RESEARCH

ATTITUDES ON AGEISM AMONG FIRST- AND SIXTH-YEAR MEDICAL STUDENTS AND RELATED FACTORS

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Abstract

Introduction: This study's aim was to investigate the attitudes of first- and sixth-year medical students on ageism and related factors, and to examine their willingness to work with older patients in their professional lives.

Materials and Method: In this cross-sectional study, the target population comprised 637 students, 352 of whom were first-year and 285 were sixth-year medical students, studying at Akdeniz University Faculty of Medicine in the 2018–2019 academic year. The dependent variable was their attitudes on ageism. The Ageism Attitude Scale was used to assess the students' attitudes. The Mann-Whitney U test, Kruskal-Wallis, Spearman correlation, and multiple regression analyses were used for data evaluation.

Results: At total of 524 students were included (access rate 82.3%), 53.8% were first-year students. The mean Ageism Attitude Scale score was 84.1 ± 8.9 (33–107). Forty-six percent of the study group stated that they would rather not work with older patients. In Agesim Attitude Scale scoring, the determinants of a positive attitude are: *being a female, having good/very good communication with grandparents, desire to live with parents when their parents are very old,* and *desire to work with elderly patients in their professional life.*

Conclusion: The attitudes of medical students toward older patients were generally positive but their reluctance to work with them in their professional life was high, a determinant of having a negative attitude. From the first year of education, the curriculum and social activities should support increased communication with healthy older people to raise awareness about ageism.

Keywords: Ageism; Attitude; Medical Students.

INTRODUCTION

Ageism is a concept focusing on the negative aspects of being older or the phenomena of aging and is manifested with stigma, prejudice, and discrimination against people due to their age (1,2). Accordingly, old age is accepted as a period of inevitable decline and dependency in physical and mental capacity. In societies where ageism is common, individuals develop negative attitudes toward themselves over time and are affected by their negative consequences (1,3,4).

Ageism can be encountered in many areas, such as family, work, social life, and health, and it negatively affects older people in terms of benefitting from resources/services (3,5). Studies show that ageism has negative effects on people's physical and mental health (1,2,5,6).

The older population is increasing worldwide. The increase in the population aged 80 years and above, which is expressed as the phenomenon of "the aging of aging," indicates that older people will constitute a significant part of the group receiving healthcare services, and the problem of ageism will become more important (7). Ageism affects the clinical practice and decisions of health service providers and creates an obstacle for healthcare. Studies have reported that ageism can be observed in screening, diagnosis, and treatment processes (8). Therefore, it is important to examine the attitudes of healthcare providers toward older patients. There are many studies in the literature using different scales to investigate ageist attitudes mostly among nursing students, health sciences, and physicians (4,7,9–11). However, the number is limited of studies investigating the attitudes of medical students toward older people at different stages of their education and their desire to care for them in their future professional lives (12–16).

Studies have shown that the ageist attitudes of medical students and physicians are "complex and mixed"—they have both negative and positive stereotypes about older people (8,9). Although variables such as gender, age, education, knowledge about aging, exposure to older people, and previous positive relationships with them are the determinants of their attitudes toward older patients/geriatrics and their interest in working with them, previous studies in the literature have observed that the results are mixed and even contradictory (11). The issue of gender, especially in medicine, is a subject that has been emphasized especially in recent years, and it affects both attitudes and career choice. After graduating of faculty, medical students continue to enter specialties that are traditionally associated with males and females (17). A study conducted in Turkey also shows that career choices of physicians are affected by gender roles. Females tend to specialize in medical departments with regular working hours, no shifts, no barriers to their academic progress, and where they will not be excluded (18). In fact, it is the society's value system, which also determines the gender roles that are effective in the career choice and attitudes of medical students. It is important to evaluate the general motivations of the medical student for choosing the medical profession and the value systems that make up their perspective on life. According to the results of the study in which Rokeach Value Survey was used, medical students prefer the terminal values of "health", "love" and a "happy family life", i.e. concrete values and values of communication, which reflects the content of their profession, aimed at helping and interacting with other people (19). In an other study that evaluated the personal values of medical students with Schwartz's Portrait Values Questionnaire; the three most important personal values were "benevolence", "self-direction", and "universalism". "Benevolence" and "universalism" correlated positively with both the emotional and cognitive dimensions of empathy (20). Thus, supporting the self-transcending personal values (universalism and benevolence) of the medical student is important in terms of professional values such as a positive attitude towards the elderly.

