

Development of the Scale of Perceiving the Attitudes of Healthcare Professionals by Elderly, Psychometric Characteristics, Confirmatory Factor Analysis and Cut-Off Value: Methodological, Descriptive, Cross-Sectional and Correlational Study

Yaşlı Bireylerin Sağlık Çalışanlarının Tutumlarını Algılama Ölçeği'nin Geliştirilmesi, Psikometrik Özellikleri, Doğrulayıcı Faktör Analizi ve Cut-Off Değeri: Metodolojik, Tanımlayıcı, Kesitsel ve İlişkisel Çalışma

İrem ÖZEL^{a,b}, F. Yasemin KUTLU^c

^aIstanbul University Institute of Health Sciences, Department of Mental Health and Psychiatric Nursing, İstanbul, Türkiye

^bIstanbul Galata University Faculty of Health Science, Department of Nursing, İstanbul, Türkiye

^cIstanbul University-Cerrahpaşa Faculty of Florence Nightingale Nursing, Department of Mental Health and Psychiatric Nursing, İstanbul, Türkiye

ABSTRACT Objective: In order to determine whether the attitudes of healthcare professionals're perceived as discrimination by elderly individuals, "The Scale of Perceiving the Attitudes of Healthcare Professionals by Elderly" scale was developed, psychometric properties're evaluated and the cut-off value was determined. **Material and Methods:** The sample of this study, which was carried out in the descriptive and relationship-seeking type of research with the methodological method, consisted of 301 elderly individuals aged 65 and over, living in Eskişehir, who received at least 24 points from the mini mental test, received health care at least once, and were willing to participate in the research. The data were collected with a questionnaire form, mini mental state test and the "The Scale of Perceiving the Attitudes of Healthcare Professionals by Elderly" developed by the researcher. **Results:** The Cronbach alpha value of the scale of "Perceiving the Attitudes of Health Care Professionals of Elderly Individuals" was 0.83, and the Guttman Split-Half coefficient was 0.83. As a result of the exploratory and confirmatory factor analyses, it was determined that the Scale of Perception of Attitudes of Healthcare Professionals by Elderly Individuals consisted of 29 items and two sub-dimensions; these two factors explained approximately 42.25% of the total variance; the cutoff point was found to be 1,610. **Conclusion:** With the present study, it's determined that the scale is an appropriate tool to measure how healthcare workers' attitudes're perceived by elderly individuals.

Keywords: Ageism; elderly; psychometrics

ÖZET Amaç: Sağlık çalışanlarının tutumlarının yaşlı bireyler tarafından ayrımcılık olarak algılanıp algılanmadığını belirlemek amacıyla "Yaşlı Bireylerin Sağlık Çalışanlarının Tutumlarını Algılama Ölçeği" geliştirilmiş, psikometrik özellikleri değerlendirilmiş ve kesme değeri belirlenmiştir. **Gereç ve Yöntemler:** Metodolojik yöntemle tanımlayıcı ve ilişki arayıcı araştırma tipinde gerçekleştirilen bu çalışmanın örneklemini Eskişehir ilinde yaşayan, 65 yaş ve üstü, mini mental testten en az 24 puan almış, en az bir kez sağlık hizmeti almış ve araştırmaya katılmaya istekli 301 yaşlı birey oluşturdu. Veriler anket formu, mini mental durum testi ve araştırmacı tarafından geliştirilen "Yaşlı Bireylerin Sağlık Çalışanlarının Tutumlarını Algılama Ölçeği" ile toplandı. **Bulgular:** "Yaşlı Bireylerin Sağlık Çalışanlarının Tutumlarını Algılama Ölçeği"nin Cronbach alfa değeri 0,83, Guttman Split-Half katsayısı 0,83 olarak belirlendi. Açımlayıcı ve doğrulayıcı faktör analizleri sonucunda Yaşlı Bireylerin Sağlık Çalışanlarının Tutumlarını Algılama Ölçeği'nin 29 maddeden ve 2 alt boyuttan oluştuğu; bu 2 faktörün toplam varyansın yaklaşık %42,25'ini açıkladığı; kesme noktasının ise 1.610 olduğu bulundu. **Sonuç:** Bu çalışma ile ölçeğin sağlık çalışanlarının tutumlarının yaşlı bireyler tarafından nasıl algılandığını ölçmek için uygun bir araç olduğu belirlenmiştir.

Anahtar Kelimeler: Yaşlı ayrımcılığı; yaşlı; psikometri

TO CITE THIS ARTICLE:

Özel İ, Kutlu FY. Development of the scale of perceiving the attitudes of healthcare professionals by elderly, psychometric characteristics, confirmatory factor analysis and cut-off value: Methodological, descriptive, cross-sectional and correlational study. Türkiye Klinikleri J Nurs Sci. 2024;16(1):257-66.

Correspondence: İrem ÖZEL

Istanbul University Institute of Health Sciences, Department of Mental Health and Psychiatric Nursing, İstanbul, Türkiye

E-mail: dr.iremozel@gmail.com



Peer review under responsibility of Türkiye Klinikleri Journal of Nursing Sciences.

