

Assessment of intern doctors' attitudes towards ageism and related factors: A single-center cross-sectional study

Intörn doktorların yaş ayrımcılığına yönelik tutumlarının ve ilişkili faktörlerin değerlendirilmesi: Tek merkezli kesitsel bir çalışma

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BACKGROUND

It is well known that ageism, or discrimination against older individuals, is a pervasive issue in healthcare settings, potentially affecting the quality of care provided to this population. In this paper, it was aimed to assess the attitudes of intern doctors toward ageism and to identify the sociodemographic, educational, and experiential factors influencing these attitudes.

MATERIAL and METHODS

A cross-sectional study was conducted among 158 intern doctors at Dokuz Eylül University Faculty of Medicine during the 2024–2025 academic year. Data were collected utilizing the Sociodemographic Information Form and the Turkish version of the UCLA Geriatrics Attitudes Scale (UCLA-GA). Multiple linear regression analyses were executed to identify factors associated with UCLA-GA scores.

RESULTS

The mean total UCLA-GA score of participants was 47.5 ± 4.6 , indicating generally positive attitudes toward geriatrics. Intern doctors who expressed a preference to live with their parents in the future showed significantly higher total UCLA-GA scores ($\beta = 1.793$, 95% CI: 0.198–3.388, $p = 0.028$). Additionally, willingness to work in institutions providing elder care services was significantly associated with higher scores in the Medical Care ($\beta = 1.078$, 95% CI: 0.255–1.900, $p = 0.011$) and Resource Distribution ($\beta = 1.057$, 95% CI: 0.241–1.873, $p = 0.011$) subscales. Notably, aging was predominantly associated with negative themes such as illness, dependency, and death.

CONCLUSIONS

As a result, intern doctors indicated generally positive attitudes toward ageism. Those who preferred to live with their parents in the future exhibited more favorable perceptions of aging, while willingness to work in elder care institutions was associated with higher scores of medical care and resource distribution subscales. Despite these positive perspectives, aging remains largely perceived through negative lenses, such as illness, dependency, and mortality, emphasizing the need for targeted educational interventions to foster a more balanced and nuanced understanding of aging among future healthcare professionals.

KEYWORDS

Ageism, attitude, intern doctors, UCLA-GA

ÖZ

AMAÇ

Yaş ayrımcılığı, yaşlı bireylere yönelik ayrımcılık, sağlık hizmetlerinde yaygın bir sorun olarak bilinmektedir ve bu durum, bu popülasyona sunulan bakımın kalitesini potansiyel olarak etkileyebilir. Bu çalışmada, intörn doktorların yaş ayrımcılığına yönelik tutumlarının değerlendirilmesi ve bu tutumları etkileyen sosyodemografik, eğitimsel ve deneyimsel faktörlerin belirlenmesi amaçlanmıştır.

GEREÇ VE YÖNTEM

Kesitsel bir çalışma, 2024-2025 akademik yılında Dokuz Eylül Üniversitesi Tıp Fakültesi'nde 158 intörn doktor arasında gerçekleştirilmiştir. Veriler, Sosyodemografik Bilgi Formu ve UCLA Yaşlılık Tutum Ölçeği'nin (UCLA-GA) Türkçe versiyonu kullanılarak toplanmıştır. UCLA-GA puanları ile ilişkili faktörleri belirlemek için çoklu doğrusal regresyon analizleri yapılmıştır.

BULGULAR

Katılımcıların toplam UCLA-GA puan ortalaması $47,5 \pm 4,6$ olarak hesaplanmış ve bu durum, yaşlılığa yönelik genel olarak olumlu tutumları göstermektedir. Gelecekte ebeveynleriyle birlikte yaşama isteğini ifade eden intörn doktorlar, toplam UCLA-GA puanlarında anlamlı derecede daha yüksek puanlara sahiptir ($\beta = 1,793$, %95 GA: 0,198–3,388, $p = 0,028$). Ayrıca, yaşlı bakım hizmeti veren kurumlarda çalışmaya istekli olma, Tıbbi Bakım ($\beta = 1,078$, %95 GA: 0,255–1,900, $p = 0,011$) ve Kaynak Dağılımı ($\beta = 1,057$, %95 GA: 0,241–1,873, $p = 0,011$) alt ölçeklerinde daha yüksek puanlarla anlamlı şekilde ilişkilendirilmiştir. Dikkat çekici bir şekilde, yaşlanma genellikle hastalık, bağımlılık ve ölüm gibi olumsuz temalarla ilişkilendirilmiştir.

SONUÇ

Sonuç olarak, intörn doktorlar yaşlılığa karşı genel olarak olumlu tutumlar gösterdiler. Gelecekte ebeveynleriyle yaşamayı tercih edenler yaşlanmaya ilişkin daha olumlu algılar sergilerken, yaşlı bakım kurumlarında çalışma isteği daha yüksek tıbbi bakım ve kaynak dağıtım alt ölçekleriyle ilişkilendirildi. Bu olumlu bakış açılarına rağmen, yaşlanma büyük ölçüde hastalık, bağımlılık ve ölüm gibi olumsuz merceklerden algılanmaya devam ediyor ve gelecekteki sağlık profesyonelleri arasında yaşlanmaya ilişkin daha dengeli ve ayrıntılı bir anlayış geliştirmek için hedefli eğitim müdahalelerine olan ihtiyacı vurguluyor.