Negative attitudes of medical students, society's future physicians, toward old age will disrupt communication with older patients and negatively affect health service delivery. Accordingly, it is important to take steps to assess the attitudes of physician candidates toward older people and improve them, if needed. This study aimed to determine the attitudes of first- and sixth-year medical students toward ageism, the factors influencing their attitudes, and their willingness to work with older patients in their professional lives.

MATERIALS AND METHODS

This study is a cross-sectional research conducted in Akdeniz University Faculty of Medicine. This faculty was established in 1973 in Antalya, in the south of Turkey, and is among the first accredited medical faculties. In the faculty, which has 354 faculty members, hybrid system (integrated and problem-based learning) and classical methods as well as interactive/active education techniques (special study modules, social support projects, etc.) are applied. There are 2162 students from every region of Turkey. The percentage share of the accepted students in general is 0.4 (21).

The study population consisted of 637 students, 352 of whom were first-year medical students (MS1) and 285 were sixth-year medical students (MS6), studying at Faculty of Medicine in the 2018–2019 academic year. Since we aimed to reach the whole population, we did not select a sample. By the end of the study 524 students had been reached (access rate: 82.3%; 80.1% for MS1, 84.9% for MS6). Data were collected with questionnaire by supervision in February 2019.

The dependent variable of the study was the attitudes of students toward ageism. The Ageism Attitude Scale (AAS) was used to assess the students' attitudes. The AAS was developed by Vefikuluçay in Turkey, and its validity and reliability have been established. The Cronbach's alpha reliability coefficient of the scale reported by the original author was 0.80 (22). In our study, it was found to be 0.79.

The AAS consists of 23 items. There are positive and negative attitude statements on the scale. The positive attitude statements are scored as follows: 5=*completely agree*, 4=*agree*, 3=*unsure*, 2=*disagree*, and 1=*absolutely disagree*. The negative attitude statements are scored in the opposite direction. The lowest and highest overall scores were 23 and 115, respectively. Higher scores indicate more positive attitudes (22).

The AAS consists of three subdimensions: (i) restricting the life of the elderly, (ii) positive agesim, and (iii) negative ageism. Restricting the life of the elderly refers to beliefs and attitudes that would limit the social lives of the elderly (min 9–max 45). Positive ageism involves holding positive beliefs and attitudes towards the elderly (min 8–max 40). Negative ageism encompasses the negative beliefs and attitudes of society toward the elderly (min 6–max 30) (22).

The independent variables were age, gender, year of medical school, family type, sibling presence, education level of mother/father, income perception, residence and region lived in longest, joining in student clubs, living in the same house or city with grandparents, perception of communication with grandparents, presence of elderly relatives in need of care, presence of relatives staying in nursing homes, having visited a nursing home, desire to live with their parents when their parents are very old, desire to live with their children in their own very old age, desire to work with elderly patients in their professional life, the state of knowledge on the concept of ageism, and desire to receive training on ageism.

Ethical Considerations

This study was approved by the Clinical Research Ethics Committee of the Akdeniz University (2019/126) and was conducted in full compliance with the principles of the Declaration of Helsinki.

Prior to the study, participants were fully informed about the objectives of the study and the anonymity of their data and gave their informed consent.

Statistical Analysis

Data were evaluated using IBM SPSS v. 23.0 software. Descriptive data are presented as frequencies, percentages, means, standard deviations, median, and minimum to maximum values.

Assessing normal distribution of the data was performed by the Kolmogorov-Smirnov test and skewness/kurtosis values. Since the distribution was not normal, the Mann-Whitney U test was used to compare two groups, and the Kruskal-Wallis analysis was used to compare three or more groups. Spearman's correlation was used to explore correlations between age and AAS scores. Multiple regression models were used to determine the independent predictors of AAS scores. The models were applied with the backward elimination method. In addition to the variables found to be significant in bivariate analysis, the year (MS1 or MS6) was added to the model.

The level of significance for statistical tests was established as $p<0.05$. When significance was found in the Kruskal-Wallis test, the Bonferroni-corrected Mann-Whitney U test was used as a post hoc test.