Received: 18 Sep 2023

Received in revised form: 13 Dec 2023

Accepted: 29 Jan 2024

Available online: 07 Feb 2024

2146-8893 / Copyright © 2024 by Türkiye Klinikleri. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

The increase in life expectancy has brought along the increase in the elderly population, thus ageism, which is a problem that occurs in older ages. According to Butler and Lewis et al., ageism causes young individuals to see older individuals as different from themselves, which eliminates the fact that older individuals are human and increases fear and horror against aging.^{1,2}

It is stated that elderly individuals who are exposed to ageism experience high blood pressure problems and older individuals who are exposed to negative stereotypes about aging experience more cardiovascular stress.² Experts state that depression, disability, increased mortality and early loss of independence in elderly individuals are effective factors in the emergence of ageism.³ In addition, ageism causes the elderly to be perceived as a burden, which in particular causes social exclusion, a lack of self-confidence in the elderly, and a decrease in the number and quality of services that can be accessed.

There are no studies in the literature showing how the discrimination of healthcare professionals towards elderly individuals is perceived by elderly individuals and the expectations of elderly individuals from healthcare professionals in the provision of healthcare services. This research; “The Scale of Perceiving the Attitudes of Healthcare Professionals by Elderly” (YASTA) was developed to determine its psychometric properties, confirmatory factor analysis and cut-off value.

The research questions are stated below. These;

- What are the psychometric properties of the “The Scale of Perceiving the Attitudes of Healthcare Professionals by Elderly” (YASTA) scale?
- What is the exploratory and confirmatory factor structure of the “The Scale of Perceiving the Attitudes of Healthcare Professionals by Elderly” (YASTA) scale?
- What is the cut-off value of the “The Scale of Perceiving the Attitudes of Healthcare Professionals by Elderly” (YASTA) scale?
- What are the elderly individuals’ level of perception of the attitudes of healthcare professionals and the related factors?

MATERIAL AND METHODS

The research was carried out between May 2016 and September 2018 in the methodological method, descriptive and correlational research type. Research data were collected from individuals aged 65 and over living in Eskişehir between January-June 2017.

PARTICIPANTS

The population of the study consisted of individuals aged 65 and over living in Eskişehir. The sample of the study was determined to be at least 5 to 10 times the number of items in the “YASTA” (n=290).⁴ Within the scope of the research, 717 elderly individuals were reached. The sample included elderly individuals aged 65 and over, who had at least 24 points from the mini mental test, who had received health care at least once, and who were willing to participate in the study. 416 elderly individuals who scored 23 points or less on the mini mental test were not included in the sample. The study was completed with 301 elderly individuals who met the sampling inclusion criteria. Random sample selection technique, one of the “non-probability sampling” methods, was used to determine the sample. The data collection process was completed in areas such as coffeehouses and parks where elderly male individuals read newspapers and magazines, play games and spend time in the neighborhoods where they reside, in home meetings held at regular intervals by elderly female individuals, which they define as their golden days, in areas such as parks where they spend time, and in private baths for women. The data collection process has been completed in areas such as cafes and parks where elderly men read newspapers and magazines, play games and spend time in the neighborhoods they live in, during house calls by elderly women at regular intervals, in areas such as parks where they spend time, and in baths special for women.

The mean age of the elderly individuals participating in the study was 71.96 (standard deviation=6.54), 38.9% were female, 61.1% were male, 56.5% were primary school graduates, 66.1% were married, 59.5% were above the hunger limit but below the poverty line, 64.5% had any disease,

85.4% had easy access to health services, 73.4% were not afraid of death, 93% were determined that they stated that they were not exposed to negative discrimination by nurses and physicians.

DATA COLLECTION TOOL

Data; demographic data form was collected with mini mental state test and “YASTA” developed by the researcher.

Demographic data form: There are questions that include the individual characteristics of elderly individuals and their experiences of benefiting from health care services.

Mini Mental State Test: In the current study, it was used to determine whether the cognitive levels of the elderly individuals were suitable for the inclusion criteria of the sample. The scale is a short screening test developed by Folstein et al. to monitor cognitive changes in elderly individuals and is frequently used to screen for dementia in elderly individuals.⁵ The test consists of 11 questions; it tests orientation, memory, attention, calculation, recall, language, motor function and perception abilities. It is evaluated out of 30 points. 24-30 points are normal, 18-23 points are compatible with mild dementia, and 17 points and below are compatible with severe dementia. The test-retest validity of mini mental state test has been reported as 0.56-0.98. Its validity and reliability in Türkiye were determined by Gungen et al.⁶ It was determined that the 23/24 value of the test for threshold values showed a sensitivity of 0.91 and a specificity of 0.95.

