

Scale Development Study to Determine Elderly Abuse

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Abstract

Objective: The first step in intervening in elder abuse, which is destructive both individually and socially, is to determine the presence of abuse. The existence of an easy and short screening tool for elderly abuse in primary health care services is important for developing health policy in the detection and intervention of abuse. The aim of this study is to develop a screening scale in Turkish, relevant to the valid culture and understanding in Türkiye, to determine elderly abuse. **Methods:** A methodological study was conducted among individuals over 65 years of age who applied to two educational family health centers affiliated with the Dokuz Eylul University Faculty of Medicine Department of Family Medicine, and two additional family health centers, between December 2016 and March 2017. Oral and written consent was obtained from participants. The Mini-Mental Test (MMT) and the Mini-Mental Test for the Uneducated (MMT-E) were used to assess participants' cognitive skills. A sociodemographic information form, the Hwalek-Sengstock Elder Abuse Screening Test, and the Elderly Abuse Screening Scale-Question Pool (EASS-QP) were applied to obtain data. SPSS 22.0 software was used for analysis. Mean, standard deviation, number, and percentage were obtained as descriptive statistics. Expert opinions were obtained and evaluated using the Delphi technique for content validity; Pearson correlation analysis was used for criterion validity, and exploratory factor analysis was used for construct validity. For scale reliability, Cronbach's alpha, item-total score correlation, and two-half-test analyses were used. The cut-off score of the scale was calculated by ROC analysis based on the Hwalek-Sengstock Elder Abuse Screening Test. **Results:** A 47-item question pool was generated by the researchers as a result of a literature review. It reached 57 items after a two-stage analysis of expert opinions. A 41-item application form was obtained through an item-reduction study following a pre-trial. After the actual application, a 15-item scale form with three sub-dimensions, explaining 67.53% of the total variance, was obtained as a result of exploratory factor analysis. In the reliability analysis of the scale, the Cronbach's α internal consistency coefficient was 0.85, and the split-half test correlation was found to be 0.90. As evidence of criterion validity, a significant and moderate correlation was found, with $r = 0.691$ ($p < 0.001$), between the Hwalek-Sengstock Elder Abuse Screening Test and the newly developed Elderly Abuse Screening Scale. The area under the curve was 0.865 ($p < 0.001$) when ROC analysis was applied to all items of the newly developed scale, yielding a sensitivity of 73% and a specificity of 85% at a cut-off value of 20. **Conclusion:** The Elderly Abuse Screening Scale has been shown to be a valid and reliable tool for screening elderly abuse in Turkish society. It is important to test this scale in clinical settings and in different studies.

Keywords: Elderly abuse; scale development; screening; primary care

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1. Introduction

The elderly period is a phase where individuals become more dependent, vulnerable to accidents, experience physical and mental decline, and must cope with various chronic issues. Older adults whose ability to live independently diminishes or disappears become susceptible to abuse.

The International Network for the Prevention of Elder Abuse–World Health Organization has defined elder abuse in the Toronto Declaration as “a single or repeated, inappropriate behavior that harms or causes stress to an elderly person in any relationship where there is an expectation of trust”¹. Elder abuse is a multidimensional concept that encompasses physical, emotional, psychological, and financial abuse²⁻⁴. Nowadays, as Yang revealed, migrant elderly individuals are also vulnerable⁵.

Recent prevalence studies on elder abuse conducted outside Türkiye have reported rates ranging from 4.8% to 61.1%⁶⁻¹⁰. In limited studies conducted in Türkiye, rates have ranged from 1.5% to 26.3%^{2,10-12}.

Elderly abuse is easy to hide and hard to expose¹³. Factors such as considering family unity sacred, reluctance to interfere in intra-family relationships, inadequate awareness of elder abuse within society, and insufficient employment of professional groups working with the elderly contribute to the challenges of detecting and intervening in abuse cases. From the perspective of the victim and the perpetrator, isolation of the elderly within their homes, preventing them from interacting with others, the perception that elder abuse is not a problem, and the reluctance of the victim to report their own family contribute to the difficulties in detecting elder abuse¹⁴. With the increase in the elderly population, it is predicted that the planning and development of care and health services for elderly individuals will be necessary, and without preventive measures, the number of elderly individuals experiencing abuse will rise¹⁵.