RESULTS

In the research group, 53.8% were first-year students, 91.2% had siblings, 45.6% joined student clubs throughout their education life, 44.1% had visited a nursing home at least once, and 2.1% of them had relatives staying in a nursing home. Other descriptive data for the study group are presented in Table 1.

Only 24.0% of the study group stated that they knew the concept of ageism. The most frequently cited source of information was the internet (63.5%), followed by television (19.0%), and newspapers/magazines (15.9%).

The mean AAS total score was found to be 84.1 ± 8.9. Overall distribution, distribution in subdimensions, and item scores are presented in Table 2.

In the study group, 46.0% stated that they would prefer not to work with elderly patients if given the choice. The two most common reasons were communication problems (42.3%) and the elderly being a difficult patient group due to comorbidities (30.3%). In MS1, 43.6% did not want to work with the elderly; 48.8% of MS6 students gave this response. The difference was not statistically significant ($p=0.239$).

Independent variables and AAS scores were compared with bivariate analyses. Results with significant differences are shown in Table 3.

Although the overall AAS score of the MS6 group was slightly higher than that of MS1, the difference was not significant (84.3 ± 8.9 and 83.9 ± 9.0, respectively; $p=0.598$). Similar findings were observed for subdimension scores ($p>0.05$).

No significant correlation with AAS scores was found regarding age, family type, income perception, presence of relatives living in a nursing home, having visited a nursing home, the region lived in longest, and knowing the concept of ageism ($p>0.05$).

While 74.2% of the study group expressed that they would wish to live with their parents when their parents were very old, only 39.3% stated that they would wish to live with their children in their own very old age. Of those who stated that they would like to live with their parents when their parents are very old, 48.8% stated that they would not wish to live with their children in their own very old age. This difference was statistically significant (Table 4).

A multiple regression analysis was performed for AAS overall and subdimension scores. The results are presented in Table 5. In the AAS overall score, *being a female*, *having good/very good communication with grandparents*, *desire to live with parents when their parents are very old*, and *desire to work*

Table 1. Sociodemographic characteristics of participants.

Characteristics	*n* (524)	Mean ± SD[a] (Min–Max) or %
Age (years)	524	21.4 ± 3.0 (18–30)
Year of medical school		
First	282	53.8
Last	242	46.2
Gender		
Female	245	46.8
Male	279	53.2
Family type		
Nuclear	459	87.6
Extended	65	12.4
Education status of mother		
Illiterate/literate	38	7.3
Primary/secondary school (4–11 years)	171	32.6
High school (12 years)	131	25.0
University/postgraduate (>12 years)	184	35.1
Education status of father		
Illiterate/literate	12	2.3
Primary/secondary school (4–11 years)	119	22.7
High school (12 years)	112	21.4
University/postgraduate (>12 years)	281	53.6
Household income perception		
Income greater than expenses	164	31.3
Income equal to expenses	302	57.6
Income less than expenses	58	11.1
Residence where the students lived the longest		
Province/metropolitan	327	62.4
District	157	30.0
Town/village	40	7.6
Region where the students lived the longest[b]		
Mediterranian	225	43.3
Aegean	78	15.0
Eastern/Southeastern Anatolia	71	13.7
Central Anatolia	57	11.0
Marmara	56	10.8
Black Sea	33	6.3

[a] Standard Deviation; [b]*n*=520 (4 had lived abroad longest)

Table 2. Distribution according to Ageism Attitude Scale (AAS) items, subdimensions, and overall scores (n=524).