YASTA: It was developed by the researcher within the scope of the current study and its psychometric properties were determined in order to determine the perceptions of elderly individuals towards the attitudes of healthcare professionals. In the development of the scale, first of all, content analysis was performed and an item pool was created. In this study; in creating the scale items, (a) studies examining ageism towards older individuals, (b) studies examining the attitudes of healthcare professionals and students studying in the healthcare sector towards older individuals, and (c) similar scales previously used on ageism were used and the item pool was used prepared.⁷⁻²¹ A draft version of the scale was prepared

with items selected from the prepared pool. In order for the items to be scaled, the response style of the scale items was determined as a percentage for each item in the form of 10 slices between 0 and 100.

After the items were determined, the Content Validity Index (CVI) of the scale was determined. To determine the content validity of the draft scale, expert opinions were received from 12 people, including 3 academic nurses, 1 lawyer, 1 clinician nurse, 1 pharmacist, 1 psychologist, 2 engineers, 1 psychiatrist and 2 sociologists. Experts evaluated each scale item between 1-4 points in terms of “relationship, clarity, simplicity and understandability” (1=not related to the topic, 4=related to the topic; 1=not clear, 4=very clear; 1=not simple, 4=very simple; 1=not understandable, 4=fairly understandable). The CVI of the scale was determined using the Lynn method in terms of relationship, clarity, simplicity and understandability at both item and scale levels.²² Items with low scores according to the CVI value of the scale were removed from the scale. For reliability analysis, Cronbach alpha and Guttman Cronbach’s alpha coefficient were determined. Whether the data obtained from the study group was suitable for exploratory factor analysis was determined by Kaiser-Meyer-Olkin (KMO) and Bartlett tests. Confirmatory factor analysis was performed to determine the construct validity of the scale and its sub-dimensions.

In order to determine the cut-off value of the YASTA scale, 301 units were derived from the normal distribution, with a mean of 0 and a standard deviation of 0.01. Class assignments were made using this new derived variable. The cut-off value was determined by arranging the values of the YASTA scale according to the class averages from the smallest to the largest.

PROCESS

Individuals over the age of 65 living in Eskişehir who met the sampling criteria were informed about the study and their written and verbal consents were obtained. Research data were collected from elderly individuals willing to participate in the study by face-to-face interview method. Data collection took approximately 30 minutes.

STATISTICAL EVALUATION

In the evaluation of the data, after the data obtained from the research were coded by the researcher, SPSS 21.0 (IBM, New York, USA) and STATISTICA 13 DEMO (TIBCO Software, California, U.S.) package programs were used. Descriptive statistics were used to examine the score distribution of each item. Spearman correlation coefficients were calculated to examine the relationship between the items. The construct validity of the scale was examined using exploratory factor analysis. The factor number of the scale was determined by looking at the eigenvalue of each factor and considering the structure of the scale items.²³ KMO and Barlett tests were used to determine whether the data obtained from the study group were suitable for exploratory factor analysis. As a result of the KMO test, it is interpreted that if the value is lower than 0.50, factor analysis cannot continue.²⁴ Confirmatory factor analysis was performed to determine the construct validity of the scale and its sub-dimensions. According to the confirmatory factor analysis results, root mean square error of approximation (RMSEA) values equal to or below 0.05 are good fit, between 0.05 and 0.08 are adequate fit, between 0.08 and 0.10 are acceptable fit, and values greater than 0.10 are unacceptable fit. If it is too large, it is called unacceptable compliance.²⁵ Internal consistency (Cronbach's alpha) was used in the reliability analysis of the scale. Cronbach's alpha coefficient is frequently preferred in determining the reliability of scales based on multiple choice and total scores.²⁶ According to this method, the internal consistency coefficient between 0.00 and 0.40 is unreliable, between 0.40 and 0.60 is low reliable, between 0.60 and 0.80 is highly reliable, and between 0.80 and 1.00 is highly reliable. is considered highly reliable.^{25,26} Spearman correlation analysis was performed to determine the relationship and significance between the scale and individual characteristics. Shapiro-Wilk and Kolmogorow-Smirnov tests were applied to determine whether the data showed a normal distribution. Normally distributed data were obtained by parametric tests; data that did not show normal distribution were evaluated with non-parametric tests. A p value of <0.05 was accepted for the significance level of statistical tests. In order to determine the cut-off value of the YASTA scale, 301 units

were derived from the normal distribution, with a mean of 0 and a standard deviation of 0.01. Class assignments were made using this new derived variable. The cut-off value was determined by arranging the values of the YASTA scale from the smallest to the largest according to the class averages.

ETHICAL ASPECT OF RESEARCH

Ethics committee approval dated December 4, 2017 and numbered 80558721/G-06 was obtained from Eskişehir Osmangazi University Non-Interventional Clinical Research Ethics Committee. Oral and written information about the research was given to the participants and their written and verbal consents were obtained. At every stage of the study, the Declaration of Helsinki was followed.

RESULTS

DEVELOPING "YASTA" SCALE, RELIABILITY AND VALIDITY ANALYSIS, AND FINDINGS ON THE CUT-OFF VALUE

According to the content validity analysis of the draft items of the YASTA scale, 13 items with a CVI value of 0.80 and below were excluded from the scale (Table 1).