ANAHTAR KELİMELER

Intörn doktorlar, tutum, UCLA-GA, yaş ayrımcılığı

Ageism, defined as prejudice or discrimination based on a person's age, is an increasingly recognized issue in healthcare settings (1-4). With the global population aging at an unprecedented rate, the World Health Organization has emphasized the need to address ageism to ensure equitable healthcare delivery (1-5). Older individuals often present with complex health conditions, making them vulnerable to not only physiological challenges but also social and psychological barriers (6). Consequently, the quality of care provided to older adults can be influenced by healthcare professionals' attitudes toward this population (7). Understanding and mitigating ageist attitudes is, therefore, critical in training the next generation of physicians who will be responsible for managing the growing demographic of older patients (8).

Intern doctors, situated at the junction between undergraduate medical education and independent clinical practice, play a pivotal role in shaping the future landscape of patient care (9). Their attitudes towards older adults can be influenced by factors such as personal beliefs, prior experiences, and the quality of elderly training they receive (10). Negative stereotypes or misconceptions about aging may deter them from delivering compassionate care or engaging in the field of geriatrics (11). Conversely, positive attitudes can foster empathetic communication, accurate assessments, and improved therapeutic relationships, all of which are essential for optimizing health outcomes among the elderly (12).

Prior research has highlighted the influence of medical curricula, mentoring, and clinical exposure on shaping attitudes toward elderly patients (9). Studies indicate that structured education in gerontology and increased clinical interactions with older adults can effectively reduce ageist attitudes among trainee doctors (12). Despite these findings, there remains variability in the rigor and depth of elderly instruction across medical schools (10). Moreover, cultural, societal, and institutional factors can further modulate how intern doctors perceive and interact with elderly patients, pointing to the need for context-specific investigations (9). Of note, multiple studies found that medical students and junior doctors generally held positive to moderately positive attitudes toward older people (10,13,14). However, some research indicated slightly negative attitudes or ageism among medical trainees (13,15). Factors associated with more positive attitudes included elderly education or rotations (12,13), being a doctor rather than a nurse (16), and having caregiving experiences with older adults (15). Conversely, factors linked to more negative attitudes included being male, longer years of medical training, and lack of elderly care experience (15).

The present cross-sectional study aimed to investigate the intern doctors' attitudes toward ageism and to identify the

sociodemographic, educational, and experiential factors that contribute to these attitudes. By examining a cohort of medical interns, this research seeks to clarify the extent to which current training protocols and personal backgrounds shape their perspectives on older adults. Identifying modifiable contributors to ageist attitudes will not only inform curriculum development but also provide a basis for interventions targeting attitudinal shifts in emerging healthcare professionals.

Materials and Methods

Study design, setting and ethical approval

This single-center cross-sectional study was conducted at Dokuz Eylül University (DEU) Faculty of Medicine. All data were collected during the 2024-2025 academic year. The target population of the study was determined as 287 intern doctors studying from the 2024-2025 academic year at Dokuz Eylül University Faculty of Medicine. Of these, 96 individuals either did not agree to participate in the study or did not provide informed consent. Additionally, data forms from 33 individuals were excluded because more than half of the required information was incomplete. In terms of inclusiveness, 55.05% of the target group was represented in this study. A flowchart showing the identification process of participants in the study is summarized in Figure 1.

During the data collection process, surveys were sent to intern doctors at Dokuz Eylül University Faculty of Medicine online through internship representatives. Initially, 287 intern doctors from the 2024-2025 academic year were considered the target population.

The research adhered to the principles outlined in the Declaration of Helsinki and received approval from the Institutional Review Board of the Dokuz Eylül University Faculty of Medicine Non-Interventional Research Ethics Committee (Decision No. 2024/27-06, dated 07/08/2024).