Number and Item	Completely diasgree	Disagree	Unsure	Agree	Absolutely agree	Transformed
	%	%	%	%	%	Mean ± SD[a]
1. Life of elders should be limited to their houses.	55.3	33.2	6.5	3.2	1.7	4.4 ± 0.9
5. External appearance of elders is repulsive.	50.8	36.5	9.0	1.9	1.9	4.3 ± 0.9
12. It is unnecessary for elders to buy a house, car, items, clothes.	39.3	46.9	8.4	3.2	2.1	4.2 ± 0.9
14. Elders who lose their spouses should not get remarried.	23.1	42.7	25.4	6.5	2.3	3.8 ± 1.0
17. Elders should be put into nursing homes.	28.1	42.9	22.1	5.0	1.9	3.9 ± 0.9
19. In hospitals, priority should be given to young people rather than elders.	30.0	51.5	13.9	2.7	1.9	4.0 ± 0.8
21. In jobs, elders should be paid less than young people.	29.8	48.3	14.9	5.5	1.5	4.0 ± 0.9
22. Elders cannot carry bags and packages without help.	12.8	40.1	35.7	10.9	0.6	3.5 ± 0.9
23. Care of elders should not be seen as an economic burden by family members.	2.3	5.7	6.9	52.1	33.0	4.1 ± 0.9
***Restricting life of the elderly; Mean ± SD[a]* (Min–Max)**	**36.2 ± 4.4 (16–45)**					
2. Elders are more patient than young people.	10.3	30.3	26.7	28.4	4.2	2.9 ± 1.1
4. Priority should be given to elders in places where waiting in line is required.	3.1	5.3	13.9	52.7	25.0	3.9 ± 0.9
6. Young people should benefit from the experience of elders.	1.5	3.4	12.6	56.1	26.3	4.0 ± 0.8
7. Elders should be cared for by the family members with whom they live.	0.8	1.3	2.7	49.0	46.2	4.4 ± 0.7
8. Elders are affectionate.	2.1	5.7	39.3	39.3	13.0	3.6 ± 0.9
9. When decisions are made in the family, opinions of elders should be taken into consideration.	1.3	4.2	16.2	61.6	16.6	3. 9± 0.8
13. Elders are more tolerant than young people.	6.8	20.8	41.2	27.5	4.2	3.0 ± 1.0
20. In family budgeting, the opinions of elders should be taken into account.	2.7	8.0	20.6	59.0	9.7	3.7 ± 0.9

***Positive ageism; Mean ± SD*[a] (Min–Max)**	**29.3 ± 4.2 (8–39)**					
3. Elders get ill all the time.	5.5	32.6	29.8	29.0	3.1	3.1 ± 1.0
10. The basic responsibility of elders is to help their children with tasks, such as house and kitchen work and care of their grandchildren.	16.0	48.3	22.3	10.3	3.1	3.6 ± 1.0
11. When hiring for a job, young people should be preferred instead of elders.	2.5	19.3	34.7	31.9	11.6	2.7 ± 1.0
15. Elders cannot adapt to changes like young people.	3.4	17.6	25.4	44.7	9.0	2.6 ± 1.0
16. In promoting individuals at work, priority should be given to young people.	6.7	21.4	33.2	31.5	7.3	2.9 ± 1.0
18. Elders should not go outside on their own.	16.0	45.2	27.3	9.0	2.5	3.6 ± 0.9
***Negative ageism; Mean ± SD*[a] (Min–Max)**	**18.6 ± 3.3 (6–28)**					
***AAS overall score; Mean ± SD*[a] (Min–Max)**	**84.1 ± 8.9 (33–107)**					

[a] Standard Deviation

with elderly patients in their professional life are determinants of positive attitudes towards the elderly.

DISCUSSION

This study aimed to investigate the attitudes of medical students toward the elderly and their intention to work with them in their professional careers. The participants held generally positive attitudes. This result was found to be similar to other studies conducted in our country (15,16,22). It can be surmised that the traditions in Turkish society, which include cultural respect for the elderly, are influential on this point. However, it was observed that some attitude statements yielded low scores. Two of the four items scoring less than three are related to working life. It is important to raise the awareness of medical students about the manifestations of ageism in the workplace. We think that future physicians should develop the view that the elderly can find a place in working life as long as they desire.

Nearly half of the students (46.0%) stated that they would not want to work with elderly patients. Although the difference was not significant, the "not want to work with the elderly" was higher among the MS6. According to two studies conducted in our country, in the first one 39.2% of the medical students stated that they would not want to work in a unit providing care for elderly (16), and in the second 40.2% of the students stated that they were not willing/undecided to serve elderly individuals (15). In a study in China, 51.7% of medical students do not consider pursuing a career in geriatric medicine after graduation (12). Voogt et al. (23) found that 44.7% of MS1 students had no interest in geriatric medicine. Hughes et al. (13) found that 19% of MS1 students were willing to pursue a geriatric career. In a study conducted in Poland, 61.5% of nursing students stated that they would like to work with the elderly in the future, while the rate was 36% in medical students (4). Both the literature and the results of our study show a reluctance of medical students to

Table 3. Distribution of Ageism Attitude Scale (AAS) by subdimension and overall scores for certain variables (*n*=524).

