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Being old is like...: perceptions of aging among healthcare profession students

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Abstract

Background This research explores the perspectives and attitudes of university students in health sciences towards aging and older adults. Given the intricate interplay of factors influencing attitudes toward aging, coupled with the demographic shift in Turkey from a youthful to an aging population, the study aims to discern how a cohort of university students perceives the aging process.

Methods Employing a mixed-methods research strategy, which enhances the depth of data interpretation, the study utilized a questionnaire for quantitative data collection. Additionally, qualitative insights were gathered through a metaphor stem-completion item appended to the questionnaire and semi-structured interviews with students. The participants were selected from the Health Sciences Faculty and School of Medicine at a Turkish university.

Results The study revealed that participating students generally hold positive attitudes and demonstrate respect towards older adults. However, they also associate old age with negative aspects such as loss of autonomy and a constant need for assistance. Furthermore, older individuals are perceived as emotionally challenging and challenging to work with, irrespective of the nature and duration of interactions during their academic programs. These findings suggest a potential pathologizing perspective towards aging adults among health science students, who are prospective health professionals.

Conclusions This paper discusses the implications of the study and offers insights for program coordinators, curriculum designers, and faculty members in health sciences. The results underscore the necessity for a heightened emphasis on gerontology-related subjects within health science curricula. This emphasis is crucial for cultivating a comprehensive understanding among students of the social, psychological, cognitive, and biological changes associated with aging.

Keywords Aging, Perceptions and attitudes of aging, Healthcare students, Aging in curriculum

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Introduction

In Turkey, individuals aged 65 and above are classified as “senior/elder/older adults” [1]. However, differing perspectives on aging exist across communities, and historically, the term “older people” was applied to much younger adults before advancements in health sciences. Presently, Turkey is undergoing demographic shifts, marked by a decline in fertility rates and an increase in life expectancy. Projections from 2016 to 2018 indicate a continued trend, with average life expectancy expected to reach 75.6 for men and 81 for women [1–3]. The percentage of the population aged 65 and above is projected to rise from 8.2% in 2015 to 10.2% by 2023 [2]. These demographic shifts align with a global pattern, positioning the 21st century in Turkey as “the century of the older generation” [4].

Given the socio-structural transformations resulting from recent demographic and economic changes in Turkey [5], it becomes crucial to examine intergenerational relationships. Understanding the dynamics of knowledge transfer between generations and raising awareness of tensions arising from demographic and economic changes are essential. Education, in its broad sense, is intertwined with societal changes, as societal shifts significantly influence education, and education, in turn, can shape anticipated impacts of societal changes. The project “The Interplay between Intergenerational Solidarity, Family, and School” (TUBITAK-Scientific and Technological Research Council of Turkey, Project no: 116K245), from which this paper emerges, was designed to explore these relationships in light of recent demographic changes in Turkey.

While the project aimed to investigate intergenerational solidarity, family, and education, a specific focus was directed towards observing stereotypes and beliefs about aging among students. Perceptions of old age not only influence societal behavior towards older adults but also impact the relationships of younger professionals interacting with older generations in their workplaces. This paper specifically delves into the perceptions and attitudes of students in healthcare-related education, as they are the future providers of services and support to older adults. Given Turkey’s rapid demographic transition, the country is anticipated to experience accelerated population aging and an increase in care-related needs [6]. The study’s findings provide valuable insights for revising healthcare service education policies, facilitating collaboration between healthcare professionals, scholars, and students to deliver more compassionate and high-quality care-related services in the face of the impending challenges posed by increased demand for social and healthcare services.

Methods

Design, setting and participants

In this study, we employed a mixed-methods research approach, chosen for its capacity to yield a more nuanced interpretation of both the data and the phenomenon under scrutiny [7]. Specifically, we adhered to a convergent parallel mixed-methods design, wherein the researcher concurrently conducted the quantitative and qualitative components, treating them with equal importance and independently analyzing each before integrating the results [8]. The overarching objective was to leverage the advantages offered by both quantitative and qualitative methodologies [9], recognizing that each approach contributes distinct techniques and procedures aligned with their respective strengths and logical frameworks [10].

To determine students’ attitudes towards older adults, we employed a combination of quantitative and qualitative data collection methods within the university setting of Acibadem University in Istanbul, specializing in health sciences. The quantitative data were gathered from 242 students using the questionnaire devised by Bousfield and Hutchison [11]. Additionally, qualitative insights were obtained through semi-structured interviews conducted with 20 students and an extra metaphor stem-completion item incorporated into the questionnaire [12].

The quantitative data collected from the questionnaire adapted and translated from Bousfield and Hutchison [11] were analyzed using SPSS 17.0 (SPSS Inc., Chicago), and descriptive statistics were obtained. The qualitative data collected through the semi-structured interviews were coded in order to pull out any themes across the data, which were then thematically grouped and analyzed using NVivo 11 (NVivo qualitative data analysis software; QSR International Pty Ltd. Version 11, 2014). Lastly, the additional metaphor stem-completion item was dissected from the questionnaire, and the semantically related metaphors were grouped manually and then analyzed. Figure 1 represents data collection instruments and subscales.

