency using Cronbach's alpha coefficient, item-deleted Cronbach's alpha values, and item-total correlation coefficients. Based on the findings, some items were removed from the scale. The criteria for item removal were as follows: (Bindak, 2005; Gökdemir & Yılmaz, 2023; Şahin & Gülleroğlu, 2013):

- The factor loading of the item within its designated dimension being below 0.4,
- An increase in the Cronbach's alpha value when the item is deleted,
- The correlation coefficient of the item with other dimensions being higher than its correlation with its own dimension,
- The corrected item-total correlation coefficient being below 0.3.

EISS items were refined based on the criteria outlined above, resulting in the final version of the scale. To assess the construct validity of the scale, both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were performed. The concurrent validity of the EISS was evaluated using the WHO-EAAQ, while the criterion validity was assessed with the WHOQOL-AGE scale. Known-groups validity was examined by analyzing the

Construct validity

Exploratory and confirmatory factor analyses were performed to evaluate the construct validity of the EISS. Following item reduction, the scale was finalized with 17 items. The results of the exploratory factor analysis (EFA), including the factor loadings, are presented in Table 1. The Kaiser-Meyer-Olkin (KMO)

measure of sampling adequacy was calculated as 0.881, and Bartlett's test of sphericity indicated significant correlations among the items (p<0.001), supporting the appropriateness of the data for factor analysis. The EFA, based on an eigenvalue threshold of 1, identified a three-factor structure. These three factors accounted for a cumulative variance of 55.9%. A factor loading of 0.35 or higher was deemed sufficient for an item to be assigned to its respective factor.

relationship between various sociodemographic characteristics and the subscale and total scores of the EISS using Student's t-test, with results presented in terms of significance levels and Cohen's d effect size values. For reliability analysis, Cronbach's alpha coefficients were calculated to determine internal consistency. Additionally, the scale's test-retest reliability over time was assessed using the intraclass correlation coefficient (ICC).

In the statistical analysis of the data obtained in this study, Lisrel 9.1 and Statistical Package for the Social Sciences (SPSS 25.0) software programs were used.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The ethics committee approval of the study was obtained from the Ethics Committee of Faculty of Medicine, Manisa Celal Bayar University (decision date: November 16, 2018; decision number: E. 97856). After they were informed about the study, the participants gave their informed consent form indicating that they volunteered to participate in the study.

RESULTS

The psychometric findings obtained from the study are presented under two main categories: reliability and validity.

Reliability results

In the reliability analyses of the study, Cronbach's alpha values, which indicate the level of internal consistency, were calculated alongside the Cronbach's alpha values when items were deleted. Additionally, the correlation coefficient of each item with its respective dimension was obtained (Table 1).

The internal consistency coefficients (Cronbach's alpha) for the awareness, agreement, and self-application dimensions of the scale are 0.82, 0.67, and 0.88, respectively. The internal consistency coefficient for the overall scale is 0.89. No dimension showed an increase in Cronbach's alpha value when any item was deleted. The lowest item-dimension correlation coefficient is 0.39. The intraclass correlation coefficients (ICCs) calculated for test-retest reliability are 0.98, 0.98, and 0.99, respectively. These findings indicate that the scale provides stable results over time.

Table 1. Cronbach's alpha, cronbach's alpha when item deleted, item-total correlation coefficients, and EFA results.

