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RESEARCH

DEVELOPMENT AND PSYCHOMETRIC EVALUATION OF AGEISM ATTITUDE SCALE AMONG THE UNIVERSITY STUDENTS

ABSTRACT

Introduction: This study was conducted to psychometrically analyze the assessment tool developed to determine university students' attitudes towards ageism. Ageism is a result of society's, family members' and young peoples' negative attitudes in general against elderly individuals and ageing. We think that the scale developed in this study will make a significant contribution to the subject in this field. In this respect, first determining the attitudes of the university students towards ageism would make a contribution to have more positive university students' attitudes and behaviors towards the elderly and ageing.

Materials and Method: The research sample was comprised of one university's students chosen using a size-proportional stratified random sampling method. A total of 500 students (291 female, 209 male) were included in the sample. As the data collection tool, the Ageism Attitude Scale (AAS) has been developed.

Results: The Ageism Attitude Scale contains 23 items and three dimensions (restricting life of the elderly, positive ageism, negative ageism). Statistically significant relationship differences were determined among all survey items ($p<0.01$). The scale's total internal consistency coefficient (Cronbach alpha) was found to be 0.80.

Conclusion: The findings obtained show that this scale is a valid and reliable instrument at the desired level for determining university students' attitudes towards ageism.

Key Words: Aged; Prejudice; Instrumentation.

ARAŞTIRMA

ÜNİVERSİTE ÖĞRENCİLERİNDE YAŞLI AYRIMCILIĞI TUTUM ÖLÇEĞİNİN GELİŞTİRİLMESİ VE PSİKOMETRİK DEĞERLENDİRMESİ

ÖZ

Giriş: Bu araştırma, üniversite öğrencilerinin yaşlı ayrımcılığına ilişkin tutumlarının belirlenmesine yönelik geliştirilen ölçme aracının psikometrik açıdan incelenmesi amacıyla gerçekleştirilmiştir. Yaşlı ayrımcılığı; toplum, aile bireyleri ve gençlerin genel olarak yaşlı bireylere ve yaşlanmaya karşı taşıdıkları olumsuz tutumlardan kaynaklanmaktadır. Bu araştırmada geliştirilen ölçeğin konu ile ilgili alana önemli katkı vereceği düşünülmektedir. Öncelikle üniversite öğrencilerinin yaşlı ayrımcılığına ilişkin tutumlarının belirlenmesi, gelecek neslin yaşlı ve yaşlanmaya ilişkin daha olumlu tutum ve davranış geliştirmelerine katkıda bulunacaktır.

Gereç ve Yöntem: Araştırmanın örneklemini bir üniversitede öğrenim gören ve büyüklüğe orantılı tabakalı seçkisiz örnekleme yöntemi kullanılarak seçilen öğrenciler oluşturmuştur. Örneklem kapsamına toplam 500 öğrenci (291 kız, 209 erkek) alınmıştır. Veri toplama aracı olarak Yaşlı Ayrımcılığı Tutum Ölçeği (YATÖ) geliştirilmiştir.

Bulgular: Yaşlı Ayrımcılığı Tutum Ölçeği 23 madde ve üç boyuttan (yaşlının yaşamını sınırlama, yaşlıya yönelik olumlu ayrımcılık, yaşlıya yönelik olumsuz ayrımcılık) oluşmaktadır. Ölçeğin tüm maddeleri arasında istatistiksel olarak anlamlı ilişki olduğu belirlenmiştir ($p<0.01$). Ölçeğin toplam iç tutarlılık katsayısının (Cronbach's) 0.80 olduğu bulunmuştur.

Sonuç: Elde edilen bulgular ölçeğin; üniversite öğrencilerinin yaşlı ayrımcılığına ilişkin tutumlarını belirlemede istenen düzeyde geçerli ve güvenilir bir ölçme aracı olduğunu ve bu konuda yapılacak diğer çalışmalarda kullanılabileceğini göstermektedir.

Anahtar Sözcükler: Yaşlı; Önyargı; Değerlendirme.