The participating students were selected from the departments of nursing (NRS), physiotherapy and rehabilitation (P&R), nutrition and dietetics (N&D), healthcare management (HM), and the School of Medicine (SoM). A convenience sampling method was employed in this study. When using convenience sampling, the researcher looks for participants who are most easily selected and available to participate in the research study [13]. Since the university specializes in the health sciences, the researchers had access to several different departments and populations of students. Hence, when this research study was announced, several students offered to participate.

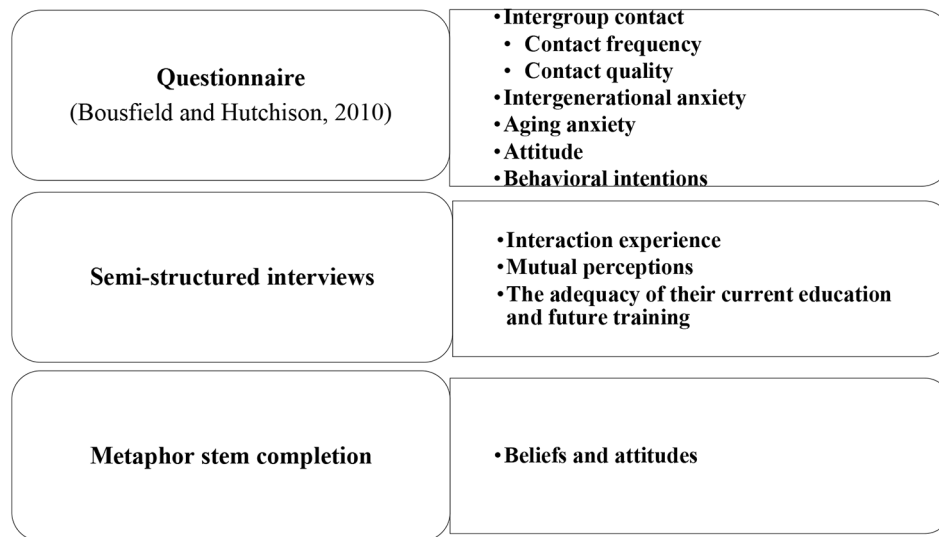


Fig. 1 Data collection instruments and subscales

Table 1 Total item correlation of the survey

	<i>N</i>	<i>r</i>	<i>p</i>		<i>N</i>	<i>r</i>	<i>p</i>
item8	41	,970	,000	item22_2	41	,715	,000
item9	41	,936	,000	item22_3	41	,406	,008
item10	41	,832	,000	item22_4	41	,378	,015
item11	41	,870	,000	item22_5	41	,655	,000
item12	41	,754	,000	item22_6	41	,608	,000
item13	41	,655	,000	item23_1	41	,668	,000
item14	41	,805	,000	item23_2	41	,620	,000
item15	41	,690	,000	item23_3	41	,750	,000
item16	41	,772	,000	item23_4	41	,501	,001
item17	41	,655	,000	item24	41	,573	,000
item18	41	,924	,000	item25	41	,893	,000
item19	41	,903	,000	item26	41	,473	,002
item20	41	,903	,000	item27	41	,912	,000
item21	41	,830	,000	item28	41	,803	,000
item22_1	41	,410	,008	Total	41	,719	,000

Data collection instruments

The questionnaire we used on attitudes towards older adults (Bousfield & Hutchison, 2010) originally contained 19 5-band Likert-type statements and 10 ranking statements but, to aid our qualitative data collection, we added a metaphor stem-completion item to it. Before it was given to the participants, the questionnaire was translated into Turkish and reverse translated. The Brislin [14] back-translation method was used to achieve equivalence between two languages. We worked with an expert to translate the instrument from its source language (English) into the target language (Turkish). To confirm clarity and detect linguistic mistakes, we consulted secondary expert opinions from the health sciences departments. Then another English language expert was consulted to translate the survey from Turkish back to English (backward translation). After that, the backward

translation was compared with the original version for accuracy. To ensure cross-cultural equivalence, this process was repeated twice until the translated survey was jointly agreed to be equivalent and clear. To obtain the cross-cultural adaptation, 2 professors from the nursing and psychology departments were asked to review and approve its adaptation, and necessary modifications were made accordingly. To ensure the validation of the survey in Turkish, the questionnaire was tested by 41 students; the same students answered the survey twice within a two-week period. Table 1 demonstrates the correlation values of the items.

Reliability was assessed using Cronbach’s alpha internal consistency correlation measure with the following value of 0.71. In terms of subdimensions, the adapted version has a better internal consistency with a total Cronbach’s

Table 2 Cronbach's alpha internal consistency correlations

	Cronbach's alpha	
	Original measurement	Adapted version
Intergroup anxiety	0.67	0.76
Aging anxiety	0.73	0.82
Attitudes	0.66	0.70
Behavioral intentions	0.45	0.60
Total	not specified	0.71

Table 3 Confirmatory factor analysis results and fit indices

Indice	Observed value	Consideration	Reference
χ^2	494.146		
df	269		
p	< 0.001	Indicates a good fit.	Hooper et al., 2008 [18]
χ^2/df	1.837	Indicates a good fit.	Hooper et al., 2008
GFI	0.992	Indicates a good fit.	Hooper et al., 2008
CFI	0.853	Indicates an acceptable fit.	Anderson & Gerbing [19], 1984; Sümer, 2000 [20]
NNFI (TLI)	0.839	Indicates a fair fit.	Portela, 2012 [21]
RMSEA	0.059	Indicates a good fit.	Portela, 2012
SRMR	0.063	Indicates an acceptable fit.	Hu & Bentler, 1999 [22]

alpha of 0.71 compared to the original measurement, as shown in Table 2.