Therefore, professionals working with the elderly have significant responsibilities in uncovering cases of elder abuse. However, healthcare workers require reliable measurement tools that can assist in recognizing elder abuse and be used in clinical practice. Although various scales are used worldwide for the purpose of identifying elder abuse—such as the Hwalek-Sengstock Elder Abuse Screening Test (H-S/EAST), the Elder Abuse Suspicion Index, the Caregiver Abuse Screen, the Identifying Abusiveness Scale, the Elderly Assessment Instrument, and the Vulnerability to Abuse Screening Scale¹⁶⁻²⁰—as mentioned above, the definition of abuse, its disclosure, and intervention methods vary based on culture. Therefore, developing measurement tools that are suitable for different cultures will contribute to addressing the issue more comprehensively and effectively.

The aim of this study is to develop a screening scale suitable for the prevalent culture and understanding of our region, aiming to demonstrate the presence of elder abuse in different types.

Table 1. Steps of scale development stage

Stage	Method
Creation of item pool	Literature review to outline the theoretical and conceptual framework
Elimination of unsuitable items and shaping of the scale	Consultation with experts (Delphi technique)
Pilot testing	Item reduction using factor analysis
Main application and finalization of the scale	Item simplification using factor analysis

2. Methods and Materials

This study aims to screen for and identify the types of abuse perpetrated on the elderly. It is a scale development study. This methodological study aims to develop a scale for screening elder abuse and determining its types.

2.1. *Developing the Scale*

The pathway followed in the development of the scale is indicated in Table 1²¹.

2.1.1. *Creation of the Item Pool:*

In our study, a pool of items for the scale was formed by reviewing all available studies in the literature related to elderly abuse research²²⁻²⁶. These studies generally addressed elderly abuse in four dimensions: physical abuse, economic abuse, emotional abuse, and sexual abuse. In this research, the aim was to create a pool of items clustered in these four dimensions. Initially, a total of 45 questions were generated. Similar questions were presented together in this pool, sentences with multiple meanings were simplified, sentences containing more than one type of abuse within the same sentence were separated to create distinct items, and some expressions were modified to enhance clarity. For example, the statement 'Has anyone among the people around you teased you and made you feel embarrassed?' was changed to 'People around me tease me.' to make the item more suitable. Another example is the choice between 'Has anyone among the people around you forced you to do something you didn't want to do, and harassed you?' and 'Has anyone among the people around you forced you to do something you didn't want to do?' The sentence 'People around me force me to do something I don't want to do, harassing me.' was selected as the most understandable and conveying the same meaning. Through these processes, a pool of 47 items was obtained by the researchers.

The measure is designed to assess general, physical, social, and medical evaluations, as well as level of independence. This scale is designed to assess direct abuse²⁷.

2.1.2. *Elimination of Inappropriate Items and Shaping of the Scale:*

In our study, 66 academics who have contributed to the literature on elderly abuse and are considered to have clinical experience in the subject were invited to participate in the study via electronic mail to evaluate the item pool created. Eighteen academics who agreed to participate were provided with the item pool. In the first round of evaluations, the item pool, randomly sorted without considering the dimensions of abuse, was sent to the academics to rate the suitability of the items for inclusion in the scale and to identify the target problem using a 7-point Likert scale. They were also asked to suggest item proposals that were not in the pool but should be included. Ten academics submitted their evaluations. Descriptive analysis was conducted for each item based on the expert evaluations obtained in the first round. In the descriptive analysis, median value, first quartile, third quartile, and interquartile range results were used to determine whether there was expert consensus. Based on the analysis results and the new items suggested by the academics, a new pool of 51 items was created, and the second round of evaluations began. In the second round of evaluations, the 51 items were rated using a 7-point Likert scale and academics were asked to suggest additional items. Feedback was obtained from seven academics in this round. Unlike the first round, the items were grouped by dimensions, and academics were asked about the suitability of these items for the respective dimensions. If an item was not suitable for a particular dimension, they were asked to specify which dimension it should be evaluated in. Similar to the first round, descriptive analyses were conducted on the second-round evaluation results to assess expert consensus. Based on the analysis results and the items suggested by the academics, a total of 57 items were determined for the preliminary version of the scale. This preliminary version included 10 items for assessing physical abuse, eight items for economic abuse, 32 items for emotional

abuse, and seven items for sexual abuse. The introductory section of the preliminary 57-item scale included a cover letter explaining the purpose of the study, the intended use of the collected data for scientific purposes only, expressions of thanks for interest and contributions, the name of the researcher, and the name of the affiliated institution.