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INTRODUCTION

Since the beginning of the 20th Century, there has been an increase in the percentage of the population which reaches an advanced age as a result of the fall in fertility rate, improvement in nutritional conditions, improvement of basic public health services, and control of infectious diseases (1). Ageing is an irreversible and unavoidable physiological process that affects all body systems. As the average human lifespan and thus the elderly population increased, old age, one of the physiological periods of human life, has begun to gain importance today. Ageism and ageing have become concepts that need to be analyzed personally, socially, and culturally (2).

The World Health Organization defines the period of old age chronologically to be the 65 years and older age group (3). In reports associated with ageing by the United Nations, the beginning age is 60 years old (4). In 2008 the population of those 65 years and older in the world was around 470 million; it is expected to be 671 million in 2025 and approximately 1 billion in 2050. The rate of increase in the elderly population is twice the rate of increase in the total population and it is estimated that in 2025 the population 60 years and older will be 14% of the total world population (5).

The elderly population is also increasing in developing countries, particularly in Asia. Turkey is one of the developing countries in Asia with a rapidly increasing elderly population (2). In the last 20 years in Turkey, the average life expectancy has increased and the fertility rate has decreased which has resulted in a continual rise in the population of those 65 years and older (4). According to the 2003 Turkey Demographic and Health Survey, 6.9 percent of the population in our country was 65 years and older (6). It is estimated that 10 percent of the population will be elderly in Turkey in 2025 and 20% will be elderly in 2050, which will be approximately equal to 15 million people (5). It is predicted that this rapid increase in the world's elderly population in the near future will lead to significant problems in families and society. These problems are expected to be in the areas of: use of health care services, covering health expenses, organization and financing of social insurance institutions, social support from family and friends, period of retirement, adaptation to ageing process, difficulty in obtaining adequate income, accommodation, adequate services and job opportunities (7, 8). Ageism occurs as the social outcome of these problems which may be experienced by elderly individuals (9).

The term ageism was used for the first time in 1969 by Robert Butler, the director of the American National Institute on Ageing. Gerontologist Robert Butler defined ageism as discrimination against elderly individuals which can be translated into actions similar to race and gender discrimination (9). Palmore defined ageism as a term explaining the attitudes and behaviors used as prejudice against individuals at an advanced age (10). In the literature, ageism is defined as having attitudes, prejudices, actions and activities towards an individual who is different just because of his/her age (9, 11).

People consider old age to be a period when there is a decrease in productivity, ability and independence in all areas of life. The society's attitudes towards elderly individuals and ageing are rife with prejudice and stereotypes (12, 13). Ageism includes beliefs (elderly people are ugly, contrary, ill, etc.) and attitudes (preference for young people and being young over old age) that can be turned into behaviors. When data about ageism are evaluated, positive and negative attitudes are considered together. Among the negative attitudes about ageism are elements such as illness, impotence, ugliness, retardation in mental functions, mental illness, worthlessness, isolation, poverty and depression; the positive attitudes are compassion, knowledge, reliability, intelligence, political power, freedom and happiness (10).

Today the majority of those who demonstrate discriminatory behavior against elderly individuals are young people. The previous studies have indicated that young people and students have negative attitudes towards elderly individuals (14, 15, 16, 17). In a study by McConatha et al. (2004), it was determined that Turkish students enjoy spending time with elderly individuals, visiting elderly relatives and assisting elderly individuals more than American students do (18). Among the studies conducted on nursing students; while Moyle (2003) reported that students' most common perceptions of the elderly were that they are fragile, weak and ill individuals (19), McKinlay and Cowan (2003), on the other hand, reported that students have positive attitudes towards elderly patients (20).

Societies consider old age to be a bad period of time that should be avoided if possible (10). Today, elderly individuals face discrimination in many countries throughout the world. In general, the sources of this discrimination are the negative attitudes held by society, family members and, in particular, young people against elderly individuals and ageing (9, 10, 13). For this reason, it is extremely important to determine the attitudes of young people, who comprise one fourth (18.7 percent) of Turkey's population, towards ageism (6). By determining the young people's attitudes towards ageism, it

may become possible to enable the next generations to develop more positive, respectful and tolerant attitudes and behaviors towards the elderly and ageing.