The survey instrument employed in this study has been referenced in numerous publications closely related to the subject matter [15–17], suggesting that its content and face validity have been well-established. This is further supported by the fact that the survey underwent a thorough review by subject matter experts, particularly during the language equivalence stage. Moreover, to evaluate the construct validity of the translated survey, the results of a confirmatory factor analysis were analysed. As demonstrated in Table 3, the translated version is consistent with the original measurement tool, thereby confirming the achievement of construct validity.

In the first part of the questionnaire, we aimed to collect demographic information. Participants were also asked to define the age which they considered to be old. In the following parts, the questionnaire aimed to measure five constructs, namely *intergroup contact*, consisting of two dimensions: contact frequency and contact quality, *intergroup anxiety*, *aging anxiety*, *attitudes*, and *behavioral intentions*. As for the intergroup contact, contact frequency and contact quality were measured by asking participants to specify how often they had contact with older adults, on a scale ranging from 1 (almost never) to 5 (every day), and how they would rate the quality of that contact, from 1 (very bad) to 5 (very good). Responses to four items (“I feel awkward/restricted/happy/self-conscious/relaxed around older adults”)

measured participants' intergroup anxiety concerning interactions with older adults. Anxiety about personal aging was measured based on responses to five items: “I am anxious about getting old”; “I am worried that I will lose my independence when I am old”; “I am concerned that my mental abilities will suffer when I am old”; “I am concerned that my physical abilities will suffer when I am old”; and “I do not want to get old because it means I am closer to dying”. Ten adjective pairs were used to measure attitudes towards older adults, and a 5-point scale separated each adjective pair. The first six pairs asked participants to indicate how they evaluated older adults in general on scales with endpoints labeled as follows: independent/dependent, grumpy/pleasant, knowledgeable/ignorant, narrow-minded/open to new ideas or values, healthy/unwell, and withdrawn/sociable. The last four items required participants to rate their feelings when they thought of older adults on scales with endpoints labeled as follows: negative/positive, friendly/hostile, contempt/respect, and admiration/disgust. Intentions to engage in positive behaviors towards older adults were assessed using five items under the behavioral intentions part: “I would not give money to someone collecting for an organization that helps older adults”; “I would support a small increase in taxes if the money went towards supporting older adults”; “I would offer help to an older adult if they were clearly in need of it (for example, crossing the road or carrying shopping)”; “I would be happy to take a job that involved regular contact with older adults”; and “I would want to spend some of my free time on an activity supporting older adults”.

The semi-structured interviews were held with 20 students, selected based on their availability, who were asked the following six questions: (1) Can you describe your level of experience working with geriatric populations? (2) Geriatric patients can have multiple complex health conditions; how do you best work with patients with these complex conditions? (3) Older adults can sometimes be impatient and frustrated with medical providers; how do you deal with angry patients? (4) Do you think your current education will provide you with sufficient information about how to care for older adults? If not, what would you like to learn about caring for older adults? (5) In your future career, would you like to work intensively with older adults? and (6) In your view, what do the older adults think about the young, and what do the young think about the older adults? The questions for the semi-structured interviews were created considering the purpose and the scope of the study and after a rigorous reading of the literature. An external audit was also done by a colleague from the nursing department. The data were processed using NVivo 11.

The additional section in the questionnaire asked the respondents to complete the stem “[B]eing old is like ...

Table 4 Key strategies adapted from Forero et al., 2018

Rigor Criteria	Purpose	Original Strategies	Strategies applied in our study to achieve rigor
Credibility	To establish confidence that the results are true, credible and believable.	-Prolonged engagement with the respondents -Semi-structured interview process -Establishing the interviewer's authority -Peer debriefing	-Individual interviews, approximately 10 min long, were arranged and conducted in 6 weeks. -Interview questions had an external audit and were tested in 2 pilot interviews. -It was ensured that the interviewer had the required knowledge and research skills. -Regular meetings were held during the analysis of the data.
Dependability	To ensure the findings of this qualitative inquiry are repeatable if the inquiry occurred within the same cohort of participants, coders and context.	-Establishing an audit trail -Stepwise replication of the data	-We developed a track record of the data collection process, highlighting the deadlines. -Coding accuracy and inter-coders' reliability were measured.
Confirmability	To extend the confidence that the results would be confirmed or corroborated by other researchers.	-Triangulation	-The data were processed using NVivo 11 and three main themes were classified by the two researchers. -Metaphor categorization was conducted separately by the three researchers and finalized.
Transferability	To extend the degree to which the results can be generalized or transferred to other contexts or settings.	-Data saturation	-We quantified theoretical data saturation.