2.1.3. Pilot Testing

Pilot testing is conducted to determine whether the items are understandable to the target audience before the actual implementation. Based on the feedback received during this process, items that are inappropriate or not easily understood can be simplified or removed from the scale. The pilot testing was conducted with 51 patients aged 65 and above registered at Family Health Center No. 10, affiliated with the Department of Family Medicine, Dokuz Eylül University, and with 57 patients aged 65 and above registered at Family Health Center No. 11. Necessary adjustments were made to items that were indicated as not fully understandable by the patients, and factor analysis was applied to reduce the scale items. As a result of the analysis, the number of items was reduced to 41 by simplifying the scale. The preliminary testing concluded that the scale form and items were suitable for the main study group.

2.1.4. Main Implementation

2.1.4.1. Creation and Finalization of the Scale

The research was conducted with elderly patients aged 65 and above who applied to the Izmir Public Health Directorate-affiliated family health centers. The scale forms were filled out by the researcher using a face-to-face interview method.

2.1.4.2. Sample Group

The sample of the study consists of 370 individuals aged 65 and above who sought outpatient care and agreed to participate. While there are multiple methods suggested and used to determine the study group in scale development research, it is stated that the most accurate approach is to aim for a heterogeneous structure and reach the highest number of participants that ensures a normal distribution according to the characteristic being measured^{21,28,29}.

Inclusion criteria for the study:

- Being aged 65 and above
- Having a Standardized Mini-Mental Test score ≥ 24 / a score of ≥ 18 for individuals with no formal education
- Not having any physical condition that would impede communication

2.1.5. Data Collection Instruments

2.1.5.1. Mini-Mental Test (MMT) / Mini-Mental Test for the Uneducated (MMT-E)

The Mini-Mental Test (MMT), developed by Folstein et al., is used by clinicians to assess the degree of cognitive impairment. It consists of 11 items grouped under five main headings: orientation, registration, attention and calculation, recall, and language. The total score is evaluated out of 30³⁰. In studies conducted in our country, Güngen et al. found a threshold value of 23/24 for individuals with five years of education³¹. The Mini-Mental Test for the Uneducated (MMT-E), created by Ertan et al. based on a version prepared by Ganguli et al. for a low-education-level Indian community, has a cut-off value of 18³².

2.1.5.2. Sociodemographic Data Form

This form, developed by the researchers through literature review, collects information on age, gender, education level, occupation, monthly income perception, living conditions, and alcohol use status of the participants in the study.

2.1.5.3. Elder Abuse Screening Scale Questionnaire (EASS-Q)

The EASS-Q, a 41-item self-report scale, was developed by the researchers in detail under the section titled 'Development of the Scale'. It employs a 5-point Likert scale consisting of the descriptors 'never', 'rarely', 'sometimes', 'often', and 'always'. It is believed that as the total score obtained from the scale increases, the risk of abuse also increases.

2.1.5.4. Hwalek-Sengstock Elder Abuse Screening Test (HSEAST)

This scale, developed by Hwalek and Sengstock, is a screening test consisting of 15 items that rely on reports from elderly individuals to investigate physical abuse, vulnerability, and high-risk situations. The original authors have indicated that scores of three or more should be interpreted as indicating the presence of abuse³³. Validity and reliability studies of the scale in Turkish were conducted in 2015 by Özçakar et al. and in 2016 by Özmete, with Özçakar et al. determining a cutoff score of 6 for the screening test, resulting in a sensitivity of 76.9% and a specificity of 96.2%, and Özmete calculating reliability as 0.81³⁴.

2.1.6. Data Collection

- Interviews with participants were conducted in an unused room at the four family health centers previously mentioned, ensuring patient privacy.
- Individuals who met the inclusion criteria were provided with a verbal and written explanation of the study's purpose and procedures, with an emphasis on the confidentiality of their information. Their verbal and written consent was obtained.
- To assess the cognitive processing of participants, the researcher administered either the MMT or MMT-E based on the participant's literacy. Individuals who scored 24 or higher on MMT or 18 or higher on MMT-E were included in the study.
- Participants were administered the sociodemographic data form, EASS-Q, and HSEAST scales.