Literature review on the existing scales aiming to measure ageism revealed that these were rather suited to Western societies, insufficient to measure attitudes on ageism in the Turkish context. Therefore, the purpose of this study was to develop a valid and reliable instrument to determine the attitudes of university students towards ageism in Turkey.

Materials and Method

Sample

The scale was applied to 500 students (291 female, 209 male) who had been selected through "Proportional Stratified Random Sampling Method" among the students attending to the departments which have been determined through "Simple Random Sampling Method" in the faculties and colleges of the Hacettepe University[1]. The male and female students who would be included in the sample were selected through "Simple Random Sampling Method". Based on this sampling method, all the students in class lists were given a number and then the students who would be included in the sample were determined by using the simple random numbers table. In case of absence (32 students) and rejection (84 students), replacements were determined by re-running the sampling procedure in order to reach the desired size of 500 responses. In this way, the entire sample was accessed.

In the examination of the students' demographic characteristics; it was determined that their mean age was 23.19 years (SD 3.04); 58.2 percent of the students were female; 47.3 percent attended to social sciences, 32.4 percent in science, and 20.3 percent in health sciences departments at the university.

Data were collected by the researchers between February and March 2007. The tool was administered during recess in the classes and the first five to ten minutes of the lesson was also used by asking verbal permission from the responsible instructor. The students individually completed the instrument that took approximately 20 minutes to complete. The participants were not given any rewards (bonus points, money etc.) in return for their participation.

Materials

The Ageism Attitude Scale (AAS) was developed in the study as the data collection tool. The scale consisted of positive and negative attitudinal sentences to determine the students' attitudes towards ageism. The students' positive attitude sentences regarding ageism were scored as 5 points for 'completely agree,' 4 points for 'agree,' 3 points for 'unsure,' 2 points for 'disagree,' and 1 point for 'absolutely disagree.' The negative attitude sentences regarding ageism were scored opposite to the positive sentences: 1 point for 'completely agree,' 2 points for 'agree,' 3 points for 'unsure,' 4 points for 'disagree', and 5 points for 'absolutely disagree.' The highest possible score from the survey was 190 and the lowest was 38 according to this scoring scale.

Ethical Issues

Permission to conduct this research was obtained from the ethics committee of the university as a written document. Likewise, the research data were collected after receiving informed written consent from the students included in the sample.

Analysis of the Data

Reliability and validity tests were applied to the AAS consisting of 38 items. Cronbach alpha reliability coefficient and Pearson's Product Moment Correlation Coefficient were used to measure the reliability of the AAS and its subscales. Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was used for the construct validity of the AAS in order to test whether or not the data obtained was homogeneous. The value of 0.819 obtained as a result of the test shows that the data was homogeneous for using in factor analysis. Additionally, Bartlett's test of spheroid, which tests whether the correlation matrix is an identity matrix, was significant ($p<0.01$).

The instrument's construct validity was determined by using rotational factor analysis. The Principle Component Technique and Varimax rotation method were used for this analysis. The Eigen value and explained percentage in factor analysis were examined for the purpose of determining which items belonged in how many factors.

The distribution of the average and median scores of AAS according to sociodemographic characteristics of students were evaluated with descriptive statistics and hypothesis tests (mean, standard deviation, median, minimum and maximum values, One Way ANOVA, Kruskal Wallis test and Mann Whitney U test).

RESULTS

Findings Related to the Ageism Attitude Scale's Validity

Creating appropriate attitudinal expressions through interviewing the old and having students write essays, and taking expert opinion about the attitude scale have become important factors in ensuring the content validity of the AAS. Since senior individuals are the suffering party of ageism, their views on this matter were taken first. A semi-structured interview on ageism was prepared, which was applied to a total of 20 persons (10 females and 10 males) at ages 65-74 distributed among age groups (65-69, 70-74) and educational achievement groups (illiterate, primary school graduate, middle school graduate, high school graduate, higher educated graduate).