Reliability was determined by internal consistency method. The cronbach α coefficient of the YASTA scale was found to be 0.83 (Table 2).

The number of factors with an eigenvalue greater than 1 was found to be six (Figure 1). The number of factors was limited to two in order to ensure the suitability of the scale. Together, these two factors explain approximately 42.25% of the total variance (Table 2).

As a result of the exploratory factor analysis, it was determined that the YASTA scale consisted of 29 items and two sub-dimensions. Factor 1 was called "positive perception" and Factor 2 was called "negative perception". According to the confirmatory factor analysis results of the YASTA scale, the RMSEA value being significant and less than 0.10 indicated that there was agreement (Table 2).

YASTA scale cut-off value and cut-off point were determined as 1,610. According to this; a score

TABLE 1: CVI value of the YASTA scale.

Items	Experts												Scope Validity Index of Items (CVI)
	1	2	3	4	5	6	7	8	9	10	11	12	
1	X	X	X	X	X	X	X	X	X	X	X	X	
2	X	X	X	X	X	X	X	X	X	X	X	X	1
3	X	X	X	X	X	X	X	X	X	X	X	X	1
4	X	X	X	X	X	X	X	X	X	X	X	X	1
5	X	X	X	X	X	X	X	X	X	X	X	X	1
6	X	X	X	X	X	X	X	X	X	X	X	X	1
7	X	X	X	X	X	X	X	X	X	X	X	X	0.92
8	X	X	X	X	X	X	X	-	X	X	X	X	0.92
9	X	X	X	X	X	X	X	X	X	X	X	X	1
10	X	X	X	-	X	X	X	X	X	X	X	X	0.92
11	X	X	X	X	X	X	X	X	X	X	X	X	1
12	X	X	X	X	X	X	X	X	X	X	X	X	1
13	X	X	X	X	X	X	X	X	X	X	X	X	1
14	X	X	X	X	X	X	X	X	X	X	X	X	1
15	X	X	X	X	X	X	X	X	X	X	X	X	1
16	X	X	X	X	X	X	X	X	X	X	X	X	1
17	X	X	X	X	X	X	X	X	X	X	X	X	1
18	X	X	X	X	X	X	X	X	X	X	X	X	1
19	X	X	X	X	X	X	X	X	X	X	X	X	1
20	X	X	X	X	X	X	X	X	X	X	X	X	1
21	X	X	X	X	X	X	X	X	X	X	X	X	1
22	X	X	X	X	X	X	X	X	X	X	X	-	0.83
23	X	X	X	X	X	X	X	X	X	X	X	X	1
24	X	X	X	X	X	X	X	X	X	X	X	X	1
25	X	X	X	X	X	X	X	-	X	X	X	X	0.92
26	X	X	X	X	X	X	X	X	X	X	X	X	1
27	X	X	X	-	X	X	X	X	X	X	X	X	0.92
28	X	X	X	X	X	X	X	X	X	X	X	X	1
29	X	X	X	X	X	X	X	X	X	X	X	X	1
30	X	X	-	X	-	X	X	-	X	X	X	-	0.67
31	X	X	-	X	-	X	X	-	X	X	X	-	0.67
32	X	X	-	X	-	X	X	-	X	X	X	-	0.67
33	X	X	-	X	-	X	X	-	X	X	X	-	0.67
34	X	X	-	X	-	X	X	-	X	X	X	-	0.67
35	X	X	-	X	-	X	X	-	X	X	X	-	0.67
36	X	X	-	X	-	X	X	-	X	X	X	-	0.67
37	X	X	-	X	-	X	X	-	X	X	X	-	0.67
38	X	X	-	-	X	X	X	-	X	X	X	-	0.67
39	X	X	-	X	-	X	X	-	X	X	X	-	0.67
40	X	X	-	X	-	X	X	-	X	X	X	-	0.67
41	X	X	X	X	-	X	X	X	X	-	-	-	0.67
42	X	X	-	X	-	X	X	-	X	X	X	-	0.67

CVI: Content Validity Index; YASTA: The Scale of Perceiving the Attitudes of Healthcare Professionals by Elderly.

TABLE 2: Findings of exploratory factor analysis, confirmatory factor analysis, and fit indices of the YASTA scale.