2.1.7. Data Analysis

- IBM SPSS (the Statistical Package for Social Sciences) 22.0 statistical software was used for data evaluation and analysis.
- Descriptive statistics, such as mean, standard deviation, counts, and percentages, were applied for demographic variables related to the participants.
- During the development of the Elder Abuse Screening Scale (EASS), both content and criterion validity analyses were performed. The Delphi technique, involving expert opinions, was employed for content validity, and criterion validity was assessed using the Hwalek-Sengstock Elder Abuse Screening Test, utilizing Pearson correlation analysis.
- Exploratory factor analysis (EFA) was conducted for construct validity. Prior to this, Kaiser-Meyer-Olkin (KMO) and Bartlett tests were employed to determine the suitability of the data for factor analysis.
- Relationships between responses to the sub-dimensions of physical, emotional, economic, and sexual abuse, as well as the interrelations between these sub-dimensions, were explored using Pearson correlation coefficients and their significance levels.
- To assess the reliability of the scale, Cronbach's alpha, item-total score correlation analysis, and test-retest analysis were utilized.

Between December 2016 and March 2017, the research was conducted at the affiliated Education Family Healthcare Centers of Dokuz Eylül University, Department of Family Medicine (Family Health Center No. 10, Family Health Center No. 11, and Family Health Center No. 5). Individuals over the age of 65 who applied between the dates were interviewed face to face after obtaining their written consent. A total of 370 people, applying to the family health centers between the dates given, were invited to participate in the

study. The research was completed by 317 people in total who fulfilled the requirements for inclusion.

The 41 items that were obtained after the item-reduction study and pre-test formed the scale form used to complete the research. All participants underwent factor analysis at the conclusion of the predetermined time period in order to give the scale its final form using the collected data.

In addition to the analysis, criterion and construct validity analyses were performed during the development of the Elderly Abuse Screening Scale. For criterion validity, the Delphi technique was used, in which expert opinions were obtained and assessed. The Hwalek-Sengstock Elder Abuse Screening Test was analyzed using Pearson correlation. Construct validity was examined using exploratory factor analysis. How accurate an abstract phenomenon is depends on the measurement tool that is being developed and its validity³⁵.

First, consider the data's suitability for factor analysis. The values were determined using the Kaiser-Meyer-Olkin (KMO) and Bartlett tests. The KMO statistic has a value between 0 and 1. When this value approaches 1, it is determined that factor analysis is the appropriate method for the data set. The KMO values are shown in Table 2 below.

Sub-dimensions of physical, emotional, financial, and sexual abuse: Pearson's correlation coefficient describes the relationship between the answers, the sub-dimensions, and the two scales. Analyzing the correlation coefficients and their significance, Cronbach's alpha, item-total score correlation analysis, and split-half test analyses were used to determine the scale's reliability.

Table 2. Kaiser-Meyer-Olkin (KMO) values and interpretations

KMO Value	Interpretation
0.90	Wonderful
0.80	Very good
0.70	In the middle
0.60	Mediocre
0.50	Bad
<0.50	Unacceptable

3. Results

The study's participants comprised 52.1% female and 47.9% male. Of the sample population, 61.3% were between the ages of 65 and 70, 27.1% were between the ages of 71 and 75, 9.0% were between the ages of 75 and 80, and 2.4% were over the age of 80. The average age of participants was 70.05 ± 4.28 years. Of the participants, 18.3% were literate and had completed high school or higher education, while 19.6% were illiterate. Of the participants included in the study, 53.9% were retired, 28.4% were housewives or unemployed, and 2.2% were employed as workers or civil servants. Of the elderly participants, 39.4% reported that their income equaled their expenses, while 59.9% reported that their income was less than their expenses.

Of the participants in the study, 23.7% were living alone, while 76.0% were living with their families. Of the participants, 95.3% reported not using alcohol, while 4.7% reported regular alcohol use. The summary of the data is shown in Table 3.

As a result of the expert panel's examination of the items in the first round, compliance with the scale was assessed. Considering the scores and suggestions for new items, a collection of items was created, and the expert panel conducted a second evaluation.