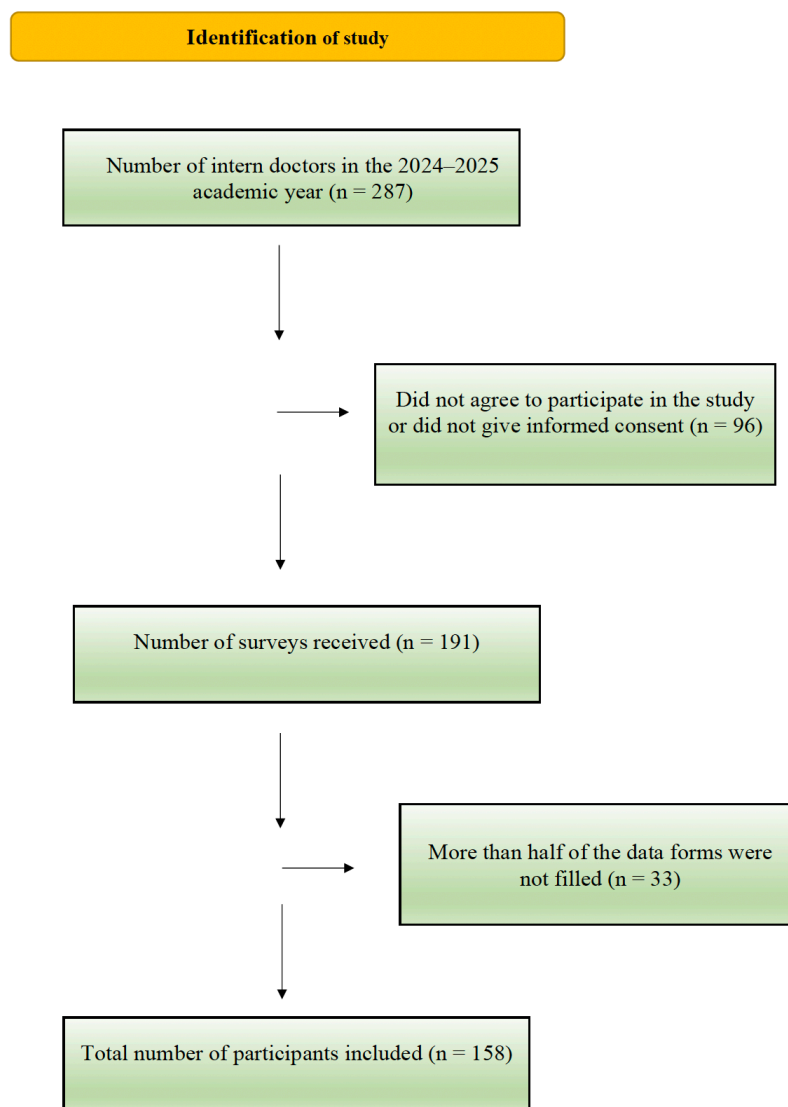


Figure 1. Flowchart showing the identification process of participants in the study

Study population, sampling and inclusion and exclusion criteria

The study population consisted of all intern doctors enrolled at DEU Faculty of Medicine during the specified academic year. Inclusion criteria were: (1) being an intern (final-year medical student) at DEU Faculty of Medicine in the 2024–2025 academic year, and (2) voluntarily agreeing to participate in the study. Interns who did not complete more than half of the data form and did not give consent for the

study were excluded from the study. After excluding any incomplete or invalid responses, the final sample was determined.

Data collection instrument and data collection procedures

The Sociodemographic Information Form and the UCLA Geriatrics Attitudes (UCLA-GA) Scale were utilized in this study to assess demographic characteristics and attitudes toward elderly. The Sociodemographic Information Form gathered information regarding participants' gender, living

arrangements, parental education level, family structure, and perceptions of income status, as well as their attitudes towards aging and elder care. The UCLA-GA Scale was employed to evaluate attitudes toward elderly individuals, focusing on aspects such as emotional responses, beliefs, and behaviors. Both the Sociodemographic Information Form and the UCLA-GA Scale were administered online to the participants, ensuring efficient distribution and data collection.

In the present study, the dependent variable is interns' attitudes toward ageism, as measured by the UCLA-GA Scale. The independent variables comprise the participants' sociodemographic characteristics, whether they live with older individuals, their preferences concerning future cohabitation or professional engagement with older adults, and any previous involvement in elderly health projects.

The sociodemographic information form

It was designed to ascertain participants' gender (female or male), their current living arrangement (living with family, in a dormitory, or elsewhere), and their parents' educational attainment (illiterate, literate, primary school, middle school, high school, or university and above). It additionally recorded the mother's and father's birth dates and inquired about the participant's family structure (nuclear, extended, single-parent, or other), as well as their perception of the family's income relative to expenses (higher than, equal to, or lower than expenses). The form also sought to capture the first concept that comes to mind when thinking about old age, whether the participant had ever lived with an older family member, and whether they would prefer to live with their parents in the future. Lastly, the form investigated participants' willingness to work in institutions providing elder care services (such as nursing homes or rehabilitation centers), and for those who were unwilling, it requested an explanation of their reasons.

UCLA Geriatrics Attitudes (UCLA-GA) scale

The UCLA Geriatrics Attitudes (UCLA-GA) Scale was originally developed in 1998 by Reuben and colleagues (17). It comprises a relatively small number of items, is multidimensional, and was validated in English using data from medical students and healthcare providers. Sahin et al. (2011) (18) conducted the Turkish validity and reliability study for the 14-item version of the scale, reporting a Cronbach's alpha of 0.67, which was deemed satisfactory. Tuckey's additivity test ($F=85.25$, $p < 0.0001$) further indicated that the scale items possess additive properties. The scale consists of four subdimensions—Social Values (SV), Medical Care (MC), Compassion (CP), and Resource Distribution (RD)—and is recommended for assessing attitudes toward older adults

among those who provide elderly healthcare services, particularly given its concise and clear structure in the Turkish version. In its Turkish version, the UCLA-GA Scale consists of 14 items, each rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Consequently, the lowest possible total score on the scale is 14, while the highest possible score is 70. Higher scores generally indicate more favorable or positive attitudes toward older adults. Medical care, Compassion, and Resource Distribution each contain four items, yielding possible subdimension scores ranging from 4 to 20, while Social value each consist of two items, with subdimension scores ranging from 2 to 10.