A semi-structured interview form was prepared to use for the development of survey items that would be used to determine university students' attitudes towards their ageism. The semi-structured interview form was administered to a total of 40 students by choosing four female and four male students from each class (years one-five) in the pharmacist school. Students' statements on the interview form that could be considered as attitude statements were identified.

These statements were rewritten as complete statements according to grammar rules with consultation with an expert in measurement assessment and an expert in the field of psychology. Thus the AAS's framework was created. Additionally, studies conducted on the subject of ageism and instruments developed in other countries on this subject were used for the development of items on the scale (10, 12-33). The result of this preliminary work was a rough draft survey containing 94 items about ageism.

These items about ageism were sent to six experts in different disciplines who have done work on the subject of ageism and ageing (Women's Health Nursing experts, Community Health expert, Sociology expert, Educational Testing and Evaluation expert, and Social Psychology expert). The experts were asked to send their views within 1 week. These experts were asked to evaluate the attitude statements for; appropriateness to the goal, comprehensibility, and representative of the area of interest for measurement. The experts gave their opinions by marking each item as 'completely appropriate,' 'appropriate but needs changes,' or 'not appropriate.' 56 items were removed from 94-item rough draft survey as a result of the expert opinions; which was an important part of the research of the instrument's construct validity. A 38-item survey was used in the instrument's validity and reliability study; and a final 38-item survey was created as a result of these analyses.

The scale was tested in terms of the clarity of attitudinal expressions through a pilot study on 50 students composed of five female and five male students from each grade (1st, 2nd, 3rd, 4th and 5th), and the other steps of scale development were proceeded since no negativeness was expressed about the scale in the feedbacks.

Item analysis and factor analysis with rotation were used to test the construct validity of the AAS. In the item analysis; the Pearson's Product Moment Correlation coefficient and item-total score correlations were first calculated. Correlation coefficients were determined to be between 0.30-0.50 and the relationship between them was statistically significant ($p<0.01$, see Table 1) in the examination of the survey's item-total score correlations. It was decided to remove item number 7 as a result of this analysis because it's item-total score correlation was found to be less than 0.25 (total item correlation of item number 7= 0.16); and the total number of items was decreased to 37 (see Table 2).

An item analysis of the differences in the upper and lower group means for the scale items was implemented in the second stage. According to this analysis; a statistically significant difference was found in the 'p' values for the top and bottom 27 percent ($p<0.01$, see Table 1).

Factor having a load less than 0.30 from the scale (items numbered 6, 10, 11, 12, 14, 15, 16, 17, 20, 21, 23, 30, 32, 36), were removed after factor analysis (see Table 2). Thus, the scale was constructed into its final format with 23 items. The factor matrix with rotation showed that the instrument was comprised of 23 items and three factors. The items' factor load values were between 0.51 and 0.72. The eigen values for all factors were greater than one and were found to explain 54 percent of the variance (see Table 1).

- Factor 1 was 'restricting life of the elderly' and was comprised of nine items. The explained variance was 18.67 percent.
- Factor 2 was 'positive ageism' and was comprised of eight items. The explained variance was 18.23 percent.
- Factor 3 was 'negative ageism' and was comprised of six items. The explained variance was 17.14 percent.

Findings Related to Ageism Attitude Scale's Reliability

The scale's reliability was measured with Cronbach alpha reliability coefficient. The scale's and subscales' Cronbach alpha

Table 1— Mean, SD and Item analysis of attitudes towards ageism and Rotated factor matrix of Ageism Attitude Scale (n= 500)[1]