EISS		Reliability results			EFA loadings for EISS Dimentions		
No	Dimensions/Items	Corrected Item-Dimension Correlation	Cronbach's Alpha When Item Deleted	Cronbach's Alpha	Awareness	Agreement	Self-Application
	Awareness						
	Aging…						
1	… is the stage when learning becomes harder.	0.491	0.822	**0.82**	0.609	0.253	0.049
2	… is loneliness.	0.565	0.804		0.632	0.207	0.212
3	… is being less valued by others.	0.659	0.777		0.773	0.076	0.253
4	… is being a burden to the family.	0.700	0.764		0.777	0.203	0.149
5	… is feeling useless.	0.684	0.769		0.727	0.080	0.366
	Agreement						
	As people get older…						
6	… they lose strength for daily tasks.	0.435	0.632	**0.67**	0.225	0.681	0.099
7	… their sleep patterns get disrupted.	0.499	0.585		0.228	0.681	0.112
8	… they generally move more slowly.	0.485	0.611		0.446	0.524	0.097
9	… they become more careless.	0.474	0.601		0.526	0.369	0.193
10	… they get more sensitive compared to the past.	0.388	0.651		0.072	0.666	0.166
	Self-application						
	Because I'm aging…						
11	…I need more help from others.	0.787	0.842	**0.88**	0.193	0.154	0.825
12	…I don't enjoy life as much as I used to.	0.602	0.867		0.240	0.165	0.647
13	…I need more attention from others.	0.700	0.854		0.172	0.150	0.760
14	…I feel like I'm not useful anymore.	0.658	0.860		0.244	0.046	0.719
15	…I think more about death.	0.530	0.876		0.000	0.205	0.641
16	…My relationships with others have weakened.	0.681	0.857		0.231	0.043	0.747
17	…My manual skills have declined.	0.661	0.859		0.145	0.045	0.753
	Total EISS			**0.89**			

The factor structure obtained from the exploratory factor analysis (EFA) was subjected to confirmatory factor analysis (CFA). Based on the EFA results, the scale comprises three dimensions: Awareness, Agreement, and Self-Application. The total of these dimensions represents the level of internalized stigma experienced by the elderly. In other words, the scale includes three subdimensions and one total score.

Given this structure, the confirmatory factor analysis was conducted as a second-order factor analysis. A graphical representation of the applied analysis is provided figure 1.

The summary fit indices obtained from the confirmatory factor analysis indicate RMSEA = 0.042, chi-square/degree of freedom = 1.28, CFI = 0.98, and Standardized RMR = 0.052, suggesting a good model fit. The error variances of the scale items were found to be moderate, and the standardized coefficients indicating the relationship of each item with its respective dimension were also at a moderate level. The standardized coefficients representing the relationship between the dimensions and the overall construct were 0.93 for Awareness, 0.85 for Agreement, and 0.63 for Self-Application. Taken as a whole, the scale demonstrates that the measurement model aligns well with the conceptual model, indicating a satisfactory fit.
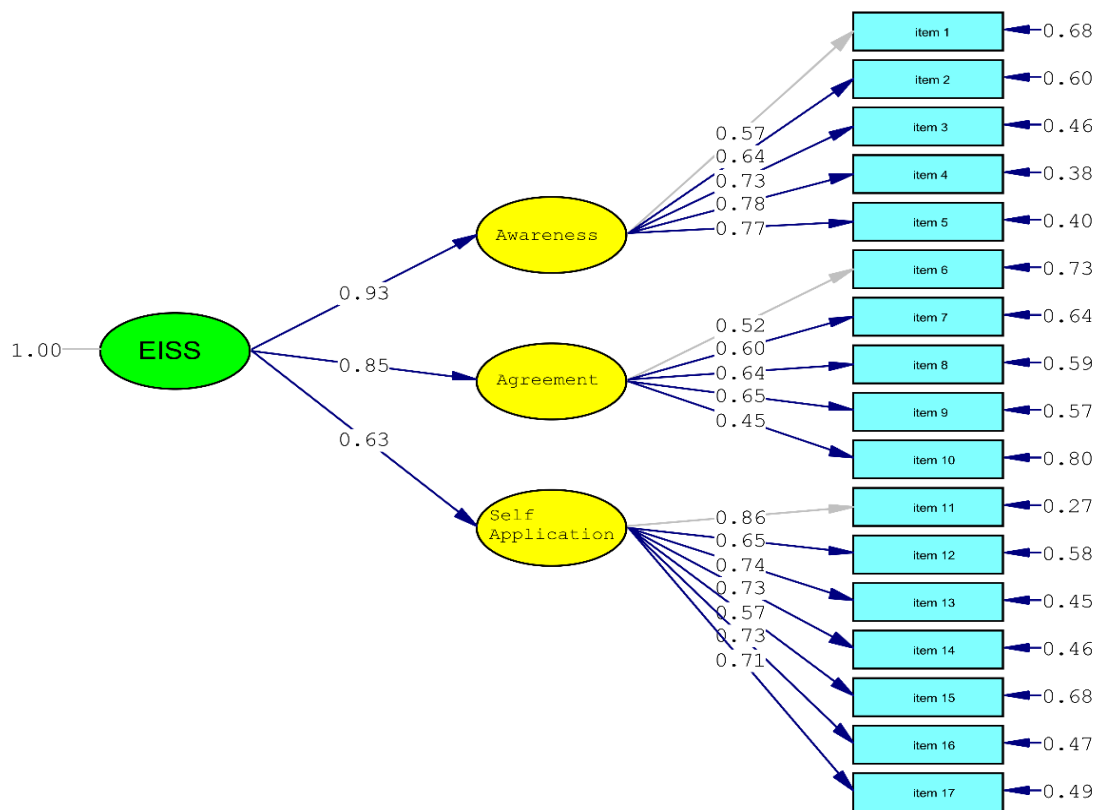
Chi-Square=149.53, df=116, P-value=0.01960, RMSEA=0.042