Statistical analysis

For continuous variables, The assumptions of normality and homogeneity of variances were checked using the Kolmogorov-Smirnov test and Levene's test, respectively. Descriptive statistics were calculated to summarize participants' demographic characteristics and their UCLA-GA scores. Continuous variables were expressed as means and standard deviations (mean \pm SD), while categorical variables were presented as frequencies and percentages. Comparisons of UCLA-GA subscale and total scores according to categorical variables (e.g., gender, living arrangement, parental educational attainment, and willingness to work in elderly care institutions) were performed utilizing the independent samples t-test or one-way analysis of variance (ANOVA), depending on the number of groups being compared. For variables with significant group differences in ANOVA, post hoc Bonferroni tests were conducted to identify specific group differences. A multiple linear regression model was executed to evaluate the causal effects of independent variables on the dependent variable. The multiple linear regression analysis employed a backward stepwise method, with standardized and unstandardized coefficients beta and their corresponding 95% confidence intervals (CIs) for beta calculated for each variable. Stepping method criteria were defined as .05 entry, .10 removal. Additionally, R square, ANOVA F values and Durbin-Watson values for linear regression are also provided. "Gender", "Mother educational attainment", "Father educational attainment", "Family structure", "Family income", "Have you ever lived with an elderly family member", "Would you prefer to live with your parents in the future", "Willingness to work in institutions providing elder care services in the future" variables were included in the multiple linear regression analysis. Age was not included in the model because the ages of the participants were very close to each other. In order to include categorical variables in the multiple linear regression analysis, a reference variable was defined and dummy variables were created. For this purpose, the reference

categories were defined as "0". All statistical analyses were conducted using STATA software (v.18, College Station, TX, USA), and the threshold value of statistical significance in all analyses was quantified at a two-tailed p-value of < 0.05.

Results

The sociodemographic and baseline characteristics of the research group, consisting a total of 158 participants, are summarized in Table 1.

Table 1. Sociodemographic and baseline characteristics of the research group (n = 158)

Variables	Total (n= 158)
Age, years, mean \pm SD	23.9 \pm 1.7
Mother age, years, mean \pm SD	53.1 \pm 5.3
Father age, years, mean \pm SD	57.3 \pm 6.1
Gender, n (%)	
Male	89 (56.3)
Female	69 (43.7)
Living arrangement, n (%)	
Family house	19 (12.0)
Student house	132 (83.5)
Dormitory	7 (4.4)
Mother educational attainment, n (%)	
High school and below	80 (50.6)
University and above	78 (49.4)
Father educational attainment, n (%)	
High school and below	72 (45.6)
University and above	86 (54.4)
Family structure, n (%)	
Nuclear	140 (88.6)
Extended	14 (8.9)
Single-parent	4 (2.5)
Family income, n (%)	
Lower than expenses	20 (12.7)
Equal to expenses	78 (49.4)
Higher than expenses	60 (38.0)
Have you ever lived with an elderly family member? n (%)	
Yes	85 (53.8)
No	73 (46.2)
Would you prefer to live with your parents in the future?	
Yes	46 (29.1)
No	112 (70.9)
Willingness to work in institutions providing elder care services in the future	
Yes	34 (21.5)
No	124 (78.5)

SD standard deviation

The mean age of the participants was 23.9 years (SD \pm 1.7), while the mean ages of their mothers and fathers were 53.1 (SD \pm 5.3) and 57.3 (SD \pm 6.1) years, respectively. In terms of gender distribution, 56.3% of the participants were male (n = 89), and 43.7% were female (n = 69). Regarding living

arrangements, the majority of participants (83.5%, n = 132) resided in student housing, while smaller proportions lived in family homes (12.0%, n = 19) or dormitories (4.4%, n = 7).

Parental educational attainment revealed that 50.6% of mothers had education levels of high school or below, while

49.4% had university-level education or higher. Fathers demonstrated slightly higher educational attainment, with 54.4% having university degrees or above compared to 45.6% with high school education or below. Most participants came from nuclear families (88.6%, $n = 140$), followed by extended families (8.9%, $n = 14$) and single-parent households (2.5%, $n = 4$).

In terms of family income, nearly half of the participants (49.4%, $n = 78$) reported family incomes equal to their expenses, while 38.0% ($n = 60$) had incomes exceeding their expenses, and 12.7% ($n = 20$) had incomes lower than their expenses. Additionally, 53.8% of participants ($n = 85$) reported having lived with an elderly family member, while 46.2% ($n = 73$) had not. Lastly, when asked about future living preferences, 70.9% ($n = 112$) of participants expressed that they would not prefer to live with their parents in the future, while 29.1% ($n = 46$) indicated a preference to do so. These findings provide valuable insights into the sociodemographic profiles and familial dynamics of the study population.

The total scores and sub-scale scores of the UCLA Geriatrics Attitudes (UCLA-GA) Scale, which evaluates

participants' attitudes toward elderly across four dimensions, are summarized in Table 2.

The Social Value sub-scale, consisting of two items, yielded a mean score of 6.2 ± 1.4 , with possible scores ranging from 3 to 10, indicating moderate levels of perceived social value attributed to elderly. The Medical Care sub-scale, which includes four items, had a mean score of 14.4 ± 2.2 , with a score range of 9 to 20, reflecting positive attitudes toward the medical care provided to elderly individuals. Similarly, the Compassion sub-scale, also comprising four items, demonstrated a mean score of 14.4 ± 2.3 , with scores spanning from 4 to 20. The Resource Distribution sub-scale, with 4 items, had a mean score of 12.4 ± 2.1 , ranging from 7 to 19, indicating moderate perceptions of fairness in resource allocation for elderly care. The overall UCLA-GA Scale total score, derived from all 14 items, averaged 47.5 ± 4.6 , with a range of 36 to 58, suggesting generally positive attitudes toward elderly among the participants.