	M	±SD	Total Item Correlation (p<0.001)	t value (p<0.001)	Loading on Primary Factor	Cronbach's α r (p<0.001)
A. Restricting life of elderly (*eigenvalue 4.24, explained variance 18.67, Cronbach α 0.70*)						
A1. The external appearance of the elderly is repulsive.	4.23	0.96	0.39	8.865	0.668	0.60
A2. Care of the elderly should not be considered to be an economic burden by family members.	4.50	0.77	0.40	8.131	0.679	0.64
A3. Elderly people can't carry bags and packages without help.	4.40	0.76	0.30	5.548	0.712	0.53
A4. It is unnecessary for the elderly to buy homes, cars, possessions or clothes.	4.22	0.79	0.45	8.694	0.516	0.64
A5. The elderly should live in homes for the elderly.	4.09	0.94	0.46	10.433	0.518	0.69
A6. Lives of the elderly should be limited to their homes.	4.60	0.66	0.34	6.509	0.594	0.52
A7. Elderly people should be paid less than young people in their work lives.	4.08	0.77	0.39	7.907	0.581	0.58
A8. Preference should be given to care for young people over the elderly in the hospital.	4.17	0.95	0.41	8.403	0.610	0.65
A9. Elderly people who lose their spouses should not remarry.	3.82	0.98	0.38	7.945	0.507	0.55
B. Positive ageism (*eigenvalue 4.12, explained variance 18.23, Cronbach α 0.70*)						
B1. Elderly people are more tolerant than young people.	3.41	0.95	0.46	9.689	0.715	0.66
B2.Elderly people are more compassionate.	3.89	0.87	0.49	10.327	0.645	0.71
B3. When decisions are made in the family the opinions of the elders should be considered.	3.96	0.93	0.35	6.494	0.585	0.59
B4. The elderly should be shown importance by the family members with whom they live.	3.91	0.86	0.39	7.586	0.576	0.59
B5. Elderly people are more patient than young people.	3.12	1.12	0.38	7.515	0.615	0.60
B6. Young people should learn from the experiences of elderly people.	4.38	0.74	0.38	7.588	0.707	0.59
B7. When the family budget is being developed the opinions of the elderly should be sought.	3.84	0.87	0.40	7.956	0.546	0.64
B8. Preference should be given to the elderly in places where waiting in line is required.	4.10	1.24	0.34	6.934	0.527	0.57
C. Negative ageism (*eigenvalue 4.07, explained variance 17.14, Cronbach α 0.67*)						
C1. Preference should be given to young people for promotions in work situations.	2.74	1.09	0.42	7.962	0.687	0.60
C2. Preference should be given to young people over the elderly for hiring for jobs.	2.50	1.08	0.50	9.399	0.701	0.65
C3. Elderly people are not able to adapt to changes like young people.	2.64	1.03	0.48	9.955	0.565	0.61
C4. Elderly people are always ill.	3.20	1.00	0.42	8.727	0.526	0.60
C5. Elderly people should not go outside on their own.	3.68	0.98	0.45	9.218	0.620	0.58
C6. The basic responsibility for the elderly should be to help their children with tasks such as housework and kitchen chores and care of their grandchildren.	2.74	1.02	0.37	7.169	0. 515	0.55
Total Ageism Attitudes	**86.22**	**9.34**				**0.80**

[1]The initial AAS containing 38 statements was reduced to 23 statements after validity and reliability tests. The subsequent use of the scale involved these 23 items.

Tablo 2— The Mean, SD and Item Analysis of The Items Extracted From The Scale (n = 500)[2]

	Total Item Correlation (p<0.001)	t value (p<0.001)	Loading On Primary Factor	Cronbach's α r (p<0.001)
Behaviors of the aged are childish.	0.33	6.523	0.173	0.52
Elders are able to meet their daily needs such as bathing, eating, cleaning.	0.16	3.501	0.164	0.44
Elders can do the same job as the young.	0.34	4.776	0.221	0.48
Elders should have sufficient economic power to get married.	0.29	5.365	0.205	0.60
Children of the aged should decide how to use their money.	0.43	8.275	0.194	0.52
Elders are resentful.	0.30	4.728	0.182	0.48
Elders can wear colorful clothes.	0.29	6.040	0.186	0.62
Elders should have sexual lives.	0.35	6.550	0.163	0.61
Elders are not considered important by the young.	0.39	8.728	0.221	0.50
It is boring to spend time with elders.	0.37	12.736	0.214	0.52
Old people are irascible.	0.45	12.939	0.162	0.53
Elders can not live alone.	0.31	6.134	0.173	0.47
Nicknames such as senile, gerry or pops should not be used to address elders.	0.29	5.537	0.213	0.60
Elders should have the right to use the public transportation free of charge.	0.29	5.672	0.197	0.51
Old people are tight fisted.	0.34	8.946	0.215	0.51

