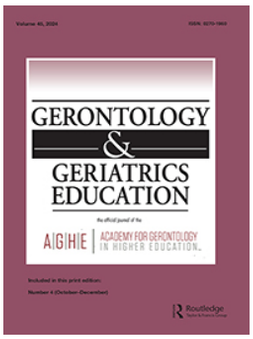

Gerontology & Geriatrics Education

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/wgge20

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To cite this article: Sylvie D'hondt, Stefan Agrigoroaei, Isabelle Aujoulat & Jean-Marie Degryse (27 Dec 2024): Factors related to benevolent and hostile ageism among paramedical students, Gerontology & Geriatrics Education, DOI: 10.1080/02701960.2024.2447075

To link to this article: https://doi.org/10.1080/02701960.2024.2447075

GERONTOLOGY & GERIATRICS EDUCATION
https://doi.org/10.1080/02701960.2024.2447075

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Factors related to benevolent and hostile ageism among paramedical students

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ABSTRACT

Caring for older adults is often seen as less prestigious, less attractive, and even boring and frustrating by health care students. A cross-sectional study of 265 paramedical students examined their fear of death, anxiety about aging, knowledge of aging and gerontological care, perceptions of older adults, and how these factors relate to ageist attitudes and perceptions of working with older adults using path analysis. The study found that anxiety about aging, negative perceptions of older adults, and limited knowledge of aging and gerontological care were directly linked to hostile ageist attitudes. Fear of death indirectly influenced hostile ageist attitudes through negative perceptions of older adults. Additionally, anxiety about aging, hostile ageist attitudes, and negative perceptions of older adults were linked to negative perceptions on working with older adults. Benevolent ageist attitudes were not linked to negative perceptions of working with older adults but were associated with negative perceptions of older adults and less knowledge of aging. These findings suggest that enhancing students' knowledge and changing their perceptions of older adults and the aging process could effectively combat ageism in health care. Addressing ageist attitudes is crucial, as they are significantly associated with negative perceptions of working with older adults.

KEYWORDS

Ageist attitude; anxiety about aging; fear of death; knowledge of aging and gerontological care; perceptions of older adults and perceptions of working with older adults

Introduction

Ageism is a social phenomenon defined as age-based positive and negative beliefs (stereotypes), feelings (prejudice), and behaviours (discrimination) directed toward others or oneself. It can manifest on micro, meso, and macro levels, both consciously (explicit) and unconsciously (implicit) (Iversen et al., 2009; World Health Organization, 2021). Age stereotypes are internalised throughout our lives (B. Levy, 2009) and negatively influence our behaviours toward older adults daily. Palmore even describes ageism as "a kind of social disease" (Palmore, 2015, p. 874).

Health care professionals are also exposed to this social disease, which can impact their clinical practice and the quality of care they provide (Hu et al., 2020; Masse & Meire, 2012). In the health care sector, ageism often manifests through benevolent ageism, a more unconscious form of ageism characterised by paternalistic behaviours toward older patients.

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Supplemental data for this article can be accessed online at https://doi.org/10.1080/02701960.2024.2447075

Examples include infantilisation, overaccommodation, providing unwanted help, and using babytalk (Lagacé et al., 2011, 2012; Williams et al., 2017). Hostile ageism, a more conscious form, also seems to be present in the health care sector and involves overtly negative behaviours toward older patients, such as excluding them from certain treatments based on age (Masse & Meire, 2012).

Cary and colleagues developed the Ambivalent Ageism Scale (AAS) to measure benevolent and hostile ageism in the general population (Cary et al., 2017). Recently, a revised version specifically for the health care sector, the Ambivalent Ageism Scale in the Health Care Sector (AAShc), was created. Primary results suggest that the AAShc is a valid and relevant tool for measuring ageism in health care sector (D'hondt et al., 2023).