Table 5 Demographic characteristics

	Categories	n	%	Mean	Sd
Gender	Female	204	83.3		
	Male	38	15.5		
Age				20.51	2.035
Mother's Age				46.44	5.369
Father's Age				50.79	5.489
Place born/lived	Metropolitan	151	61.6		
	City	58	23.7		
	Town	29	11.8		
	Village	4	1.6		
Undergraduate Departments	N&D	58	23.7		
	P&R	35	14.3		
	NRS	79	32.2		
	HM	55	22.5		
	SoM	13	5.3		

Table 6 Subscale statistics

Variable	Mean	Sd
Frequency of contact	2.62	0.591
Quality of contact	3.92	0.694
Intergroup anxiety	3.01	0.336
Aging anxiety	2.69	0.873
Attitudes	3.34	0.467
Behavioral intentions	2.26	0.506

Mean Interval 1.00–1.80 Degree Very low, 1.81–2.60 Low, 2.61–3.40 Moderate, 3.41–4.20 High, 4.21–5.00 Very High

Findings

Quantitative phase

The questionnaire

According to Bousfield and Hutchison [11], the 16 to 25 age group is commonly used in research focused on young people; similarly, the average age of the participants in this study was approximately 21 years old. The majority of the participants were women, due to the high female populations in these departments. The average age of the participants' mothers was 46 years old, while their fathers' average age was 51. Table 5 shows the demographic characteristics of the participants.

The average age that the respondents selected to describe a person as "old" was 64. Only 23 students (10%) did not have any grandparents, while 86 (36%) had three or more living grandparents. Table 6 shows the subscale statistics, that is, the means and standard deviations of the variables collected from the questionnaire.

According to the results of the Independent Sample T-Test, which was conducted to identify any differences in the responses between male and female participants, there were no significant differences between the genders in terms of the subscales of contact frequency ($t=,02$; $p> ,05$), contact quality ($t=,73$; $p> ,05$), and attitude ($t=,96$;

because" to elicit the metaphors. A metaphor is a device for illuminating the lesser-known through the better-known, with the "source domain" yielding insights into the "target domain" [23]. The researchers added the metaphor stem-completion item to complement the quantitative data to gain insights into and descriptions of how the subjects perceive old age, as well as to reach a deeper understanding of the qualitative themes emerging from the semi-structured interviews [12].

In their study, Forero et al. [24] adapted the criteria of Lincoln and Guba [25] in qualitative research, known as credibility, dependability, confirmability and transferability. To be clearer about the procedures of our study, we adapted Forero's 'The Four-Dimensions Criteria.' Table 4 illustrates which strategies were used in our study.

Table 7 Gender differences considering the subscales

Subscales	Groups	N	\bar{x}	Sd	SH \bar{x}	tTest		
						t	df	p
Contact frequency	Female	204	2,61	,58	,04		55,1	,97
	Male	38	2,61	,62	,09			
Contact quality	Female	204	3,93	,71	,04		62,7	,46
	Male	38	3,85	,62	,09			
Intergenerational anxiety	Female	204	2,81	,44	,03		52,9	,00
	Male	38	3,09	,51	,07			
Ageing anxiety	Female	204	2,61	,83	,05		53,0	,00
	Male	38	3,18	,95	,14			
Attitude	Female	204	3,33	,50	,03		60,0	,33
	Male	38	3,41	,47	,07			
Behavioral intentions	Female	204	2,21	,53	,03		61,6	,00
	Male	38	2,48	,47	,07			

Table 8 Highlights from the questionnaire analysis

Subscales	Question	N	%	Questionnaire items
Contact frequency	Q 11	106	44%	I am "often" or in contact with older adults, i.e. every two days or once a week
		134	55%	I have a low frequency of contact, i.e. once a month or once every two months
Contact quality	Q12	157	65%	It is good
		72	30%	It is normal
Intergenerational anxiety	Q13	67	27%	I have difficulty in communication
	Q14	65	27%	I feel awkward or restricted around older adults
	Q15	153	63%	I feel happy
	Q16	121	49%	I feel confident
Ageing anxiety	Q17	28	12%	I feel comfortable
	Q18	129	53%	I have anxiety about aging
	Q19	119	49%	I am anxious about losing my independence
	Q20	147	65%	I am anxious my cognitive abilities will suffer
	Q21	132	55%	"Getting old" is "getting closer" to death
Behavioral intentions	Q27	147	61%	I would gladly accept a job in I have contact with older adults
	Q28	138	57%	I would like to spend some of my spare time doing activities planned for older adults

$p > .05$). However, in other subscales, significant differences were identified between male and female respondents. In terms of the subscales of intergenerational anxiety ($t=3,26$; $p < .05$), aging anxiety ($t=3,55$; $p < .05$), and behavioral intentions, the male participants were found to score more highly than the females. These results indicate that students in this study reported greater levels of intergenerational and aging anxiety, as well as stronger anxiety-related intentions, compared to their female counterparts. Table 7 represents gender differences considering the subscales.

Of all those who filled out the questionnaire, 106 (44%) were "often" or in contact with older adults, i.e. every two days or once a week, while the remaining 134 (55%) had a low frequency of contact, i.e. once a month or once every two months. A total of 157 (65%) of the students considered the quality of their contact as good, while 72 (30%) had "normal" interactions with older adults. Only 65 (27%) of the participants felt awkward or restricted around older adults, whereas 153 (63%) felt happy and relaxed.