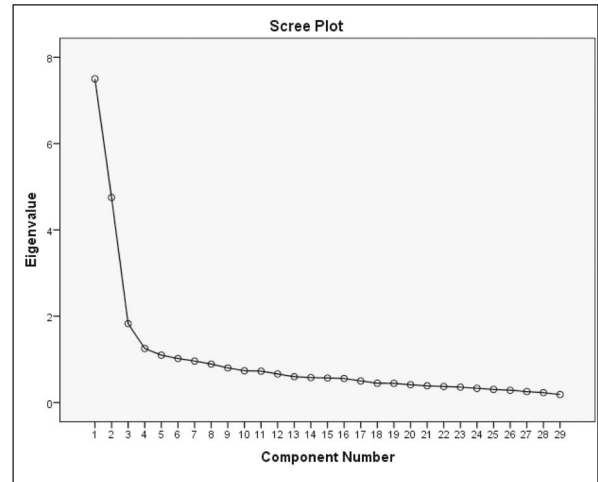
	Positive perception	Negative perception
Item 1	0.534	
Item 2	0.640	
Item 3		0.533
Item 4		0.602
Item 5	0.664	
Item 6	0.651	
Item 7		0.436
Item 8	0.674	
Item 9		0.540
Item 10	0.616	
Item 11		0.592
Item 12	0.757	
Item 13		0.650
Item 14	0.660	
Item 15	0.627	
Item 16		0.605
Item 17	0.788	
Item 18		0.670
Item 19	0.757	
Item 20		0.642
Item 21	0.655	
Item 22		0.654
Item 23		0.521
Item 24		0.629
Item 25	0.611	
Item 26		0.625
Item 27	0.544	
Item 28	0.719	
Item 29		0.631
Factor core values	6.998	5.254
Explained variance values of the factors (%)	24.132	18.118
Total variance (%)	42.250	
KMO	0.886	
Barlett test of sphericity	$\chi^2=3892.306$; SD =406; p =0.000	
RMSEA	0.0949 ($\chi^2=726.717$; Df =202; p =0.000)	
Cronbach Alpha value	0.83 (29 items)	

χ^2 : Chi-square; p: Significance level; YASTA: The Scale of Perceiving the Attitudes of Healthcare Professionals by Elderly; KMO: Kaiser-Meyer-Olkin; RMSEA: Root Mean Square Error of Approximation; SD: Standard deviation; Df: Degree of freedom.

of 1,610 or less indicates that there is a perception of discrimination, and a score of more than 1,610 indicates that there is no perception of discrimination.

FINDINGS REGARDING THE EVALUATION OF THE CHARACTERISTICS OF ELDERLY INDIVIDUALS WITH THE YASTA SCALE

According to the total average score of the elderly individuals participating in the study from the YASTA scale, it was determined that the elderly individuals

**FIGURE 1:** Scree plot (YASTA).

YASTA: The Scale of Perceiving the Attitudes of Healthcare Professionals by Elderly.

perceived negative discrimination from the attitudes of nurses and physicians (Table 3).

When the relationship between the ages of the elderly individuals and the YASTA scale and its sub-dimensions was examined, it was found that there was a very weak and negative correlation between the age of the elderly individuals and the negative perception of nurses and physicians sub-dimensions (Table 4).

When the demographic characteristics of the elderly individuals who evaluated the nurses and their total scores from the YASTA scale were compared; According to the gender ($p=0.516$), marital status ($p=0.543$), income status ($p=0.059$), whether they have any disease ($p=0.061$) and being discriminated against by nurses ($p=0.935$), the YASTA scale there was no statistically significant difference in the scores they received; it was found that there was a statistically significant difference in the scores they got from the YASTA scale according to their educational status ($p=0.002$), fear of death ($p=0.033$), and easy access to health services ($p=0.000$) (Table 5). Accordingly, it was found that literate elderly individuals do not perceive discrimination from the attitudes of nurses, elderly individuals who are primary, secondary, high school and university graduates perceive discrimination from the attitudes of nurses, whether they are afraid of death or not, whether they can easily access health services or not, all elderly in-

TABLE 3: Comparison of scores of elderly individuals evaluating nurses and physicians from the YASTA scale and its sub-dimensions.

		\bar{X}	SD	Minimum	Maximum
Nurse	Positive perception	897.92	311.08	15	1500
	Negative perception	661.33	268.99	40	1300
	YASTA	1559.25	373.51	505	2630
Physician	Positive perception	918.75	316.61	15	1500
	Negative perception	679.65	268.94	40	1300
	YASTA	1598.41	389.79	505	2630

SD: Standard deviation; YASTA: The Scale of Perceiving the Attitudes of Healthcare Professionals by Elderly.

TABLE 4: The relationship between ages of elderly individuals evaluating nurses and physicians, and the YASTA scale and its sub-dimensions.

		Positive perception		Negative perception		YASTA	
		Nurse	Physician	Nurse	Physician	Nurse	Physician
Age	Rho	0.084	0.112	-0.120	-0.118	0.001	0.022
	p value	0.145	0.053	0.038*	0.040*	0.985	0.704

*p<0.0; Spearman Correlation test rho value; YASTA: The Scale of Perceiving the Attitudes of Healthcare Professionals by Elderly.

dividuals perceive discrimination from the attitudes of nurses.