Variables	Restricting the elderly		Positive ageism		Negative ageism		AAS overall score	
	Mean ± SD[a]	Median (Min-Max)	Mean ± SD[a]	Median (Min-Max)	Mean ± SD[a]	Median (Min-Max)	Mean ± SD[a]	Median (Min-Max)
Gender								
Female (n=245)	37.1 ± 3.6	37 (21–44)	29.7 ± 3.5	30 (19–39)	18.9 ± 3.1	19 (6–28)	85.7 ± 7.5	86 (48–107)
Male (n=279)	35.4 ± 4.9	36 (16–45)	28.9 ± 4.7	30 (8–39)	18.2 ± 3.4	18 (6–28)	82.6 ± 9.8	83 (33–103)
p value	**<0.001**		0.219		**0.024**		**<0.001**	
Education status of mother								
Secondary school and below (n=209)	36.4 ± 4.5	37 (16–45)	30.0 ± 3.9	30 (18–39)	18.6 ± 3.1	19 (6–28)	84.9 ± 8.1	86 (59–103)
High school and above (n=315)	36.1 ± 4.4	36 (19–45)	28.9 ± 4.3	29 (8–39)	18.6 ± 3.4	19 (6–28)	83.5 ± 9.4	84 (33–107)
p value	0.612		**0.004**		0.890		0.161	
Education status of father								
Secondary school and below (n=131)	36.2 ± 4.8	37 (16–45)	30.0 ± 4.4	30 (14–39)	18.2 ± 3.2	19 (6–28)	84.5 ± 8.6	85 (44–103)
High school and above (n=393)	36.2 ± 4.3	36 (19–45)	29.0 ± 4.1	29 (8–38)	18.7 ± 3.3	19 (6–28)	83.9 ± 9.0	84 (33–107)
p value	0.777		**0.024**		0.225		0.524	
Presence of sibling(s)								
Yes (n=478)	36.4 ± 4.4	37 (16–45)	29.4 ± 4.2	30 (8–39)	18.6 ± 3.2	19 (6–28)	84.4 ± 8.7	85 (33–107)
No (n=46)	34.7 ± 4.9	35 (21–45)	28.4 ± 4.2	29 (20–36)	17.9 ± 3.9	18 (6–28)	80.9 ± 10.2	82 (48–101)
p value	**0.013**		0.167		0.284		**0.015**	
Residence where the students stayed longest								
Village/town (n=40)	36.7 ± 5.9	37 (16–45)	29.9 ± 5.5	30.5 (8–37)	18.6 ± 4.3	19.5 (6–27)	85.2 ± 12.0	86.5 (33–102)
District (n=157)	35.8 ± 4.3	36 (21–45)	29.8 ± 3.7	30 (16–39)	18.4 ± 3.1	19 (6–28)	83.9 ± 8.4	85 (48–102)
Province/metropolitan (n=327)	36.4 ± 4.3	37 (19–45)	29.0 ± 4.2[b]	29 (11–39)	18.6 ± 3.2	19 (9–28)	84.0 ± 8.8	84 (42–107)
p value	0.233		**0.036**		0.502		0.227	
Joining student clubs								
Yes (n=239)	36.8 ± 4.5	37 (16–45)	29.2 ± 4.6	29 (8–39)	18.7 ± 3.3	19 (6–28)	84.7 ± 9.6	85 (33–107)
No (n=285)	35.7 ± 4.4	36 (19–45)	29.4 ± 3.9	30 (14–39)	18.4 ± 3.2	19 (6–28	83.6 ± 8.3	84 (44–102)
p value	**0.001**		0.441		0.547		0.074	