Of all those who filled out the questionnaire in a valid manner, 129 (53%) had anxiety about aging, with 119 (49%) feeling they will lose their independence, 147 (65%) believing their mental abilities will suffer, and 181 (75%) fearing their physical abilities will suffer. A total of 132 (55%) participants interpreted "getting old" as "getting closer" to death. Additionally, 147 (61%) students indicated that they would gladly accept a job in which they have contact with older adults and 138 (57%) of them would like to spend some of their spare time doing activities planned for older adults. Table 8 demonstrates these findings.

Based on the ten adjective pairs used to measure attitudes towards older adults, the majority of the respondents indicated that they view older adults as dependent, unhealthy, and grumpy. Most of them believed that older adults are knowledgeable but not open to new ideas. When they thought of old people, the participants reported feeling positive towards them and holding respect and admiration for them.

Qualitative phase

Semi-structured interviews

Students participating in the semi-structured interviews were drawn from six distinct university departments, each of which includes at least one course focused on geriatric studies. Following the analysis of qualitative data, the students' responses were categorized into three primary themes for subsequent examination: the frequency and quality of contact, mutual perceptions, and the sufficiency of current educational offerings and future training.

Contact frequency and quality

The students' perceptions of older adults are influenced by the frequency and quality of their contact. Even when students reported having at least two older adults in their family or among relatives and neighbors, with a perceived good quality of contact, it was notable that their actual contact with the older population at home or during their education was limited. Students highlighted the prevalent role of the second generation (their parents) in caring for older adults in the family or the presence of hired caregivers for basic daily needs. Consequently, the students' viewpoints were primarily shaped by their experiences during hospital internships. Some students expressed the belief that theoretical courses in gerontology alone did not equip them with effective communication skills for older patients, emphasizing that caring for the older adults required hands-on experience, patience, and a genuine willingness to engage. One of the nursing students stated that, based on her observations, the nurses in the hospitals in which she had completed her internship paid scant attention to communicating with older patients, and, instead, mostly interacted with the relatives accompanying them.

Upon their experience with their families, relatives, and field visits, some participants stated that old people are to be treated differently because: they are like children; they are dependent and in need of attention and help; they are sensitive, resentful, and fragile; and they do not get enough nutrition. The majority of the students expressed that they felt unprepared to deal with the older population. They believed that older adults had complex health problems and were not easy to communicate with. One of the interviewees indicated this view as follows:

The old are like children, but when you treat them like children, they get angry and edgy.

The overall opinion of the students was that greater and better-quality exposure to elder populations would be linked to more favorable attitudes and maintaining such favorable attitudes could then be possible during their education through professional encounters. However,

they still expressed that the communication when they are dealing with older patients is unique and could not be compared to the communication they had with their older household members as the following quote illustrates:

Communicating with grandmas and grandpas is not like dealing with older patients.

Mutual perceptions

Responses to the question "What do older adults think about the young?" indicated that participants believed that the negative attitudes they held towards older adults were reciprocal in that the older adults perceived the young also negatively. The majority of the participants expressed the belief about the reciprocity of negative attitudes offering numerous reasons. Their reasons included the generation gap and differences in upbringing; the difficulty of adjusting to one another; the place of technology in young people's lives and older adults' lack of sympathy for the technological reality; and the ideas older people had about the changes in young people's behaviors towards them. However, the participants did not convey these feelings and thoughts in a complaining or reproachful tone; they simply stated that this despondency was a phenomenon that should be accepted with maturity.

A few of the participants indicated that they appreciated that older adults did not exert authority to prevent the young from making different choices than the ones they made in the past in their lives. On the contrary, the participants expressed that there were cases where the older encouraged the young intangibly and helped them financially to realize their aims. The following quote illustrates the above interpretation:

To me, they think of us as lucky, as a generation. Yes, there are slight complaints, but compared to their generation, they let us be freer and don't meddle. They help us to study in other cities; for example, they give us support, both morally and financially.

Some participants commented that the young find the old to be resentful, sensitive, childlike, and highly expectant of being respected and admired. However, some participants criticized the young, blaming them for not being sufficiently empathetic and for being impatient.

The adequacy of their current education and future training

Several participants indicated that they did not feel well-equipped or ready to interact with the geriatric population. They were aware of the need to receive specific education to work with older adults. They believed that

such education should consider both health and psychological dimensions. Accordingly, some students suggested that more courses should be given in geriatric psychology, especially in the early years of their education, rather than only in their final year. 18 interviewees stated that they did not intend to work solely with older adults in their future careers, while three of them said they had changed their minds and would now prefer to work with older adults after having taken care of their grandparents during their summer holidays. One of these three students expressed the need for more psychology courses as part of their current education:

...and the psychological aspect of this issue is very important. I want to give an example from my grandfather. This year, he has had three operations; it is not only my grandfather but also the caregivers around him who have had difficult times; they have become mentally depressed. And the fear of death is so intense in older adults that everyone around has been affected psychologically.