Table 2. Total and sub-scale scores of UCLA Geriatrics Attitudes (UCLA-GA) Scale of the participants

Sub-scale of attitudes scale	Number of question	Scores	Minumum score	Maximum score
Social value (SV)	2	6.2 ± 1.4	3	10
Medical care (MC)	4	14.4 ± 2.2	9	20
Compassion (CP)	4	14.4 ± 2.3	4	20
Resource Distribution (RD)	4	12.4 ± 2.1	7	19
Total	14	47.5 ± 4.6	36	58

The UCLA-GA Scale consists of 14 items, each rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Consequently, the lowest possible total score on the scale is 14, while the highest possible score is 70.

Table 3. Distribution of participants' UCLA Geriatrics Attitudes Scale (UCLA-GA) total and subscale scores according to various variables

Variables	Social value	Medical care	Compassion	Resource Distribution	Total
Gender					
Female ($n = 69$)	5.9 ± 1.4	14.5 ± 2.2	14.6 ± 2.1	12.2 ± 2.2	47.4 ± 4.5
Male ($n = 89$)	6.4 ± 1.4	14.3 ± 2.2	14.2 ± 2.5	12.6 ± 2.1	47.6 ± 4.8
<i>P-value*</i>	0.044[†]	0.493	0.323	0.331	0.801

Living arrangement						
Family house (n = 19)	5.6 ± 1.4	14.7 ± 1.4	14.2 ± 3.0	12.0 ± 2.1	46.6 ± 4.6	
Student house or Dormitory (n = 139)	6.3 ± 1.4	14.3 ± 2.3	14.4 ± 2.3	12.5 ± 2.1	47.6 ± 4.7	
<i>P-value*</i>	0.049[†]	0.501	0.755	0.322	0.361	
Mother educational attainment						
High school and below (n = 80)	6.2 ± 1.4	14.4 ± 2.2	14.8 ± 1.9	12.4 ± 2.2	48.0 ± 4.8	
University and above (n = 78)	6.2 ± 1.5	14.3 ± 2.2	13.9 ± 2.6	12.5 ± 2.1	47.0 ± 4.5	
<i>P-value*</i>	0.978	0.719	0.016[†]	0.802	0.206	
Father educational attainment						
High school and below (n = 72)	6.2 ± 1.3	14.4 ± 2.0	14.9 ± 1.8	12.3 ± 2.3	47.9 ± 4.6	
University and above (n = 86)	6.2 ± 1.5	14.3 ± 2.3	14.0 ± 2.7	12.5 ± 2.1	47.2 ± 4.7	
<i>P-value*</i>	0.849	0.866	0.017[†]	0.526	0.311	
Family structure						
Nuclear (n = 140)	6.2 ± 1.4	14.5 ± 2.1	14.3 ± 2.3	12.5 ± 2.1	47.6 ± 4.7	
Extended (n = 14)	5.8 ± 1.3	13.5 ± 2.4	15.4 ± 1.8	12.2 ± 2.1	47.1 ± 4.7	
<i>P-value*</i>	0.304	0.128	0.096	0.709	0.706	
Family income, n (%)						
Lower than expenses (n = 20)	6.0 ± 1.5	14.9 ± 1.6	13.8 ± 2.1	12.6 ± 2.3	47.4 ± 4.8	
Equal to expenses (n = 78)	6.2 ± 1.3	14.2 ± 2.3	14.6 ± 2.1	12.4 ± 2.4	47.7 ± 4.5	
Higher than expenses (n = 60)	6.3 ± 1.5	14.4 ± 2.3	14.2 ± 2.6	12.4 ± 1.8	47.4 ± 4.8	
<i>P-value**</i>	0.715	0.482	0.303	0.919	0.926	
Have you ever lived with an elderly family member?						
Yes (n = 85)	6.3 ± 1.3	14.2 ± 2.2	14.6 ± 2.2	12.0 ± 2.1	47.3 ± 4.5	
No (n = 73)	6.1 ± 1.6	14.6 ± 2.2	14.1 ± 2.5	12.9 ± 2.1	47.7 ± 4.8	
<i>P-value*</i>	0.420	0.288	0.125	0.016[†]	0.557	
Would you prefer to live with your parents in the future?						
Yes (n = 46)	6.1 ± 1.6	13.7 ± 2.4	14.2 ± 2.5	12.1 ± 2.0	46.2 ± 4.7	
No (n = 112)	6.3 ± 1.3	14.6 ± 2.0	14.4 ± 2.3	12.6 ± 2.2	48.0 ± 4.5	
<i>P-value*</i>	0.505	0.019[†]	0.635	0.187	0.028	
Willingness to work in institutions providing elder care services in the future						
Yes (n = 34)	6.0 ± 1.2	13.5 ± 1.8	15.1 ± 2.1	11.5 ± 2.2	46.3 ± 4.6	
No (n = 124)	6.3 ± 1.5	14.6 ± 2.2	14.2 ± 2.4	12.7 ± 2.1	47.8 ± 4.6	
<i>P-value*</i>	0.336	0.012[†]	0.038[†]	0.006[†]	0.092	

The UCLA-GA Scale consists of 14 items, each rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Consequently, the lowest possible total score on the scale is 14, while the highest possible score is 70. * Independent sample t-test (two-tailed p value). **ANOVA (One-way). † Statistically significant.