Living in the same house or city with grandparents								
Yes (n=366)	36.5 ± 4.3	37 (16–45)	29.5 ± 4.3	30 (8–39)	18.7 ± 3.2	19 (6–28)	84.6 ± 8.7	85 (33–103)
No (n=158)	35.5 ± 4.6	36 (19–45)	28.9 ± 3.9	29 (11–38)	18.3 ± 3.5	18 (6–27)	82.7 ± 9.3	82.5 (42–107)
p value	**0.009**		0.084		0.331		**0.014**	
Perception of communication with grandparents[c]								
Good/very good (n=404)	36.6 ± 4.1[b]	37 (16–45)	29.8 ± 4.0[b]	30 (8–39)	18.8 ± 3.3	19 (6–28)	85.2 ± 8.0[b]	86 (33–107)
Moderate (n=88)	35.3 ± 4.8	36 (19–45)	28.1 ± 4.2	28 (14–38)	18.0 ± 2.8	18 (9–23)	81.4 ± 9.4	82 (44–103)
Bad/very bad (n=27)	33.8 ± 6.7	33 (19–44)	26.6 ± 5.7	26 (11–36)	17.3 ± 4.4	18 (6–23)	77.8 ± 14.3	78 (42–100)
p value	**0.005**		**<0.001**		0.074		**<0.001**	
Presence of elderly relatives in need of care								
Yes (n=112)	35.9 ± 4.9	36 (16–45)	29.2 ± 4.8	30 (11–39)	18.0 ± 3.2	18 (6–26)	83.0 ± 9.4	83.5 (42–102)
No (n=412)	36.3 ± 4.3	37 (19–45)	29.3 ± 4.0	30 (8–39)	18.7 ± 3.3	19 (6–28)	84.3 ± 8.8	85 (33–107)
p value	0.615		0.952		**0.017**		0.233	
Desire to receive training on ageism								
Yes (n=319)	36.8 ± 4.2	37 (16–45)	29.9 ± 3.8	30 (14–39)	18.7 ± 3.1	19 (6–28)	85.4 ± 7.9	86 (44–107)
No (n=205)	35.3 ± 4.6	36 (19–45)	28.3 ± 4.6	28 (8–38)	18.4 ± 3.5	19 (6–27)	82.0 ± 9.9	82 (33–102)
p value	**<0.001**		**<0.001**		0.675		**<0.001**	
Desire to live with their parents when their parents are very old								
Yes (n=389)	36.9 ± 4.0	37 (16–45)	30.0 ± 3.7	30 (16–39)	18.8 ± 3.2	19 (6–28)	85.6 ± 7.7	86 (59–107)
No (n=135)	34.3 ± 5.0	35 (19–43)	27.4 ± 4.9	28 (8–37)	17.9 ± 3.6	18 (6–28)	79.6 ± 10.6	81 (33–102)
p value	**<0.001**		**<0.001**		**0.008**		**<0.001**	
Desire to live with their children in very old age								
Yes (n=206)	36.8 ± 4.2	37 (16–45)	30.6 ± 3.7	30 (16–39)	18.5 ± 3.2	19 (6–28)	85.9 ± 7.8	86 (59–105)
No (n=318)	35.8 ± 4.6	36 (19–45)	28.4 ± 4.3	29 (8–39)	18.6 ± 3.3	19 (6–28)	82.8 ± 9.4	84 (33–107)
p value	**0.006**		**<0.001**		0.815		**<0.001**	
Desire to work with elderly patients in professional life								
Yes (n=283)	36.8 ± 3.9	39 (23–45)	30.3 ± 3.5	30 (16–39)	19.2 ± 3.0	19 (11–28)	86.2 ± 7.3	86 (63–107)
No (n=241)	35.5 ± 4.9	36 (16–45)	28.2 ± 4.6	29 (8–38)	17.8 ± 3.4	18 (6–27)	81.5 ± 9.9	82 (33–103)
p value	**0.005**		**<0.001**		**<0.001**		**<0.001**	

[a] Standard Deviation; [b] The group that causes the difference; [c] 5 students stated that there are no elders in the family

Table 4. Comparison of the desire to live with their parents when their parents are very old with the desire to live with their children in their own very old age.

Desire to live with their parents when their parents are very old	Desire to live with their children in very old age					
	Yes		No		Total	
	n	%[a]	n	%[a]	n	%[b]
Yes	199	51.2	190	48.8	389	74.2
No	7	5.2	128	94.8	135	25.8
Total	206	39.3	318	60.7	524	100.0

[a] Percentage of row; [b] Percentage of column

McNemar's test, p<0.001

work with elderly patients. There are studies in the literature reporting that physicians are more cynical and distrustful in working with the elderly than other health professionals (9).