One of the senior-year nursing students underlined the advantages of having a geriatrics course in the final year, saying:

... having the course in our final year is kind of advantageous. We are in the clinics four days a week; we have had the chance to practice what we have studied. If we were given the course in the early years of our education, we couldn't have put theory into practice.

To summarize, despite the great variety in the study participants' interactions with older adults, all of the students considered the experience they had to be valuable. Moreover, although geriatrics courses are usually offered in the final year of the university's curriculum, some interviewees believed that earlier input about the geriatric population would have been beneficial for them. In addition, they expressed appreciation for having theoretical courses followed by the opportunity to put the ideas into practice during their internship programs. While they were aware that they would have the chance to specialize after their first study cycle and choose geriatrics as a postgraduate degree program, only a few participants seemed eager to take this path. Overall, the young participants' perceptions of the older adults appeared to be positive, and marked by a sense of respect; despite this, however, a sole focus on geriatric care was not part of most of their future career plans.

Metaphor stem-completion

The additional metaphor stem-completion item on the questionnaire was analyzed separately and qualitatively. For classification purposes, after all of the metaphors were collected through stem-completion, 87 in total were selected; metaphors that appeared to be semantically related were grouped, and seven categories emerged. 87 metaphors were selected for classification because not all participants provided valid metaphors; some students either left this section incomplete, misunderstood the task, or offered responses that were not suitable for metaphorical analysis. The remaining 87 metaphors were those that clearly expressed relevant ideas and could be meaningfully grouped into distinct categories based on their semantic similarities. A minimum of five metaphors was considered necessary to count as one category. Categorization was conducted separately by three researchers. The formulation of the categories was based on finding the same keywords in different metaphors, as in the study of Aktekin [26]; for example, "oak tree" and "plane tree" led to the formulation of the category "Trees". The conceptual aspects of the metaphors were also considered, and categorization was made accordingly; for example, the two metaphors used to portray older adults: "aging like wine" and "becoming vinegary" were categorized differently based on their positive or negative connotations, with the former categorized as "becoming precious", and the latter as "losing flavor". Table 9 summarizes the seven categories identified from the students' metaphors, with three examples given to illustrate each category. The first approach to analyzing the metaphors is social psychology in nature, and can show 'how these metaphors reveal the underlying conceptualization of the worlds [these students] inhabit' [Ellis, 1998, p. 37, cited in 26].

The most frequently used metaphors referred to the respectability and dignity of older people, which were associated with mighty, old trees. However, the participants also indicated that with age, people lose their strength, and physical decline sets in. Therefore, metaphors about "falling leaves" and "autumn" were also high in number. The metaphors of the third category indicate that the young view being old as being childlike. In conceptual terms, these metaphors highlight the fact that older adults need care and help because they become like children. The richness of older people's lives, their experience, wisdom, and their value were categorized into three semantically related metaphor groups; all of these groups show the students' appreciation of the fact of aging. The last category relates to negative perceptions of getting old, and may indicate aging anxiety.

The second approach employed to analyze the metaphors, a social discursive approach, focuses on the metaphoric construction of a belief space, which is, in part, shared and shaped by others and in which

Table 9 Metaphorical statements of students' beliefs

Metaphors	Examples	Number
Oak/plane tree, a lofty tree (Dignity, respectability)	Being like a lofty tree with strong roots Like an oak tree and its shadow under which generations rest An old person is like a plane tree, great, rooted, and precious	15
Fall season, leaves falling (Physical decline)	Like being barren of leaves, withering away It is like an autumn after which no spring comes Yellow leaves falling onto the ground and disappearing	14
Being a child (Care-seeking, starting over)	It is like being a child because the elderly need care and attention Like being a baby because mental and physical abilities decline It is like a rebirth	12
Ripe fruit, trees full of fruit (Richness of life)	Being old is like a ripe fruit that is full of taste It is like a tree full of fruit that everyone wants to taste Like fruit ripening as time goes by	19
Climbing a mountain (Experience, wisdom, vision)	It is like climbing a mountain; you are panting and breathless Like climbing a mountain; you become breathless and winded but your vision enlarges Being old is like climbing a mountain; there are unforeseen dangers, but you finish at the peak	11
Vintage car, vintage wine (Precious)	Like a vintage car, old but priceless Like wine because as it gets older, it becomes more valuable	7
Sour cream, vinegar (Aging, obsolescence, signs of wear)	First being wine, then becoming vinegar Like grapes, they shrivel up in time Like cheese left outside the fridge Like an old record	9

Table 10 Metaphors as the construction of paradox

Paradox	Examples
Double binds	A tree, first a young plant, but it eventually fades away Sailing on a boat that will sink as it takes on water Like ripe fruit, first tasty and then becomes inedible A road full of adventures and life, but it eventually ends
Contradiction between expectations and physical abilities	Like an old computer, full of data but it is slower It is like having lots of money, but at the end of the month, it is all spent It is like a penguin, having wings but cannot fly Being like a mighty tree without roots anymore
Conflict and struggle	Watching a film, sometimes joyful, sometimes sad, but it ends It is like a book; thick, full of knowledge but not used anymore Being like a car without petrol To be tied up, first feet, then hands, and finally your mind

various possible scenarios are acted out [26]. This approach reveals students' conflicting feelings about aging. Table 10 presents the metaphors as constructions of paradoxes. Concepts relating to ending, perishing, fading away, and struggling to survive can all be deduced from these metaphors.