Table 3. Data of participants by age groups and gender

		n	%
Age (years)	65–70 Women / Men	104 / 91	53.3 / 46.7
	71–75 Women / Men	36 / 50	41.9 / 58.1
	76–80 Women / Men	20 / 8	62.6 / 37.5
Educational status	Illiterate	63	19.6
	Literate/Primary/Middle school	196	61.8
	High school/University/Graduate	58	18.3
Occupation	Paid (officer, worker)	7	2.2
	Self-employed (tradesman, company partner)	49	15.5
	Housewife/Unemployed	90	28.4
	Retired	171	53.9
Status of income	Income more than expenses	2	0.6
	Income equal to expenses	125	39.4
	Income less than expenses	190	59.9
Living conditions	Alone	75	23.7
	With family	241	76.0
	With caregiver	1	0.3
	Nursing home, etc.	0	0
Alcohol use	Yes	15	4.7
	No	302	95.3

As a result, a 57-item question pool was obtained, along with the conceptual categories to which they belong. Table 4 shows the median value, first and third quartiles, and width results regarding the first round of expert evaluations on these items.

After the first round of evaluations, items 7, 10, 13, 15, 29, 32, 37, 40, 41, 43, 44, and 46 were removed from the question pool. As a result of the feedback of the experts who contributed to our study and the evaluations of the researchers, items 1, 3, 5, 12, 19, 20, 21, 22, 23, 25, 27, 33, 38, and 47 were changed in terms of content or question format. At the same time, the questions suggested by the experts were evaluated by the researchers and the following items were added to the question pool: ‘People around me beat, slap, or punch me with their hands’, ‘People around me beat me with sticks’, ‘People around me do not let me in the house most of the time’, ‘People around me do not give me food when I am hungry’, ‘People around me swear at me’, ‘People around me want me to spend time outside the house (in the garden, on the street) most of the time’, ‘People around me want me to touch their genitals by force or threat’, ‘People around me touch the intimate parts of my body’, and ‘People around me force me to have sexual intercourse with them’. The other items were included in the second-round evaluation without any changes.

3.1. Pretesting and Item Reduction

In the pretesting process, some items were excluded from the scope by examining the item-factor loadings and item-test relationships, in order to determine whether the 57 items determined by the researchers and the experts in the pretesting process were related to the relevant dimensions and which of the similar items worked better. In order to be able to analyze the scale items, there should be at least one different answer among the answers of the individuals who filled out the scale. In the sample group of 108 individuals in the preliminary study, it was observed that respondents answered ‘never = 1’ to seven items belonging to the sexual abuse sub-dimension: ‘People around me hide my medications and prevent my treatment’, ‘People around me make fun of me’, ‘People around me beat me with sticks’, ‘People around me keep me tied up’, ‘People around me threaten me with fists, sticks, or guns’, ‘People around me swear at me’, ‘People around me prevent me from seeing others’, and ‘People around me threaten me verbally’. Therefore, these

items could not be included in the analysis, and the analysis was conducted on the remaining 42 items.

In factor analyses, the numerical value that determines whether an item will be included in any sub-dimension is the factor loading value. This value shows the relationship of the related item with the dimension to which it belongs. As this value increases, the level of relationship with the dimension to which the item belongs also increases²¹. Since the data required for the removal of the items to which factor analysis could not be applied was not found, it was decided to proceed to the actual implementation phase of the study with 41 items, by adding the items questioning sexual abuse to the items in the three sub-dimensions determined as a result of the analysis.

Table 4. Results of descriptive analysis of first-round expert opinions

Item	Median	First Quartile	Third Quartile	Range
1. I'm afraid of being reprimanded or yelled at by those nearby.	5	4.5	7	3–7
2. I feel intimidated by those nearby.	4	3	6	3–7
3. Those nearby have threatened me.	6	5	7	2–7
4. Those nearby humiliate me.	6.5	4.5	7	2–7
5. Those nearby call me stupid or dimwitted.	6.5	5.25	7	3–7
6. Those nearby make fun of me.	7	6	7	3–7
7. Those nearby pressure me to do something I don't want to do.	6	2	6.5	1–7
8. Those nearby force me to do something I don't want to do.	7	6	7	1–7
9. Those nearby ignore me; they don't care about what I say.	7	6	7	5–7
10. Those nearby either don't talk to or ignore me for a while.	7	5.5	7	3–7
11. Those nearby hit me.	7	7	7	6–7
12. Those nearby threaten to hit me with a stick.	6.5	2.75	7	1–7
13. Those nearby tie me up or lock me in the house/room.	6.5	5.75	7	5–7
14. Those nearby cut me, bruised me, and caused me physical pain.	7	5.25	7	1–7
15. Those nearby threaten me or force my relatives to be together against their will.	5	2.5	7	1–7
16. People around me force or threaten me regarding the private parts of my body they are touching.	7	5	7	1–7
17. People around me want me to touch their genitals.	6	5	7	1–7
18. People around me force me to undress or expose my private area against my will.	6	4	7	1–7
19. People around me force me to spend my money or sell my property against my will.	7	6	7	4–7
20. If people around me are making decisions about my money or property, I do not think they are good decisions for me.	6	3.5	7	1–7
21. If people around me make decisions about my money or property, I do not have copies of the documents related to their decisions, nor do they give me those documents when I ask for them.	6	3	6.5	1–7
22. If people around me make decisions about my money or property, they have forged my signature without my permission to sell my property or take money from my accounts.	6.5	6	7	5–7
23. If people around me make decisions about my money or property, they have forced or tricked me into signing a document to give them my money or property.	7	5.5	7	1–7
24. I think people around me do not want me around.	7	4.75	7	1–7
25. People around me force me to stay in bed or say I am sick when I am not sick.	6	3.5	7	2–7