In this study, communication problems with the elderly were pointed to as the most common reason for preferring not to work with the elderly. In the literature, it has been posited that ageism is often caused by a lack of knowledge and experience in communicating with the elderly (4). In this study and many others, a positive relationship was found between interest in working with older people/willingness to consider a career in geriatric medicine and attitudes toward the elderly (12-16,23). For this reason, efforts to facilitate communication with the elderly as early as possible in the medical education process and to develop a curriculum to encourage a more positive attitude toward the elderly may increase the self-confidence of physician candidates about elderly patient care and enable them to pursue a career in this field. Of course, it should not be ignored that not only the positive attitude but also many other factors are effective in career choice. For example, in a study conducted with senior students in Turkey, in focus group interviews; interest, ability, money, prestige, status, acceptable and manageable working conditions, narrow and focused or general application area, score from the medical specialty exam, professional satisfaction, relations with patients/patient relatives, ethical relations, abroad opportunities identified as factors affect career choices (24).

Another reason why physician candidates do not wish to work with the elderly was that they are difficult to treat due to their comorbidities. Indeed, the elderly may have more than one chronic disease, which can make managing cases more complex. Dealing with elderly individuals with many chronic diseases can be difficult for physician candidates who are trained to treat quickly and expect immediate results (6). Similarly, in a study, medical students frequently stated "a lack of opportunity for professional development, professional satisfaction, or a lack of visible therapeutic effects" among their reasons for preferring not to work with the elderly. The authors stated that many of these reasons were based on stereotypical stigmatisations of the elderly in society (4). In fact, it can be concluded that all these reasons are related to a lack of knowledge, experience, positive attitudes in medical students about the elderly and the aging process.

Consistent with our results, many studies have found that females' attitudes are more positive (12,22,25,26). This may be due to the dominant caregiving role attributed to females by traditional gender roles. Females are raised to be more emotional and compassionate and that they are expected to empathise better than male may reinforce this

Table 5. Results of multiple linear regression models to determine important factors on attitudes towards ageism.

Model 1. Dependent variable: Restricting the elderly					
Independent variables	**B[a]**	**SE[b]**	**Beta[c]**	**t**	**p**
Female	1.516	0.370	0.170	4.102	**<0.001**
Joining student clubs	1.203	0.370	0.135	3.249	**0.001**
Good/very good perception of communication with grandparents	0.931	0.338	0.115	2.759	**0.006**
Desire to receive training on ageism	0.656	0.390	0.072	1.681	0.093
Desire to live with their parents when they are very old	2.240	0.441	0.218	5.083	**<0.001**
Model 2. Dependent variable: Positive ageism					
Independent variables	**B[a]**	**SE[b]**	**Beta[c]**	**t**	**p**
Female	0.690	0.346	0.082	1.994	**0.047**
Education status of mother	0.803	0.353	0.094	2.278	**0.023**
Good/very good perception of communication with grandparents	1.170	0.314	0.153	3.720	**<0.001**
Desire to receive training on ageism	0.671	0.374	0.078	1.794	0.073
Desire to live with their parents when their parents are very old	0.986	0.449	0.102	2.197	**0.028**
Desire to live with their children in very old age	1.296	0.381	0.151	3.399	**0.001**
Desire to work with elderly patients in professional life	1.194	0.369	0.142	3.236	**0.001**
Model 3. Dependent variable: Negative ageism					
Independent variables	**B[a]**	**SE[b]**	**Beta[c]**	**t**	**p**
Female	0.599	0.280	0.091	2.138	**0.033**
Not having elderly relatives in need of care	0.804	0.341	0.101	2.357	**0.019**
Desire to work with elderly patients in professional life	1.331	0.280	0.202	4.755	**<0.001**
Model 4. Dependent variable: Ageism Attitude Scale overall score					
Independent variables	**B[a]**	**SE[b]**	**Beta[c]**	**t**	**p**
Female	2.756	0.720	0.154	3.825	**<0.001**
Good/very good perception of communication with grandparents	2.686	0.664	0166	4.044	**<0.001**
Desire to live with their parents when their parents are very old	4.156	0.871	0.202	4.772	**<0.001**
Desire to work with elderly patients in professional life	3.229	0.753	0.180	4.288	**<0.001**

[a] Unstandardized coefficient; [b]Standard error; [c] Standardized coefficient

situation. In a study, female medical students were showed higher levels of self-transcending personal values (universalism and benevolence) correlated positively with empathy than males (20). Thus, it is important to specifically target males in studies to improve attitudes towards the elderly. There are also studies indicating that males' attitudes are more positive (14) or that there is no difference between the genders (15,23,27).