Discussion

This study employed a mixed-methods research approach to determine whether the quantitative data—specifically participants' responses to a questionnaire—aligned with the qualitative data gathered from semi-structured interviews and metaphor-completion task comments. The quantitative approach allows for generalizations by using measurable methods for data collection and analysis, while the qualitative approach seeks to understand and appreciate human thought and behavior within a social context, covering a broad range of phenomena. We found that the mixed-methods approach used in this

study provided us with some variability in the findings in terms of both negative and positive attitudes and perceptions towards the older, which could be further explored by future studies.

Attitudes play a key role in people's behavior and are shaped by values and beliefs. Therefore, shedding light on these attitudes can support efforts aimed at raising social awareness and reformulating education policies. Attitudes towards older people and older patients among healthcare professionals have been an increasing concern and as such more recently systematic reviews examined and compared attitudes across the various professions that provide healthcare to older people [27]. On a general level, in our study, it was found that the students studying at Acıbadem University continue to hold positive attitudes, and find older adults wise and experienced but at the same time, they are mostly reluctant to work with the older in their profession. In the findings, it appears that the young have limited interaction with the older

despite the presence of older adults in their communities. Although they would like to spend their time doing activities planned for the older adults, the participants express that they would not readily accept a job concerning older adults as they are concerned with the issues that may arise due to the generational gap, differences in upbringing and communication problems. Additionally, participants believe the generation gap and differences in upbringing are the two main reasons why there are miscommunications between the young and the older adults. Other studies in the literature report about participants' positive intentions towards older adults [28–32] and similarly in our study, the majority of the participants express respect and admiration towards older adults; however, they also express that older adults' expectations of the young are high. According to our results, students also find older adults in need of help, sometimes bad-tempered, and difficult to work with. Indeed, many studies [34–38] have identified nursing students' declining interest in working with older adults during their nursing degree programs. In the studies of Adibelli et al. [39], and Celik et al. [40], the majority of participants were found to hold negative views about aging; nevertheless, most participants reported that they behaved positively towards older adults and showed sensitivity and respect while caring for them. Comparing the findings of a recent study by Murakami et al. [41] with our findings, we observe notable differences between Japanese students' perspectives of older adults and old age and our participants in terms of articulation of respect and the degree the articulation is transferred to caring in practice. Our findings suggest that although our participants respect older adults, this respect is sometimes overshadowed by the challenges they face in communication and caregiving, as reflected in their metaphorical associations with aging. For instance, while they view older adults as wise and dignified (comparable to 'mighty old trees'), they also perceive them as frail and in decline (akin to 'falling leaves'). This dual perception indicates that, unlike the Japanese students, who maintain more consistent and perhaps idealized respect, our participants' respect is tempered by their first-hand experiences with the complexities of aging, such as physical and cognitive decline. Thus, our findings support Yildirim's [5] argument that demographic and economic changes and socio-structural developments have started to change the relationships between the generations in Turkey. It can therefore be suggested that in Turkey's case, it cannot be taken for granted that students in the health profession will unquestionably carry positive attitudes they hold toward the older adults in their profession and would willingly and effectively work with the older towards maximizing their well-being. Based on our findings we propose that understanding the attitudes of student healthcare

professionals and the associated factors can provide an evidential basis upon which to develop initial education curricula that can train new enrollees to meet the needs of future healthcare systems. Seeking out students who hold negative views of older adults may be worthwhile as it can provide insights into what can be done to improve attitudes and increase sensitivity.

In terms of gender differences, our findings indicate that the male students' levels of intergenerational anxiety and aging anxiety are lower than those of the female students, while the males' behavioral intention levels are higher than those of the females. The results of our study also revealed that the female students on average had more positive attitudes towards older people than the males did. According to Barrett and Von Rohr [42], gender and aging are inextricably linked, which adds another layer to the complexity of how aging is perceived by different communities and individuals. Women are twice as likely as men to celebrate their 85th birthday [43] and the research reveals that women tend to have more positive attitudes towards the older adults than men do [44, 45]. In light of the findings of earlier studies and our study, we maintain that a curricular approach in health sciences that addresses the complexities genders may bring to caring for older adults could help promote more positive perceptions of the profession, regardless of the gender of the students.

In our study, participants noted that their interaction frequency with older adult patients during their education was not adequate. They believed they would be more comfortable toward working with older adults if they could have more previous contact. Although some of the students may never primarily work with older adults, increasing sensitivity to this population would still benefit the profession [46]. They also highlighted the positive effect of putting their theoretical knowledge into practice during their clinical training period. These results are in line with the studies of Dussen & Weaver, and Oh & Bong [47]. These findings raise intriguing questions regarding the nature and extent of intergenerational solidarity and its implications for healthcare science departments and wider societal dynamics.