The responses to the question "What comes to mind when you think of aging?" reveal a variety of perspectives, with recurring themes related to the physical, emotional, and social aspects of aging. The most frequently mentioned associations include disease (11.4%), retirement (7.0%), and death (6.3%). Many participants highlighted physical changes such as wrinkles, graying hair, and a decline in body functionality, emphasizing the physical toll of aging. Emotional responses included feelings of loneliness, helplessness, and fear, while social aspects often revolved around dependence on others, family dynamics, and reduced mobility. Positive associations were rare but included terms like maturity, experience, and peaceful time with family. Overall, the data suggest that aging is predominantly viewed through a lens of challenges, particularly those related to health, independence, and vitality.

The responses to the question "Would you like to work in an institution providing elderly care in the future?" reveal a predominantly negative sentiment among intern doctors. A significant proportion of participants (11.4%) cited the complexity of care for elderly patients, including managing comorbidities and the physical and emotional challenges associated with elderly. Emotional difficulty, such as the burden of witnessing frailty, illness, and mortality, was mentioned by 6.3% of respondents. Similarly, 7.0% expressed that working with elderly individuals does not align with their career goals, preferring fields like pediatrics, surgery, or more dynamic environments. Furthermore, communication challenges with elderly patients were emphasized by 1.9% of participants, and 1.3% specifically highlighted the emotional toll of constant exposure to aging and mortality. Overall, these findings indicate that most intern doctors feel unmotivated or unsuited for careers in elderly care due to professional misalignment, emotional burden, and the perceived complexity of managing this patient population.

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The UCLA Geriatrics Attitudes Scale scores and subscales were analyzed across various participant characteristics, yielding significant insights in Table 3. Male participants exhibited significantly higher scores on the Social Value subscale compared to females (6.4 ± 1.4 vs. 5.9 ± 1.4 , $p = 0.044$). Participants residing in student housing or dormitories scored higher on the Social Value subscale than those living in family homes (6.3 ± 1.4 vs. 5.6 ± 1.4 , $p = 0.049$). Parental educational attainment also influenced attitudes; participants with mothers ($p = 0.016$) or fathers ($p = 0.017$) who attained university-level education scored significantly higher on the Compassion subscale than those whose parents had high school education or below. Participants who had not lived with elderly family members scored significantly higher on the Resource Distribution subscale compared to those who had (12.9 ± 2.1 vs. 12.0 ± 2.1 , $p = 0.016$). Furthermore, individuals who expressed a preference not to live with their parents in the future scored higher on the Medical Care subscale (14.6 ± 2.0 vs. 13.7 ± 2.4 , $p = 0.019$) and the total UCLA-GA score (48.0 ± 4.5 vs. 46.2 ± 4.7 , $p = 0.028$). Lastly, participants unwilling to work in elderly care institutions demonstrated significantly higher scores on the Medical Care (14.6 ± 2.2 vs. 13.5 ± 1.8 , $p = 0.012$), Compassion (15.1 ± 2.1 vs. 14.2 ± 2.4 , $p = 0.038$), and Resource Distribution (12.7 ± 2.1 vs. 11.5 ± 2.2 , $p = 0.006$) subscales.

The multiple linear regression analysis summarized in Table 4 examines the predictors influencing the total and sub-scale scores of the UCLA-GA.

Table 4. Multiple linear regression analysis examining the effects of relative variables on changes in total and sub-scale of UCLA-GA scores

Predictor	Unstandardized coefficients B	95% CI for B	Coefficients Std. Error	Standardized coefficients B	P-value
Total Score^a					
Would you prefer to live with your parents in the future?	1.793	0.198–3.388	.807	.174	0.028[†]
Willingness to work in institutions providing elder care services in the future	1.527	-.236–3.291	.893	.134	0.089
R square, ANOVA (F), Durbin-Watson, <i>p</i> -value	0.048	3.942	2.106		0.021[†]
Social value scores^b					
Gender	.475	.012–.938	.234	.160	0.044[†]
R square, ANOVA (F), Durbin-Watson, <i>p</i> -value	.026	4.110	1.907		0.044[†]
Medical care scores^c					
Family structure	-1.031	-2.097 – .034	.539	-.147	0.058
Would you prefer to live with your parents in the future?	.954	.208 – 1.699	.377	.194	0.012[†]
Willingness to work in institutions providing elder care services in the future	1.078	.255 – 1.900	.416	.198	0.011[†]
R square, ANOVA (F), Durbin-Watson, <i>p</i> -value	.096	5.451	1.825		0.001[†]
Compassion scores^d					
Mother educational attainment	-1.175	-1.921 – -.428	.378	-.247	0.002[†]
Family income	.970	-.144 – 2.085	.564	.136	0.088
Willingness to work in institutions providing elder care services in the future	-1.097	-1.984 – -.210	.449	-.189	0.016[†]
R square, ANOVA (F), Durbin-Watson, <i>p</i> -value	.091	5.151	2.059		0.002[†]
Resource Distribution scores^e					
Have you ever lived with an elderly family member?	.736	.063 – 1.408	.341	.168	0.032[†]
Willingness to work in institutions providing elder care services in the future	1.057	.241 – 1.873	.413	.199	0.011[†]
R square, ANOVA (F), Durbin-Watson, <i>p</i> -value	.075	6.321	2.255		0.002[†]