Figure 1. Results of confirmatory factor analysis for the EISS.

Concurrent validity

The subdimensions and total score of the scale are expected to exhibit high correlations with the scores obtained from scales measuring similar constructs. For this purpose, the WHO-Europe Attitudes of Aging Questionnaire (EAAQ) was administered in the study. The questionnaire consists of three subdimensions and a total score (Eser et al., 2011). The subdimensions are Psychosocial Loss, Bodily Change, and Psychosocial Growth. The correlation coefficients calculated between the Elderly Internalized Stigma Scale (EISS) and the WHO-Europe Attitudes of Aging Questionnaire (EAAQ) are presented in Table 2.

Table 2. Correlation Between EISS and EAAQ subscales.

Dimensions	Awareness	Agreement	Self-Application	EISS Total
Psychosocial Loss	0.645**	0.522**	0.869**	0.860**
Physical Change	-0.514**	-0.393**	-0.844**	-0.755**
Psychological Growth	-0.511**	-0.390**	-0.750**	-0.705**
EAAQ Total	-0.598**	-0.468**	-0.880**	-0.830**

** $p<0.0$

The total score of the EISS shows a high negative correlation with the total score of the EAAQ at -0.830. Additionally, the correlation coefficients between the total score of the EISS and the subdimensions of the EAAQ -Psychosocial Loss, Physical Change, and Psychological Growth- are 0.860, -0.755, and -0.705, respectively. These strong correlation coefficients indicate the effectiveness of the EISS in measuring the intended construct.

Table 3. Correlation coefficients between EISS and WHOQOL-AGE scores.

WHOQOL-AGE	Awareness	Agreement	Self-Application	EISS Total
General QoL	-0.520**	-0.385**	-0.891**	-0.778**
Elderly QoL	-0.483**	-0.388**	-0.876**	-0.756**
Total QoL	-0.509**	-0.392**	-0.895**	-0.778**

** p<0.01

Discriminant validity

Examining the relationship between the developed measurement tool and certain outcome variables is essential. In this study, the correlation coefficients between the subdimensions and total score of the WHOQOL-AGE and the subdimensions and total score of the EISS were analyzed (Table 3).

The analysis of the correlation coefficients revealed a strong negative correlation between the total score of the Elderly Internalized Stigma Scale (EISS) and the total quality of life score of the WHOQOL-AGE (r=0.778). Additionally, the EISS score was found to have a strong negative correlation with both the general and elderly quality of life subdimensions (r=-0.778 and r=-0.756, respectively). Among the EISS subdimensions, Awareness showed a moderate negative correlation (r=-0.509), Agreement demonstrated a low negative correlation (r=-0.392), and Self-Application exhibited a strong positive correlation (r=0.895) with the total quality of life score of the WHOQOL-AGE. These findings indicate that the EISS effectively predicts quality of life outcomes.

Known-Groups validity

In the known-groups validity analysis, the subdimension and total scores of the EISS were compared with variables such as gender, age, economic status, educational level, living arrangements, and perceived health using Student's t-test. The results were presented in terms of mean differences and effect sizes (ES).

It was determined that the total and subdimension scores of the Elderly Internalized Stigma Scale (EISS) did not show a significant difference based on gender. Additionally, no significant relationship was observed between age and economic status in the Agreement subdimension. However, all other variables (age, educational level, economic status, living arrangements, and perceived health status) demonstrated a highly significant relationship with the total EISS score, along with substantial effect sizes. These findings indicate that the EISS is capable of distinguishing between selected sociodemographic variables.