When the demographic characteristics of the elderly individuals who evaluated the physicians and their total scores from the YASTA scale were compared; there was no statistically significant difference according to the gender (p=0.697), marital status (p=0.411), fear of death (p=0.074) and discrimination by physicians (p=0.135); A statistically significant difference was found according to their education (p=0.000), income status (p=0.029), presence of any disease (p=0.024) and easy access to health services (p=0.001) (Table 5). Accordingly, elderly individuals who are literate and primary school graduates, whose income is below the hunger threshold, who have any disease, and who can easily access health services do not perceive discrimination from the attitudes of physicians; It was found that elderly individuals who are secondary school, high school and university graduates, whose income is above the hunger limit, who do not have any disease, and who cannot easily access health services, perceive discrimination from the attitudes of physicians.

DISCUSSION

It is a fact known and accepted by the whole world that health is a right for everyone, regardless of any

factors, everyone should be able to access the health service they need fairly and without damaging their dignity. However, the attitude of healthcare professionals and how elderly individuals perceive it are important for elderly individuals to reach healthcare services without hesitation. In the current study, a new scale was developed to determine how the attitudes of healthcare professionals are perceived by elderly individuals, and the psychometric properties and cut-off value of the developed YASTA scale were determined. It is thought that determining the psychometric properties of a scale, especially its cut-off value, will make an important contribution to the literature.

According to the total scores of the elderly individuals participating in the study from the YASTA scale, it can be said that they perceive negative discrimination from the attitudes of nurses and physicians. In Akbaş's study, patients complained of lack of tolerance, unequal treatment, indifference of physicians and inadequate examination.²⁷

When the total scores of the elderly individuals evaluating nurses and physicians were compared according to their gender, no statistically significant difference was found, Duncan and Loretto stated that women face more discrimination compared to men, and other studies have shown that men perceive more

TABLE 5: Comparison of demographic characteristics of elderly individuals evaluating nurses and physicians and YASTA scale total scores.

	Nurse				Physician					
	\bar{X}	SD	$z^* t^{**} \chi^{2***}$	p value	Binary difference	\bar{X}	SD	$z^* t^{**} \chi^{2***}$	p value	Binary difference
Gender	Male (1)	1510	148.40	-0.650*	0.516	1600	149.44	-0.390*	0.697	
	Female (2)	1500	155.09			1520	153.45			
Marital status	Married (1)	1510	148.82	-0.608*	0.543	1585.15	402.63	-0.824**	0.411	
	Single (2)	1500	155.26			1624.27	363.97			
Educational status	Literate (1)	1690	188.66	16.792***	0.002	1870	211.05	22.435***	0.000	1>2 (p=0.016)
	Primary school graduate (2)	1525	161.35			1615	159.85			1>3 (p=0.010)
	Secondary school graduate (3)	1540	150.78			1580	149.08			1>4 (p=0.001)
	High school graduate (4)	1370	113.30			1370	119.97			1>5 (p=0.000)
	University graduate (5)	1500	123.53			1500	114.37			2>4 (p=0.013) 2>5 (p=0.004)
Income status	Below the hunger limit (1)	1515	162.49	-1.891*	0.059	1660	164.25	-2.181*	0.029	
	Above the hunger limit (2)	1500	143.17			1520	141.97			
Presence of any disease	Yes (1)	1535	157.97	-1.871*	0.061	1650	159.41	-2.258*	0.024	
	None (2)	1460	138.36			1490	135.75			
Fear of death	Yes (1)	1595	168.74	-2.127*	0.033	1680	165.91	-1.789*	0.074	
	None (2)	1480	144.58			1520	145.60			
Easy access to health services	Yes (1)	1560	158.60	-3.662*	0.000	1640	157.65	-3.203*	0.001	
	None (2)	1350	106.60			1370	112.17			
State of being exposed to discrimination	Yes (1)	1450	149.50	-0.082*	0.935	1765	178.40	-1.496*	0.135	
	None (2)	1510	151.11			1545	148.94			

*Mann-Whitney U test; **T-test; ***Kruskal-Wallis; SD: Standard deviation; YASTA: The Scale of Perceiving the Attitudes of Healthcare Professionals by Elderly; SD: Standard deviation.

discrimination than women.^{9,28,29} The underlying reason for these differences is thought to be cultural.

In the present study, it was found that elderly individuals without any disease perceived discrimination from the attitudes of physicians. Studies have shown that elderly individuals with a disease may experience higher levels of negative attitudes than healthy elderly individuals.^{30,31}

Studies show that participants with more negative stereotypes experience significantly more memory loss, negatively affecting working memory function.^{8,32} It suggests that exposure to positive aging stereotypes may help older individuals both to reduce the amount of stress they experience and to recover from stressful events. Reinforcing positive stereotypes offers the possibility of reducing illness and increasing independence. In addition, individuals who regularly experience negative health stereotypes may be more susceptible to the stresses and illnesses associated with living these stereotypes. Mandelblatt et al. 2003 stated that patients who perceive discrimination think that they have no treatment options, they feel more bodily pain, their mental and mental health levels are lower, and their overall satisfaction is low.³³ In the study of Coudin and Alexopoulos, elderly individuals who encounter negative attitudes feel lonely, their health status deteriorates, they avoid taking any risks and they systematically want to get help in their social environment, that is, they are dependent; reported that elderly individuals who were made the object of a negative attitude were defensive, insecure and suspicious.³⁴ Clark et al. found that exposure to discrimination was significantly associated with stress, depression, anxiety and post-traumatic stress disorder.³⁵

In line with the findings of the current study and the literature, it was thought that the elderly individuals were affected by the attitudes of health workers and this situation might hinder their application to health institutions and their treatment.