** Multiple linear regression included variables with $p < 0.100$ criterion and calculated by using the backward stepwise method. Reference for gender is "female"; Reference for Would you prefer to live with your parents in the future? is "yes"; Reference for Willingness to work in institutions providing elder care services in the future is "yes"; Reference for Family structure is "nuclear family"; Reference for Have you ever lived with an elderly family member? is "yes"; Reference for Mother educational attainment is "High school and below". † Statistically significant. a Seven steps. b Eight steps. c Six steps. d Six steps. e Seven steps.

For the Total Score, a significant positive association was observed with the preference to live with parents in the future ($\beta = 1.793$, 95% CI: 0.198–3.388, $p = 0.028$). This finding suggests that intern doctors who prefer living with their parents have a more favorable overall attitude toward older adults. However, willingness to work in institutions providing elder care services showed a positive trend without statistical significance ($p = 0.089$). In the Social Value subscale, gender emerged as a significant predictor ($\beta = 0.475$, 95% CI: 0.012–0.938, $p = 0.044$), with males showing higher scores compared to females. This indicates that male participants hold stronger positive views regarding the societal contributions of older individuals. For the Medical Care subscale, both the preference to live with parents in the future ($\beta = 0.954$, 95% CI: 0.208–1.699, $p = 0.012$) and willingness to work in elder care institutions ($\beta = 1.078$, 95% CI: 0.255–1.900, $p = 0.011$) were significantly associated with higher scores. In the Compassion subscale, maternal educational attainment ($\beta = -1.175$, 95% CI: -1.921 to -0.428, $p = 0.002$) and willingness to work in elder care institutions ($\beta = -1.097$, 95% CI: -1.984 to -0.210, $p = 0.016$) were significant. Lower maternal educational levels were associated with higher compassion scores, highlighting the complex interplay of socioeconomic and educational factors in shaping empathetic attitudes. Finally, for the Resource Distribution subscale, participants who had lived with an elderly family member ($\beta = 0.736$, 95% CI: 0.063–1.408, $p = 0.032$) and those willing to work in elder care institutions ($\beta = 1.057$, 95% CI: 0.241–1.873, $p = 0.011$) had significantly higher scores. This suggests that direct experience with older adults positively influences perceptions of fairness in resource allocation for elderly care.

Discussion

This study provides valuable insights into the attitudes of intern doctors toward elderly, assessed through the UCLA-GA Scale. The findings highlight the influence of demographic factors, personal experiences, and professional aspirations on attitudes toward elderly care. The results indicate generally positive attitudes toward elderly among participants, consistent with prior studies using the UCLA-GA scale. For instance, research conducted by Şahin et al. (2012) demonstrated favorable attitudes toward elderly patients among healthcare providers, underscoring the reliability of the scale as a measurement tool (18). Similarly, Al Ghailani et al.

(2024) reported moderate to positive attitudes toward elderly among medical students and doctors, emphasizing the need for improved elderly education in medical curricula to further enhance these perspectives (19). Additionally, a study by De Biasio et al. (2016) highlighted that while medical students exhibit initially positive attitudes, their perceptions may decline without ongoing curriculum-based interventions, indicating the importance of sustained engagement with geriatrics throughout training (20). This study also found that factors such as parental education and previous living experiences with elderly family members significantly shaped participants' perspectives, reinforcing the role of familial and environmental contexts in the development of empathy and compassion.

The participants predominantly associated aging with negative themes such as illness, dependency, and death, reflecting broader societal stereotypes. These findings align with prior literature highlighting ageism as a pervasive influence on medical professionals' perceptions of aging (21). While some participants recognized positive aspects of aging, such as wisdom and family bonding, these responses were comparatively rare, emphasizing the need for targeted educational interventions to foster a more balanced understanding of aging. Of note, a significant proportion of participants expressed reluctance to pursue careers in geriatrics, citing factors such as the emotional burden of witnessing frailty and mortality, the complexity of managing comorbidities, and a perceived misalignment with career aspirations. These findings echo prior research suggesting that while medical students may hold positive attitudes toward elderly care, they often view geriatrics as a less desirable specialty (20). Interventions such as mentorship programs and enhanced exposure to geriatric medicine during training may mitigate these perceptions.

Male participants and those living in student housing exhibited higher scores on the Social Value subscale, suggesting that peer-based and collaborative living environments may positively influence perceptions of elderly. Inversely, in a related Turkish study conducted at Necmettin Erbakan University, gender differences and income levels significantly influenced attitudes, with female students and those with higher incomes demonstrating more positive perceptions (22). This finding aligns with studies indicating that social contexts can shape attitudes toward elderly care (23). Similarly, Al Ghailani et al. (2024) highlighted that living arrangements and personal exposure to elderly individuals play a significant role in shaping positive attitudes among medical students (19). Additionally, a study by De Biasio et al. (2016) noted that structured educational and social exposures during medical training could help foster a better

understanding of the social value of geriatrics (24). These findings collectively underscore the importance of social and environmental factors in shaping perceptions of elderly care.