Table 4. Comparison of EISS total and subdimension scores with selected sociodemographic characteristics.

Variables	Awareness		Agreement		Self-Application		EISS Total	
	MD	d	MD	d	MD	d	MD	d
Gender (female – male)	-2.67	0.10	0.29	0.01	2.17	0.06	-0.07	0.00
Age (≤74 – ≥75)	15.17	**0.56***	4.99	0.25	42.89	**1.63***	21.02	**1.05***
Educational level (educated – uneducated)	-14.36	**0.52***	-8.89	**0.44****	-30.04	**0.96***	-17.77	**0.83***
Economic status (good – poor)	-23.78	**0.67***	-6.07	0.23	-34.07	**1.79***	-21.31	**0.75***
Living arrangements (with family – alone/nursing home)	-18.94	**0.72***	-10.39	**0.53***	-37.46	**1.30***	-22.26	**1.12***
Perceived health (good – moderate/poor)	21.53	**0.82***	12.51	**0.64***	47.61	**1.91***	27.22	**1.48***

MD: Mean Differences; d: Cohen's d; Effect Size (ES): (Cohen's d) 0.3 = small, 0.5 = medium, 0.8 = large
* p<0.05,   ** p<0.01,   *** p<0.001

DISCUSSION

This scale, designed to measure the internalized stigma levels of elderly individuals, is based on the conceptual framework of the "Why Try Effect" model proposed by Corrigan et al. (2009). In this model, the dimensions of awareness of stereotypes, agreement with stereotypes, and self-application of stereotypes constitute internalized stigma. The scale's structure

and item pool were developed with these three dimensions in mind. In constructing the scale items, the broadest definitions of aging were considered, addressing the physical, psychological, cognitive, and social characteristics of the elderly during this life stage (Pehlivan & Karadakovan, 2013). All developed items were reviewed by a panel of ten experts. Based on expert feedback and the resulting content validity

indices, the number of items was reduced to 37 (Polit & Beck, 2006; Yeşilyurt & Çapraz, 2018). The decisions for item reduction were guided by the consistency among expert opinions, item redundancy, and other evaluation criteria.

The scale was refined for field application following pilot testing and cognitive interviews. Validity and reliability analyses were conducted based on the results obtained after the field application. Items were removed based on these analyses, and the final analysis included 17 items. Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were employed to evaluate the construct validity of the scale. The EFA results indicated a Kaiser-Meyer-Olkin (KMO) value of 0.881, demonstrating that the sample size was sufficient. Bartlett's test of sphericity yielded a significance level of $p<0.001$, confirming adequate correlations among the scale items (Field, 2018). The cumulative variance explained by the three-factor structure of the scale was determined to be 55.9%. The factor loadings of the items within the predetermined factors ranged between 0.37 and 0.83. These results were deemed sufficient to support the three-dimensional structure of the scale (Hair et al., 2019; Henson & Roberts, 2006). A second-order confirmatory factor analysis was conducted based on the item-dimension structure obtained from the exploratory factor analysis (EFA). The summary fit indices indicated good model fit and low error, with RMSEA = 0.042, chi-square/degree of freedom = 1.28, CFI = 0.98, and Standardized RMR = 0.052 (Kline, 2011; Schermelleh-Engel et al., 2003). The summary goodness-of-fit indices for the scale are within acceptable limits. In its current form, the scale demonstrates a strong structural fit. Additionally, the error variances of the items, as well as the item-subdimension and subdimension-scale values, were found to be consistent and at an adequate level.

In the concurrent validity analysis, the correlation coefficient with the WHO-Europe Attitudes of Aging Questionnaire (EAAQ) was found to be significantly high across all subdimensions and the total score ($r = -0.83$). The strong result obtained from concurrent validity, which is considered one of the criteria related to discriminant validity, indicates that the scale possesses a high level of validity (Shultz et al., 2020). Another comparison used to test the discriminant validity of the scale was the examination of the coefficients with the WHOQOL-AGE. The results indicated that the total and subdimension scores of the Elderly Internalized Stigma Scale (EISS) demonstrated a strong correlation with the subdimensions and total score of the WHOQOL-AGE. These findings suggest that the scale has a high level of discriminant validity (DeVellis & Thorpe, 2021; Shultz et al., 2020). Another validity assessment involved comparisons of known-groups validity. In these comparisons, the significance of the difference between two groups and the corresponding effect size were calculated (Cohen, 1988; Robitail et al., 2006).