There are several limitations to the study. First of all, since the research was conducted in Eskişehir, the data are limited to elderly individuals living in Eskişehir. Another limitation is that all elderly individuals in the places where the data were collected

could not be reached on the days and hours of data collection.

CONCLUSION

As a result of the reliability and validity analyzes made for the 29-item YASTA scale developed by the researcher, the YASTA scale is an appropriate tool to measure how the attitudes of healthcare professionals are perceived by the elderly, the cut-off value is 1,610, and the elderly individuals who score 1,610 points or less have a perception of discrimination. It was concluded that the elderly individuals who scored 1,611 points and above did not have a perception of discrimination.

For future research, the YASTA scale, which was developed for the first time, should be used in many different studies in order to mature its structure, and its validity and reliability should be retested and different studies should be conducted in which this scale will be used; the application of the researchers who will conduct research on this subject on different health professional groups based on this developed scale; and researchers who will conduct research on this subject, based on this scale developed, it can be suggested that studies in which the physician and nurse who provide health services to elderly individuals and the elderly person who receive health services are simultaneously questioned about discrimination.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

All authors contributed equally while this study preparing.

REFERENCES

1. Butler RN. Ageism: another form of bigotry. *Gerontologist*. 1969;9(4):243-6. [[Crossref](#)] [[PubMed](#)]
2. Lewis TT, Barnes LL, Bienias JL, Lackland DT, Evans DA, Mendes de Leon CF. Perceived discrimination and blood pressure in older African American and white adults. *J Gerontol A Biol Sci Med Sci*. 2009;64(9):1002-8. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
3. Ünalın D, Soyuer F, Elmali F. Geriatri merkezi çalışanlarında yaşlı tutumunun değerlendirilmesi [Evaluation of the attitudes of the geriatric care center workers towards elderly patients]. *Kafkas Tıp Bilimleri Dergisi*. 2012;2(3):115-20. [[Crossref](#)]
4. Bryman A, Cramer D. *Quantitative Data Analysis with SPSS Release 10 for Windows: A Guide for Social Scientists*. 1st ed. New York: Routledge; 2002. [[Crossref](#)]
5. Folstein MF, Folstein SE, McHugh PR. "Mini-mental state". A practical method for grading the cognitive state of patients for the clinician. *J Psychiatr Res*. 1975;12(3):189-98. [[Crossref](#)] [[PubMed](#)]
6. Gungen C. Standardize Mini Mental Test'in Turk toplumunda hafif demans tanısında geçerlik ve güvenilirliği [Reliability and validity of the standardized mini mental state examination in the diagnosis of mild dementia in Turkish population]. *Türk Psikiyatri Dergisi*. 2002;13(4):273-81. [[Link](#)]
7. Çilingirođlu N, Demirel S. Yaşlılık ve yaşlı ayrımcılığı [Aging and ageism]. *Türk Geriatri Dergisi*. 2004;7(4):225-30. [[Link](#)]
8. Levy BR, Hausdorff JM, Hencke R, Wei JY. Reducing cardiovascular stress with positive self-stereotypes of aging. *J Gerontol B Psychol Sci Soc Sci*. 2000;55(4):P205-13. [[Crossref](#)] [[PubMed](#)]
9. Duncan C, Loretto W. Never the right age? Gender and age-based discrimination in employment. *Gender Work and Organization*. 2004;11(1):95-115. [[Crossref](#)]
10. Bodner E, Bergman YS, Cohen-Fridel S. Different dimensions of ageist attitudes among men and women: a multigenerational perspective. *Int Psychogeriatr*. 2012;24(6):895-901. [[Crossref](#)] [[PubMed](#)]
11. Kutlu Y, Kucuk L, Yildiz Findik U. Psychometric properties of the Turkish version of the Fraboni Scale of Ageism. *Nurs Health Sci*. 2012;14(4):464-71. [[Crossref](#)] [[PubMed](#)]
12. Schroyen S, Missotten P, Jerusalem G, Gilles C, Adam S. Ageism and caring attitudes among nurses in oncology. *Int Psychogeriatr*. 2016;28(5):749-57. [[Crossref](#)] [[PubMed](#)]
13. Tufan F, Yuruyen M, Kizilarslanoglu MC, Akpinar T, Emiksiye S, Yesil Y, et al. Geriatrics education is associated with positive attitudes toward older people in internal medicine residents: a multicenter study. *Arch Gerontol Geriatr*. 2015;60(2):307-10. [[Crossref](#)] [[PubMed](#)]