26. People around me take something that belongs to me without my permission.	7	5.5	7	3–7
27. People around me threaten to punish me or institutionalize me.	7	6	7	4–7
28. People around me say that I am a troublemaker.	7	6	7	5–7
29. People around me force me to eat.	5.5	3	7	2–7
30. I am afraid that people around me will harm me or someone close to me.	6	6	7	4–7
31. I think that people around me treat me badly.	7	5.75	7	5–7
32. I am intimidated by people around me.	6	3.5	7	1–7
33. People around me forbid me from going outside.	6.5	5.75	7	1–7
34. People around me forbid me to go out.	6.5	6	7	4–7
35. People around me hide my belongings and do not let me use them.	6	4.5	7	4–7
36. People around me hide my belongings and do not let me use them.	7	4.5	7	3–7
37. I have been denied protection before.	5	4	7	1–7
38. I feel that I am not wanted at home and that they do not want to take care of me.	7	3.75	7	1–7
39. I think that my ideas and suggestions are not taken into consideration in matters in which I have experience.	7	5.5	7	2–7
40. I think I am the laughing stock of the children at home.	6	4	7	3–7
41. There are some people in my family that I am afraid of.	6	4.5	7	2–7
42. I do not think I have enough privacy/space in my home.	6	3.5	7	3–7
43. I am left alone for long periods of time.	7	5.5	7	3–7
44. Alcohol has a negative effect on the way people around me behave towards me.	4	2	6.5	2–7
45. Other people make decisions about my life, such as where and how I live.	6.5	4.75	7	4–7
46. I am forced to help someone earn a living.	4	2	4.5	1–6
47. I am thrown out of the house.	5.5	3.25	6.75	2–7

The research was completed with the 41-item scale application form obtained as a result of the item-reduction study on 317 participants. It was observed that 209 people, whose data were collected during the actual application phase, responded ‘never = 1’ to the items belonging to the sexual abuse sub-dimension, just like the 108 people whose data were collected during the pretest. As explained above, since there must be at least one different response for factor analysis to be performed, these items could not be analyzed and it was decided to remove them from the scale. Kaiser-Meyer-Olkin (KMO) and Bartlett’s Test results were calculated for the remaining 34 items. The data are given in Table 5.

Table 5. Kaiser-Meyer-Olkin (KMO) and Bartlett’s test results for factor analysis

	Value
Kaiser-Meyer-Olkin (KMO)	0.802
Bartlett’s Test	Approx. Chi-Square
	df
	Sig.
	6148.408
	561
	0.000

3.2. Reliability Analysis Results

After analyzing the construct validity of the scale, Cronbach’s alpha and two-half test values, which are internal consistency measures, were calculated for reliability.

Cronbach's alpha is one of the most frequently used criteria for evaluating scale reliability. Initially, a calculation was made for the whole scale, consisting of 15 items and three dimensions, and Cronbach's alpha value was found to be 0.85. This value is generally higher than the acceptable value of 0.70. Along with these analyses, separate Cronbach's alpha values were also calculated for each dimension. The Cronbach's alpha for the emotional abuse dimension was 0.89, the Cronbach's alpha for the economic abuse dimension was 0.78, and the Cronbach's alpha for the physical abuse dimension was 0.92. According to these values, it is thought that each dimension is reliable in itself and the scale can be used both as single-factor and multi-factor.