[2]The analyses of the scale items -the 6th, 7th, 10th, 11th, 12th, 14th, 15th, 16th, 17th, 20th, 21st, 23rd, 30th, 32nd and 36th items- are given.

Tablo 3— Correlation Between Factors For Determination of Ageism Attitude Scale's subgroups Following Varimax Rotation

Factors	Factor 1 Restricting Life of Elderly	Factor 2 Positive Ageism	Factor 3 Negative ageism
Factor 1	1.000		
Factor 2	0.45	1.000	
Factor 3	0.36	0.28	1.000

values are shown in Table 1. The scale's Cronbach alpha reliability coefficient for 23 items was found to be 0.80. A Cronbach alpha reliability coefficient of 0.70 was found for the 'restricting life of the elderly' and 'positive ageism' subscales in the analyses of the subscales for internal consistency. The Cronbach alpha reliability coefficient of 0.67 was found for the 'negative ageism' subscale. The Cronbach's · reliability coefficients of the items extracted from the scale after the factor analysis – the 6th, 10th, 11th, 12th, 14th, 15th, 16th, 17th, 20th, 21st, 23rd, 30th, 32nd and 36th items- are presented in Table 1. The scale's factors and correlations are shown in Table 3. These results showed that the internal consistency of the scale's items with each other is high indicating that the scale has a high reliability. The total score mean from all items on the survey was 86.22 (ranging from 45-115) and the standard deviation was 9.34. All items were found to have statistically significant correlation (p<0.01).

Findings Related to The Distribution of Students' AAS Mean Points and Medians According to Their Socio-demographic Characteristics

Table 4 demonstrates that the AAS mean points are higher in the students attending social sciences departments (85.24)

Tablo 4— The Distribution of Students' AAS Mean Points and Medians According to Their Socio-demographic Characteristics (n= 500)

	Number N	Mean Standard Deviation*	Min	Max	Statistical Values F	p
Department						
Social Sciences (A_1)	216	85.24 ± 8.44	67	105		
Sciences (A_2)	112	82.46 ± 10.64	51	115	3.246	**0.020**
Health Sciences (A_3)	172	85.37 ± 7.74	59	102		
**** Significant Difference: A_1-A_2**					**F**	**p**
Grade Level						
First grade	131	84.54 ± 8.63	55	104		
Second grade	122	86.18 ± 7.57	53	111		
Third grade	109	86.55 ± 8.53	52	115	1.301	0.166
Fourth grade and above	138	86.98 ± 8.07	62	105		
Age		**Median*****	**Min**	**Max**	**KW**	**p**
18 years and below	97	84.00	57	106		
19–20 years	126	84.50	71	103		
21–22 years	172	85.00	55	110	0.745	0.625
23 years and above	105	86.00	68	105		
Gender					**Z**	**p**
Female	291	87.00	52	115	3.045	**0.002**
Male	209	83.00	52	108		

* Mean is used since the data show normal distribution. ** Tukey HSD Test. *** Median is used since the data didn't show normal distribution.
KW= Kruskal Wallis Test, Z= Mann Whitney U Test, F= One Way ANOVA Test.

and health sciences departments (85.37) than students attending science departments (82.46) (F= 3.246, $p<0.05$). According to the post hoc analysis results, it was found that this difference stems from the relationship between students attending social sciences departments and students attending science departments.