The results indicated that, except for gender, variables such as age, educational level, economic status, living arrangements, and perceived health status showed significant differences in the subdimension and total scores of the Elderly Internalized Stigma Scale (EISS). These differences were observed to be at a high level (Cohen, 1988). These results demonstrate that the scale is effective in distinguishing between known groups (DeVellis & Thorpe, 2021).

The internal consistency coefficient, as measured by Cronbach's alpha, was 0.89 for the total scale and 0.82, 0.67, and 0.88 for the Awareness, Agreement, and Self-Application subdimensions, respectively. These results indicate that the internal consistency of the scale is at an adequate level (Loewenthal & Lewis, 2001; Nunnally & Bernstein, 1994; Shultz et al., 2020). To determine the scale's stability over time, repeated measurements were conducted with 30 participants after a two-week interval. The intraclass correlation coefficient (ICC) was calculated as 0.99 for the total scale and 0.98, 0.98, and 0.99 for the Awareness, Agreement, and Self-Application subdimensions, respectively (Portney & Watkins, 1993). These results are significant in demonstrating the scale's consistency over time.

Limitations of the study

This study was conducted cross-sectionally on a small group, which may limit its ability to fully represent internalized stigma among elderly individuals. Additionally, it would be beneficial to administer the developed scale to larger groups and recalculate its validity and reliability measures. Another limitation of this study is the inability to test the sensitivity of the scale to changes over time. The scale's temporal sensitivity should be evaluated, particularly for assessing the effectiveness of interventions or examining the impact of significant life events.

CONCLUSION

Based on the results of the analyses, the Elderly Internalized Stigma Scale (EISS) has been determined to be a valid and reliable instrument. EISS demonstrates both construct and criterion validity. It effectively distinguishes known characteristics and produces stable and consistent results. The scale has successfully undergone all stages of development, implementation, and analysis, making it a suitable tool for measuring the level of internalized stigma among elderly individuals.

Conflict of Interest

The author declares no potential conflicts of interest regarding the research, authorship, and/or publication of this article.

Author Contributions
Plan, design: GK, HB; **Material, methods and data collection:** GK, HB; **Data analysis and comments:** GK, HB; **Writing and corrections:** GK, HB.

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Appendix 1.
YAŞLI İÇSELLEŞTİRİLMİŞ DAMGALANMA ÖLÇEĞİ
Açıklama:

Bu anket genel olarak yaşlılık ile ilgili bazı ifadeleri içermektedir. Ayrıca sizin yaşlılığa yönelik görüş ve düşüncelerinizi de sormaktadır. Ankette her bir ifadeyi ilgili bölüm içerisinde dikkatlice okuyunuz. Bu ifadeye katılıp katılmadığınızı yandaki size uygun seçeneklere bakarak işaretleyiniz. Her bir yanıtınız bizim için oldukça önemlidir. Boş seçenek bırakmamaya özen gösteriniz.

Yaşlılık…	Katılıyorum	Emin Değilim/ Kararsızım	Katılmıyorum
… öğrenmenin zorlaştığı çağdır (s1)	1☐	2☐	3☐
… yalnızlıktır (s2)	1☐	2☐	3☐
… insanlar tarafından daha az önemsenmektir (s3)	1☐	2☐	3☐
… aileye yük olmaktır (s4)	1☐	2☐	3☐
… işe yaramaz olmaktır (s5)	1☐	2☐	3☐
İnsanlar yaşlandıkça …			
… gündelik işleri için gücü kuvveti azalır (s6)	1☐	2☐	3☐
… uyku düzeni bozulur (s7)	1☐	2☐	3☐
… genellikle yavaş hareket ederler (s8)	1☐	2☐	3☐
… daha dikkatsiz olurlar (s9)	1☐	2☐	3☐
… geçmişe göre daha fazla alıngan olurlar (s10)	1☐	2☐	3☐
Yaşlandığım için …			
… diğer insanların yardımına daha fazla ihtiyaç duyuyorum (s11)	1☐	2☐	3☐
… eskisi kadar hayattan zevk almıyorum (s12)	1☐	2☐	3☐
… insanların ilgisine daha fazla ihtiyaç duyuyorum (s13)	1☐	2☐	3☐
… artık işe yaramadığımı hissediyorum (s14)	1☐	2☐	3☐
… ölümü daha fazla düşünüyorum (s15)	1☐	2☐	3☐
… çevrem ile ilişkilerim zayıfladı (s16)	1☐	2☐	3☐
… el becerilerim azaldı (s17)	1☐	2☐	3☐