Participants whose parents attained higher education levels demonstrated greater compassion scores. This observation suggests that early familial influences and socioeconomic factors play critical roles in shaping empathy toward elderly individuals. These results align with studies emphasizing the importance of personal background in shaping attitudes among healthcare trainees (19). Similarly, Zanjari et al. (2022) reported that familial socioeconomic status and parental education significantly impacted healthcare professionals' attitudes toward geriatrics, further reinforcing the role of early influences (21). Additionally, a study by De Biasio et al. (2016) highlighted that students from higher socioeconomic backgrounds tend to exhibit more empathetic attitudes, suggesting that educational interventions targeting empathy could help mitigate disparities (24).

Of note, participants unwilling to work in geriatrics scored higher on the Medical Care and Compassion subscales. This may reflect a heightened awareness of the demands of elderly care, leading to self-selection away from the specialty. Similar findings have been noted in previous studies, where increased awareness of challenges in elderly care correlated with hesitancy to specialize in geriatrics (25). Additionally, Chua et al. (2008) observed that while medical students demonstrated positive attitudes toward elderly care, many cited the emotional and logistical challenges of geriatrics as reasons for reluctance to pursue it as a career (23). Moreover, De Biasio et al. (2016) emphasized that structured exposure to geriatrics during medical training could help address misconceptions, although the inherent complexity of the field remains a deterrent for many trainees (24). These findings suggest that hesitancy to specialize in geriatrics may arise not from a lack of empathy but from an informed understanding of the specialty's challenges.

The findings of this study highlight the need for curriculum reforms to address stereotypes and foster positive attitudes toward elderly. Integrating empathy-building modules, early clinical exposure to elderly care, and structured mentorship programs can help address the challenges identified in this study. Evidence suggests that holistic educational interventions can improve both knowledge and attitudes toward elderly (26). For example, Goeldlin et al. (2014) demonstrated that geriatric clinical skills training modestly improved attitudes, particularly in the domain of resource distribution (25). Similarly, Haque et al. (2013) found that geriatric-focused workshops helped medical students maintain positive attitudes toward elderly care, even when baseline interest in geriatrics was low (27). Additionally,

another study by Çalışkan et al. (2018) stated that it is necessary to include more elderly content in the training curriculum in the pre-graduation education to improve the attitudes of family physicians towards elderly care (22). These findings reinforce the importance of embedding targeted, empathy-building educational strategies into medical training to combat stereotypes and improve perceptions of elderly care.

The study has several limitations that should be acknowledged. First, the sample was drawn from a single institution, which may limit the generalizability of the findings to other medical schools or regions with different sociocultural contexts. Additionally, the cross-sectional design provides only a snapshot of attitudes at a single point in time, making it difficult to capture longitudinal changes in perceptions and the impact of ongoing training. The reliance on self-reported data through tools like the UCLA-GA scales introduces the potential for response bias, as participants may have provided socially desirable answers rather than accurate reflections of their true attitudes. The study also faced a notable limitation in the relatively high proportion of individuals who chose not to participate, which may have introduced selection bias. Those who opt out might have had different attitudes or experiences regarding elderly, potentially influencing the overall results and limiting the representativeness of the findings. This non-participation could have skewed the data toward those with inherently more interest or positive attitudes toward elderly care, thus warranting caution in interpreting the outcomes. Another limitation is the short-term evaluation of the intervention, as the study did not explore the long-term effects of screening on attitudes. The study also lacked a detailed analysis of the medical curriculum and the specific elderly training provided, which could have contextualized the findings more effectively. Finally, while validated tools were used, they may not fully capture the complexity of attitudes toward elderly; incorporating qualitative methods such as interviews or focus groups could have provided a deeper understanding of the results. These limitations underscore the need for broader, longitudinal studies and more comprehensive evaluations of educational strategies in geriatrics.

Conclusions

Taken together, the outcomes of this study highlight the multifaceted factors influencing medical trainees' attitudes toward the elderly, including personal demographics, cultural influences, and exposure to elderly care. Personal and professional inclinations significantly shape these attitudes. These factors not only shape perceptions of aging but also

influence career preferences and willingness to specialize in geriatrics. Those who preferred to live with their parents in the future exhibited more favorable perceptions of aging, while willingness to work in elder care institutions was associated with higher scores of medical care and resource distribution subscales. Despite these positive perspectives, aging remains largely perceived through negative lenses, such as illness, dependency, and mortality, emphasizing the need for targeted educational interventions to foster a more balanced and nuanced understanding of aging among future healthcare professionals. Addressing these challenges through targeted educational strategies such as empathy-building workshops, early clinical exposure, and structured mentorship programs is essential for fostering positive attitudes. Additionally, incorporating arts-based interventions, such as films or role-play, can help trainees better understand the emotional and social dimensions of aging, though these methods should be carefully adapted to the cultural and personal contexts of the learners. Mentorship opportunities with experienced geriatricians can also inspire students and mitigate concerns about the perceived challenges of the field. These targeted interventions are critical for preparing future healthcare professionals to meet the demands of an aging population, ensuring they possess the knowledge, skills, and attitudes necessary to deliver high-quality care.

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