It was determined in this study that as the grade levels of students goes up, their AAS mean points increase. While the AAS mean point of students enrolled in the first grade is 83.54, the AAS mean point of students enrolled in the fourth grade is 86.98 (see Table 4, $p>0.05$). It was also determined that as students' ages increase, their AAS median points increase. While the AAS median point of students aged 18 and below is 84.00, the AAS median point of students aged 23 and above is 86.00 (see Table 4, $p>0.05$). Moreover, it was observed that the AAS median point of female students (87.00) is higher than that of male students (83.00) (see Table 4, Z= 3.045, $p<0.05$).

Discussion

Ageism stems from the negative attitudes of the society, family members and the young towards elderly individuals and ageing. In this respect, it is necessary to determine the attitudes of especially students towards ageism. To meet this necessity, a scale to determine the young's attitudes towards ageism was developed. There are no scales available in Turkey for determining university students' attitudes towards ageism. Therefore, this is why this is the first study conducted on this subject.

The AAS has 23 items and three subscales. There are nine items in the 'restricting life of the elderly' subscale, eight items in the 'negative ageism' subscale and six items in the 'positive ageism' subscale. It is necessary to remove items from scales that have a factor load less than 0.30 as a result of factor analysis according to Tezbaşaran (1997) (34). The AAS factor load value was between 0.33 and 0.72; and the 14 items which had factor load less than 0.30 were removed from the scale as explained previously. The factor analysis results

showed that the instrument has more than one dimension. These dimensions present the variety of factors that are influential in students' attitudes about ageism.

The AAS's Cronbach alpha value was found to be high (0.80). This Cronbach alpha reliability coefficient indicates the internal consistency (homogeneity) of the items that comprise a scale. Internal consistency coefficient is important for scale developed for the purpose of measuring characteristics such as attitude according to Tezbaşaran (1997). A scale's Cronbach alpha coefficient indicates that the items that comprise the scale are consistent with each other; thus they make decisive measurements (34). A Cronbach alpha coefficient less than 0.40 indicates that a scale is not reliable; it has low reliability between 0.40 and 0.59; it is reliable between 0.60 and 0.79; and it has high reliability when the coefficient is between 0.80 and 1.00 (34, 35). In our study; the scale's subscales' Cronbach alpha reliability coefficients were ranging from 0.67 to 0.70. The 'restricting life of the elderly' and 'positive ageism' subscales were found to have 0.70 in the analysis of each subscale for internal consistency. The 'negative ageism' subscale's was found to be a Cronbach alpha reliability coefficient of 0.67. The scale's high Cronbach alpha reliability coefficients indicate that the instrument has high internal consistency.

This result shows that the scale and its subscales are reliable. The high correlations between the scale's items and for the scale, on the other hand, indicate that the items are measuring the same dimension (35). The scale's subscales' correlations with each other were found to be between 0.28 and 0.45 (see Table 3). This result indicates that the scale can measure university students' attitudes about ageism in the same dimension. It was determined after the analyses that the departments that students attend and their genders influence their attitudes towards ageism (see Table 4).

The instrument developed to determine university students' attitudes towards ageism were a 5-point Likert type scale. The students' positive attitude sentences regarding ageism were scored as 5 points for 'completely agree,' 4 points for 'agree,' 3 points for 'unsure,' 2 points for 'disagree,' and 1 point for 'absolutely disagree.' The negative attitude sentences regarding ageism were scored opposite to the positive sentences: 1 point for 'completely agree,' 2 points for 'agree,' 3 points for 'unsure,' 4 points for 'disagree', and 5 points for 'absolutely disagree.'

The highest possible score from the survey was 115 and the lowest was 23 according to this scoring scale. The higher scores from the survey indicated that the students' had more positive attitudes towards ageism and lower scores showed that the students' attitudes were more negative.