14. Kabátová O, Botíková A, Uričková A, Slaný J. Difference in the level of ageist attitudes of nurses and nursing students. *Kontakt*. 2015;17(3):e138-e41. [[Crossref](#)]
15. Nash P, Stuart-Hamilton I, Mayer P. The continuation of prejudice: addressing negative attitudes in nurse training and continuing professional education. *Educational Gerontology*. 2014;40(1):53-60. [[Crossref](#)]
16. Allan LJ, Johnson JA, Emerson SD. The role of individual difference variables in ageism. *Personality and Individual Differences*. 2014;59:32-7. [[Crossref](#)]
17. Liu YE, While AE, Norman IJ, Ye W. Health professionals' attitudes toward older people and older patients: a systematic review. *J Interprof Care*. 2012;26(5):397-409. [[Crossref](#)] [[PubMed](#)]
18. Luo B, Zhou K, Jin EJ, Newman A, Liang J. Ageism among college students: a comparative study between U.S. and China. *J Cross Cult Gerontol*. 2013;28(1):49-63. [[Crossref](#)] [[PubMed](#)]
19. Kogan N. Attitudes toward old people: the development of a scale and an examination of correlates. *J Abnorm Soc Psychol*. 1961;62:44-54. [[Crossref](#)] [[PubMed](#)]
20. Palmore E. The ageism survey: first findings. *Gerontologist*. 2001;41(5):572-5. [[Crossref](#)] [[PubMed](#)]
21. Fraboni M, Saltstone R, Hughes S. The Fraboni Scale of Ageism (FSA): An attempt at a more precise measure of ageism. *Canadian Journal on Aging*. 1990;9(1):56-66. [[Crossref](#)]
22. Lynn MR. Determination and quantification of content validity. *Nurs Res*. 1986;35(6):382-5. [[Crossref](#)] [[PubMed](#)]
23. Sencan H. Faktör analizi ve güvenilirlik. Güvenilirlik ve Geçerlilik. 1. Baskı. Ankara: Seçkin Yayıncılık; 2005. p.355-414.
24. Buyukozturk S, Kılıç Çakmak E, Akgün ÖE, Karadeniz Ş, Demirel F. Eğitimde Bilimsel Araştırma Yöntemleri. 25. Baskı. Ankara: Pegem Akademi; 2018. [[Crossref](#)]
25. Ozdamar K. Paket Programlar ile İstatistiksel Veri Analizi II. 9. Baskı. Eskişehir: Nisan Kitabevi Yayınları; 2013.
26. Alpar C. Uygulamalı Çok Değişkenli İstatistiksel Yöntemler. 5. Baskı. Ankara: Detay Yayıncılık; 2017.
27. Akbaş E. Sağlık hizmetlerinde hasta memnuniyeti ve hasta memnuniyetini etkileyen faktörler (Manisa Merkezefendi devlet hastanesi örneği) [Yüksek lisans tezi]. İstanbul: Beykent Üniversitesi; 2014. Erişim tarihi 13.02.2024 Erişim linki: [[Link](#)]
28. Bodner E, Cohen-Fridel S. Relations between attachment styles, ageism and quality of life in late life. *Int Psychogeriatr*. 2010;22(8):1353-61. Erratum in: *Int Psychogeriatr*. 2010;22(8):1362. [[Crossref](#)] [[PubMed](#)]
29. Bodner E, Cohen-Fridel S, Yaretzky A. Sheltered housing or community dwelling: quality of life and ageism among elderly people. *Int Psychogeriatr*. 2011;23(8):1197-204. [[Crossref](#)] [[PubMed](#)]
30. Chachamovich E, Fleck M, Laidlaw K, Power M. Impact of major depression and subsyndromal symptoms on quality of life and attitudes toward aging in an international sample of older adults. *Gerontologist*. 2008;48(5):593-602. [[Crossref](#)] [[PubMed](#)]
31. Trigg R, Watts S, Jones R, Tod A, Elliman R. Self-reported quality of life ratings of people with dementia: the role of attitudes to aging. *Int Psychogeriatr*. 2012;24(7):1085-93. [[Crossref](#)] [[PubMed](#)]
32. Schmader T, Johns M. Converging evidence that stereotype threat reduces working memory capacity. *J Pers Soc Psychol*. 2003;85(3):440-52. [[Crossref](#)] [[PubMed](#)]
33. Mandelblatt JS, Edge SB, Meropol NJ, Senie R, Tsangaris T, Grey L, et al. Predictors of long-term outcomes in older breast cancer survivors: perceptions versus patterns of care. *J Clin Oncol*. 2003;21(5):855-63. [[Crossref](#)] [[PubMed](#)]
34. Coudin G, Alexopoulos T. 'Help me! I'm old!' How negative aging stereotypes create dependency among older adults. *Aging Ment Health*. 2010;14(5):516-23. [[Crossref](#)] [[PubMed](#)]
35. Clark US, Miller ER, Hegde RR. Experiences of discrimination are associated with greater resting amygdala activity and functional connectivity. *Biol Psychiatry Cogn Neurosci Neuroimaging*. 2018;3(4):367-78. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]