In the other analysis used in scale reliability, the two-half test, the reliability coefficient should be at least 0.70. In the two-half test reliability analysis of the current scale, each sub-dimension was randomly divided into two halves, since the two halves were intended to cover all three sub-dimensions. As a result, two half-tests with eight and seven items were obtained. The reliability coefficient of half of the scale was calculated as 0.83, and this value indicates the lower limit of the reliability coefficient of the scale. The reliability coefficient for the whole scale was calculated as 0.90 (>0.70).

3.3. Criterion Validity Results

The Hwalek-Sengstock Elder Abuse Screening Test, whose Turkish validity and reliability had been established, was also administered to the 317 sample group in order to evaluate whether the newly developed scale was suitable for screening elder abuse. For this purpose, Pearson correlation analysis was performed between the total scores of the two scales and the total score of the Hwalek-Sengstock Elder Abuse Screening Test and the sub-dimensions of the new scale.

3.4. Analysis and Findings Related to the Calculation of Cut-off Value

ROC analyses were performed to determine the most appropriate cut-off point for discriminating the presence of abuse according to the newly developed Elder Abuse Screening Scale. In this analysis, data from the Hwalek-Sengstock Elder Abuse Screening Test were used as a predictor of abuse. For the original version of this screening test, the researchers considered three cut-off points appropriate. When we set the cut-off score of the said instrument as three, it was concluded that 111 individuals were at high risk for abuse. According to the analysis made by taking this data into consideration, we obtained 73% sensitivity and 85% specificity values when we set a cut-off score of 20, and 67% sensitivity and 88% specificity values when we set a cut-off score of 21. As a result of the ROC analysis applied to all items of the scale, the area under the curve was found to be 0.865.

4. Discussion

4.1. Suitability of the Sample Group Included in the Study

When the sociodemographic variables of the participants of our study are considered, elderly individuals show a homogeneous distribution in terms of gender. Although it is seen that this homogeneous distribution changes in a few studies in the literature^{34,36}, in most studies the distribution is homogeneous and in line with life expectancy, consistent with the higher female population^{10,12,37,38,39}.

When the age distribution was analyzed, it was seen that almost all of the group was in the 65–75 age group. In other studies on elder abuse in the literature, there is a similarity between the age distribution of the participants and this study^{34,38–41}. It was observed that the age range of the participants of the current study was younger than the national average. It is known that older individuals are at higher risk of abuse⁴². In the present study, differences in scale scores between age groups were not examined. In order to exclude the effect of age distribution on the results, the newly developed scale needs to be used repeatedly in stratified and large-sample studies covering all age groups.

Approximately one fifth of the sample was illiterate. It was observed that there was no recommendation in the literature for such cases, and the scales of illiterate elderly individuals were recorded by the researcher. Although it was thought that this situation would not lead to a significant change in the results, it should be kept in mind when interpreting the results. Studies comparing the results of the two groups are needed to investigate whether this situation has an effect.

It was observed that the majority of the participants lived with their families, and this situation was evaluated in parallel with the cultural characteristics of Turkish society, where family unity is important. However, it is noteworthy that elderly individuals living alone did not report physical abuse, and all of the individuals who reported physical abuse lived with their families. This situation was interpreted by the researchers as raising a strong suspicion that the perpetrators of physical abuse are family relatives, but the scale needs to be supported by repeated use. It was observed that more than half of the participants stated that their financial income was less than their expenses, and it was thought that this situation was parallel to the country's economy. Considering all these data, it was thought that the current participant group was an advantageous group in terms of reflecting the average of society with its sociodemographic characteristics, and that the results obtained from this sample could be generalized to the broader population. However, it would be useful to use this screening scale in different regions of the country and discuss the results in order to develop health policies for the early diagnosis and intervention of elder abuse throughout the country.

5. Conclusion

In conclusion, the newly developed Elder Abuse Screening Scale is a valid and reliable instrument that can be used to assess the abuse of elderly individuals and is suitable for Turkish society and the Turkish language.

genAI: No artificial intelligence-based tools or generative AI technologies were used in this study. The entire content of the manuscript was originally prepared, reviewed, and approved by all authors.

Statement of Ethics: The study was approved by the Dokuz Eylül University Faculty of Medicine Ethics Committee (Approval date: 07.01.2016, Decision No: 2016/01-31). Permission was also obtained from the Izmir Public Health Directorate on 17.05.2016 (No: 55396543/604.02).

Data Availability: The data could be shared only after receiving permission from the relevant authorities.

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