*** Yaşlı İçselleştirilmiş Damgalanma Ölçeği- SPSS puan hesaplama syntax ***.
*** Ölçek maddelerinin değişken adlarını SPSS veri tabanına s1, s2, s3, …, s17 olarak tanımlayınız. Aşağıdaki komutları SPSS syntax editörüne kopyalayıp yapıştırın ve çalıştırın (RUN). Puanlarınız 0-100 aralığında olacak şekilde veri tabanının sonunda dört sütun olarak işlenecektir. ***.

COMPUTE farkinavarma=((mean.4(s1,s2,s3,s4,s5) *(-1)) + 3) * 50.
COMPUTE onaylama=((mean.4(s6,s7,s8,s9,s10) *(-1)) + 3) * 50.
COMPUTE uygulama=((mean.5(s11,s12,s13,s14,s15,s16,s17) *(-1)) + 3) * 50.
COMPUTE damgalama=mean(farkinavarma,onaylama,uygulama).
EXECUTE.

ELDERLY INTERNALIZED STIGMA SCALE (EISS)
Instructions:
This questionnaire includes a series of statements generally related to aging. It also seeks to understand your views and thoughts regarding old age. Please read each statement carefully within its respective section. Indicate your level of agreement by selecting the option that best reflects your opinion. Each of your responses is highly valuable to us. Please make sure to answer all items without leaving any unanswered.

Aging …	Agree	Neither Agree nor Disagree	Disagree
… is the stage when learning becomes harder. (s1)	1 ☐	2 ☐	3 ☐
… is loneliness. (s2)	1 ☐	2 ☐	3 ☐
… is being less valued by others. (s3)	1 ☐	2 ☐	3 ☐
… is being a burden to the family. (s4)	1 ☐	2 ☐	3 ☐
… is feeling useless. (s5)	1 ☐	2 ☐	3 ☐
As people get older …			
… they lose strength for daily tasks. (s6)	1 ☐	2 ☐	3 ☐
… their sleep patterns get disrupted. (s7)	1 ☐	2 ☐	3 ☐
… they generally move more slowly. (s8)	1 ☐	2 ☐	3 ☐
… they become more careless. (s9)	1 ☐	2 ☐	3 ☐
… they get more sensitive compared to the past. (s10)	1 ☐	2 ☐	3 ☐
Because I'm aging …			
… I need more help from others. (s11)	1 ☐	2 ☐	3 ☐
… I don't enjoy life as much as I used to. (s12)	1 ☐	2 ☐	3 ☐
… I need more attention from others. (s13)	1 ☐	2 ☐	3 ☐
… I feel like I'm not useful anymore. (s14)	1 ☐	2 ☐	3 ☐
… I think more about death. (s15)	1 ☐	2 ☐	3 ☐
… My relationships with others have weakened. (s16)	1 ☐	2 ☐	3 ☐
… My manual skills have declined. (s17)	1 ☐	2 ☐	3 ☐

*** Elderly Internalized Stigma Scale- SPSS score calculation syntax ***.
*** Define the variable names of the scale items as s1, s2, s3, ..., s17 in the SPSS database. Copy and paste the following commands into the SPSS syntax editor and run. Your scores will be processed as four columns at the end of the database, ranging from 0-100. ***.
COMPUTE awereness=((mean.4(s1,s2,s3,s4,s5) *(-1)) + 3) * 50.
COMPUTE agreement=((mean.4(s6,s7,s8,s9,s10) *(-1)) + 3) * 50.
COMPUTE selfaplication=((mean.5(s11,s12,s13,s14,s15,s16,s17) *(-1)) + 3) * 50.
COMPUTE stamp=mean(awereness, agreement, selfaplication).
EXECUTE.