Earlier studies investigating attitudes among physical therapy undergraduates found that the students hold both negative and positive biases about aging. Beling's [48] study showed that an increase in knowledge about older adults did not necessarily lead to changes in attitudes or imply negativity in the students' behavior. According to Beling [48], these findings among physical therapy students are similar to those reported in some other studies with nursing and medical students. In another study Hobbs et al. [49], found that the physiotherapy students began their degrees with somewhat positive attitudes towards older people and that their knowledge of older

people improved throughout the program. Nevertheless, the low levels of knowledge and relatively negative attitudes found in some of these studies suggested that the educational sector and workplaces both need to address some real issues in preparing a workforce to care for older people. According to the study of Gonçalves et al. [50], interest in working with older adults was significantly related to positive attitudes, more knowledge and formal previous contact. Positive attitudes towards older adults can be promoted through interaction with faculty members, experts, healthy and impaired older adults [50]. Academics could consistently demonstrate respect and empathy toward older adults, both in their teaching materials and through any direct interactions that students might observe. For instance, when discussing case studies, professors could highlight the dignity and value of older adults, ensuring that the language used is respectful and acknowledges their contributions and experiences. Given that students in our study reported challenges in communicating with older adults, academics can model effective communication strategies in their teaching. For example, they could demonstrate how to adapt language, tone, and body language when interacting with older adults, emphasizing the importance of patience, active listening, and empathy. Lastly, academics could encourage students to reflect on their experiences with older adults, whether through internships, family interactions, or classroom activities. Reflective journals, discussion groups, or assignments that prompt students to consider their attitudes and behaviors can help them internalize the lessons learned and develop more favorable attitudes.

Meanwhile, studies investigating dietetics students' knowledge and attitudes in relation to aging and their interest in working with the older adult population found that the students possessed low levels of knowledge about aging and neutral attitudes towards older adults [51]. However, it was also found that the students who preferred working with older adults had more positive attitudes towards working with older adults compared to those who did not share this preference. Previous experience with older adults was found to be strongly associated with higher comfort levels and self-efficacy in working with the older adults, improved attitudes towards this age group, and a preference for working with them [52]. The findings reported in this study appear to reflect complexities and inconsistencies referred to in the mentioned studies and as such provide a basis as to why healthcare curriculum should be planned in consonance with social dynamics and attitudes and perceptions of both students and the populations the groups will work with.

Academics who teach undergraduate courses could foster more favorable attitudes among students by acting

as role models [49]. There is an urgent need to recognize the increasing demand for healthcare for older people and, hence, to positively promote care for the aged as an attractive and valuable career path. Promoting healthcare students' attitudes toward the older adults is significant in providing high-quality care. The practical inference of these findings is that academic programs should focus on accomplishing specific goals, such as increasing student knowledge about older adults. Furthermore, extensive education programs must be provided on aging and gerontology. In rapidly aging, modern societies, healthcare curricula should include topics related to healthy aging and avoid focusing only on the pathologies and illnesses associated with old age. Involving older people in the design, development, and delivery of a module on aging in the curriculum would be innovative. Healthcare curricula, therefore, incorporate content and learning outcomes relevant to aging, and they may encourage contact between healthcare students and older patients [53].

Conclusion

This study explored the views on and attitudes to aging among healthcare students at a Turkish university that specializes in the health sciences. The insights gathered through the study can support future studies and educational programs about aging. The findings reveal that there is a need for a greater emphasis on gerontology-related subjects in health science curricula for the students to have a deeper understanding of the social and psychological, as well as the cognitive and biological, changes associated with aging. Health science programs could provide enhanced training to maximize the well-being of older people despite the physical decline. Understanding healthcare students' perceptions of aging is of great importance, especially, given that these students may have preferences for working or not working with particular groups of people in the future; if they have concerns about working with older adults, the Turkish healthcare system may face challenges in providing adequate care to its older population. As Turkey's population ages and its functional dependency increases, this will have a direct effect on the nation's public health and social care systems. Educational initiatives designed to alter medical students' perceptions of older adults have been found to result in enhanced positive attitudes and diminished negative age stereotypes [54–56]. Short-term training programs can be integrated in the curriculum of the departments.

In light of the rapid demographic changes taking place in Turkey and the population's increased longevity, it is essential that universities and healthcare programs undertake two key tasks: (1) understand students' attitudes towards aging, while also providing them with opportunities to reflect on their expectations regarding

their profession; and (2) promote the idea that the health-care sciences mirror demographic transformations and that students are and will be participants in the mid-and long-term social, health, and economic policy-making concerning gerontology. An evaluation of demographic changes in a country is necessary as the changes could be reflected in university curricula, which then will open up new possibilities for developing aging-related policies together with healthcare professionals with expertise in gerontology.

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Author contributions

NCA, MA and HC initiated and designed the study. CK and CeK collected the data. NCA, HC and CK analyzed and interpreted the results. CK designed the tables and figures. NCA wrote the original draft of the manuscript. NCA, MA, HC and CK contributed to the writing and editing of the manuscript. All authors read and approved the final manuscript.

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Data availability

The datasets used and/or analysed during the current study are available from the corresponding author upon reasonable request.

Declarations

Consent for publication

All participants' consent was received for the use of the data for the study.

Competing interests

The authors declare no competing interests.

Ethics approval and consent to participate

The ethics committee of the University had approved the study (ethical committee number ATADEK 2019/8), and following the ethics of research, the participants were informed, and their consent was received.

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