While living in the same house/city with one's grandparents had no effect on the attitude score, the attitudes of those who judged their communication with grandparents as good/very good were more positive. In a study conducted by Ayoğlu et al., no relationship was found between attitude and "having a ≥65-year-old family member" or "living with a ≥65-year-old person" (14). Voogt et al. (23) found that "experiences, including positive relationships with older relatives and experiences providing care for older adults" were related to more positive attitudes. This led us to believe that the quality of communication with the elderly is important. Positive attitudes are influenced by positive personal experiences with older individuals. Students' positive interactions with older adults prevent applying ageist stereotypes to all older adults and increas the possibility of positive thinking about old age (9). Therefore, increasing young–old interaction can be an opportunity for promoting positive attitudes.

Those who stated that they prefer to live with their parents when their parents are very old had a more positive attitude. It may be that a sense of obligation, which includes protection and care toward parents, is also reflected positively in their attitudes. Interestingly, while three-quarters of the study group stated that they prefer to live with their parents, only one-third said that they would wish to live with their own children. Almost half the group who stated that they wanted to live with their parents stated that they did not wish to live with their children. On the one hand, this shows the belief of young physician candidates that care of the elderly should be provided by children, maintaining their traditional societal characteristics; on the other hand, it indicates that they are exposed to the effects of social and cultural change. In today's modern societies, living alone or settling into an institution is increasingly preferred by older people, because they do not want to affect the lives of their children, or because they want to live autonomously in their own environment. The students reported that the most important reason for wishing to live with their parents in the future is their responsibility to take care of them. Additionally, they stated that they do not want to be a burden on their own children, which is why they do not want to live with them in the future, thus supporting this interpretation.

Joining student clubs was a positive determinant for "restricting the life of the elderly." No study has been found in the literature examining the relationship on this issue. In our study, it was seen that clubs were mostly associated with social responsibility. It may be assumed that these students' empathy skills are higher, and this relates to positive attitudes.

The mother's educational status of secondary school and below was a positive determinant for "positive ageism." This may be a reflection of more traditional points of view in families with lower levels of education, or it may be because children growing up in families with a high level of education are generally exposed to individualised lives.

Students' lack of elderly relatives in need of care was a positive determinant for "negative ageism." Having an elderly relative in need of care in the family creates both an emotional and a physical burden, which can lead to problems such as depression, burnout, and social isolation for caregivers. These problems may negatively affect the attitudes of individuals toward aging and the elderly.

Similar to some studies (14,27), no significant relationship was found between years of education and attitudes in this study. However, there are others demonstrating that the attitude of first-year students is more positive (12,25,26) or more negative

(13,15,16) than the others. In medical education, it is important to consider the biopsychosocial aspect of aging as a whole and to include the issue of ageism, but more importantly, to determine appropriate targets and use appropriate educational techniques to effect changes in attitude. It is not enough to have only knowledge-based goals in the curriculum regarding this subject. Attitude targets that emphasize overcoming stereotypes about the elderly should be included. It is recognised that curricula that include empathy-building components are more likely to lead to positive changes in attitude (11,25). At the same time, the attitudes of lecturers/teachers—the role models in learning environments—are also important. For this reason, investigating the attitudes of faculty members toward the elderly should be addressed in the future.

This study has some limitations. It was a cross-sectional study, and thus, causality cannot be confirmed. Although two separate years of medical students were investigated, it is important to conduct prospective studies in which the same student groups will be followed throughout the education process. Another limitation of the study is that it was conducted in only one medical school. Thus, the results cannot be generalised to students in other medical schools. There may also be self-reporting bias.

In conclusion, the attitudes of MS1 and MS6 medical students toward the elderly were generally positive but at a level that could be improved. The situation of not wishing to work with elderly patients in professional life was high, and this was a determinant of a negative attitude. To increase the willingness to serve elderly individuals, curricula should be supported from the first years of education, and social activities like community support projects should be organised to increase communication with healthy older people. Being male was a negative predictor for both overall and all the subdimension scores of the AAS. Poor communication with grandparents and not wishing to live with their parents when they are very old were other risk factors for negative attitudes.

There is a need for multicentre longitudinal studies aimed at monitoring the attitudes of medical students toward the elderly. In addition, it is important to conduct studies that evaluate the personal value systems of medical students and examine the relationship between the value systems and the attitudes towards the elderly.

Conflict of Interest

The authors declare that there is no conflict of interest.

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