Numerous scales have been developed abroad about the old age and ageing. These scales have guided in the preparation of the AAS. The Fraboni Scale of Ageism (FSA) is a 29-item instrument developed by Fraboni et al. (1990). The FSA was developed to measure antagonistic, discriminatory attitudes and tendency toward avoidance, to represent a more complete measure of ageism. Fraboni et al. found FSA scores to have adequate internal-consistency reliability with a Cronbach alpha coefficient of 0.86 (30). Kogan's Attitudes toward Old People Scale (KAOP) developed by Kogan (1961) measures the characteristics of attitudes toward elderly individuals. Kogan reported internal consistency reliability coefficients (alphas) ranging from 0.66 to 0.85 for the 34-item scale (31). The Ageing Semantic Differential (ASD) developed by Rosencranz and McNevin (1969) was also developed to measure attitudes towards the elderly. The reliability estimate for the ASD was 0.92 (32). The Anxiety about Ageing Scale, developed by Lasher and Faulkender (1993) has 20 items. This scale was designed to measure fear and anxiety about ageing. The instrument's subscales' Cronbach alpha values were found to be 0.78, 0.74, 0.71 and 0.69, respectively (33). The Facts on Ageing Quiz (FAQ) developed by Palmore (1977) has 25 true-false items that measure participants' actual level of knowledge regarding the ageing process (10).

Although not a direct measure of ageism, these scales may be useful for research on overall perceptions of the aged in that it measures participants' actual level of knowledge regarding the ageing process.

Similar scaleswere used to determine young people's attitudes towards the elderly individuals (14–17, 28). Edwards and Aldous (1996), in their study in which they have examined university students' attitudes towards elderly individuals, have found that the attitudes of medicine students towards elderly individuals are more positive than those of Computer and English Language students (36). Kishimoto et al. (2005) (25), Voogt et al. (2008) (28) and Fitzgerald et al. (2003) (22), in their studies conducted to determine medicine students' attitudes towards elderly individuals, have concluded that their attitudes towards the elderly are positive. In a similar fashion, Hughes et al. (2008) (23) and Wilkinson et al. (2002) (37) have determined that medicine students have positive attitudes towards the elderly individual. Moyle's study (2003) (19) on the nursing students' attitudes towards the elderly and Reuben et al.'s (1995) (38) study on the medicine students' attitudes towards elderly individuals have

found that students have negative attitudes towards elderly individuals ("elderlies are unable to keep up the change", "elderlies constantly get sick", "elderlies are angry"). Ryan et al. (2007) (27) and McKinlay and Cowan (2003) (20) have found that nursing students have positive attitudes towards elderly individuals. McConatha et al. (2004), in their study conducted with university students in Turkey and the USA, have determined that Turkish students enjoy "spending time with elderly individuals", "visiting elderly relatives" and "assisting elderly individuals" more than American students do. It was also found in the same study that female students have more negative attitudes towards elderly individuals compared to male students (18).

In Turkey, the studies about elderly individuals and old age mostly focus on the issues about determination of the elderly individuals' quality of life and health problems. In addition, there is no study to determine students' attitudes towards ageism.

This scale has been developed to determine the attitudes of Turkish youth towards ageism compatible with the Turkish context since existing scales on this issue were prepared in respect to different cultural settings. These scales were not used since they are not convenient to the Turkish culture, and thus the need to develop a new scale emerged. This scale has been prepared through determining the opinions of both elderly individuals and university students about ageism. Therefore, it is extremely important that this scale is to be used in studies examining attitudes about ageism. This is the only scale developed in Turkey about ageism which is appropriate to the Turkish culture. There are no other instruments available in Turkey with proven validity and reliability on this subject matter. The results obtained show that this scale is a valid and reliable instrument at the desired level for determining university students' attitudes towards ageism.

We think that the scale developed in this study will make a significant contribution to the subject in this field. In this respect, first determining the attitudes of the university students towards ageism would make a contribution to have more positive, respectful and tolerant university students' attitudes and behaviors towards the elderly and ageing. Additionally, precautions for preventing ageism should be developed; and then integrated to the country's strategic plans and programmers. Announcement of research results in related scientific communities and various disciplines is necessary for being able to use the scale in future studies.

This study has a few limitations. The scale's validity and reliability study was only implemented with young people studying at a university. It is recommended that this scale is to be used in other studies and tested with individuals in different age and educational groups.

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