As today's health care students are tomorrow's professionals, fostering positive attitudes toward older adults is crucial (Hu et al., 2020). This is particularly important because the care of older adults is often seen as less prestigious, less attractive, and even boring and frustrating (Happell, 2002; Higashi et al., 2012; Rathnayake et al., 2016). An ethnographic study among health care students (Higashi et al., 2012) found that many students enter clinical settings already influenced by stereotypes, viewing older patients as inherently frail, cognitively impaired, or nearing the end of life. Such preconceptions lead students to see the care of older adults as social work and maintenance rather than actual medical care, which makes them perceive it as less rewarding and interesting compared to caring for younger adults. As the proportion of older adults continues to increase (Organization for Economic Co-operation and Development, 2023), and consequently the number of older patients in health care, it is essential to better understand the factors related to ageist attitudes to develop strategies and interventions aimed at addressing ageism among health care students. Addressing ageism is crucial, as ageist views and behaviours can have serious implications for older adults, such as worse health outcomes and reduced access to health services and treatments (Chang et al., 2020).

Several theoretical approaches help understand the occurrence of ageism on an individual level (Ayalon, 2018). Our study is based on three main theories:

The first is the terror management theory (TMT; e.g., Chonody & Teater, 2016) which proposes that people distance themselves from older adults through ageist behaviours as a protective barrier because older adults remind them of their mortality and vulnerability. Previous studies confirm that higher levels of anxiety about aging (e.g., Boswell, 2012) and fear of death (e.g., Cooney et al., 2021) were associated with ageist stereotypes and attitudes in the general population. A study by Donizzetti (2019) also suggested that greater knowledge of aging and gerontological care was indirectly related to fewer ageist attitudes through reduced anxiety about aging among young adults, indicating a potential link with knowledge of aging (Donizzetti, 2019).

To examine the knowledge of aging and gerontological care, the Social Psychology Theory (Shiovitz-Ezra et al., 2016) has been selected as the second theory. This posits that a lack of knowledge about a social group leads people to assign specific stereotypes to its members. Research on the relationship between ageism and knowledge of aging and gerontological care revealed mixed results. Some studies report that greater knowledge was related to lower ageism (e.g., Rababa et al., 2020); others find that less knowledge is related to higher ageism (e.g., Boswell, 2012); and some studies find no significant relationship (e.g., Cottle & Glover, 2007). Donizzetti (2019) also suggested that less knowledge was indirectly related to more ageist attitudes through negative perceptions of older adults among young adults, indicating a potential link with perceptions of older adults.

To examine the perceptions of older adults, the Content Stereotype Model (Fiske et al., 2002) has been selected as the third theory. This proposes that people classify others based on two dimensions: competence and warmth. According to this theory, older adults are usually stereotyped as low in competence but high in warmth, which arouses feelings of pity and leads to patronising attitudes. This ambivalent dynamic of mixed stereotypes portrays older adults as kind but incapable, reinforcing condescending and infantilising attitudes (Fiske et al., 2002). As perceptions of working with older adults also seems to be an important issue among health care students (Dai et al., 2021), we decided to add this to our study. Previous research has shown inconsistent results among health care students (Dai et al., 2021). Some studies among nursing students suggested that perceptions of working with older adults were associated with ageist attitudes (e.g., Shen & Xiao, 2012), negative perceptions of older adults (e.g., Rathnayake et al., 2016), anxiety about aging (e.g., Jang et al., 2019), and knowledge of aging (e.g., Cheng, 2021). However, other studies found no significant relationship between perceptions of working with older adults and health care students' attitudes (e.g., Swanlund & Kujath, 2012).

Previous studies suggest that fear of death, anxiety about aging (e.g., Cooney et al., 2021), knowledge of aging and gerontological care (e.g., Rababa et al., 2020), and perceptions of older adults (e.g., Donizzetti, 2019) seems to be associated with ageist attitudes, but the results are often inconsistent (Marques et al., 2020). Furthermore, most studies focus on one theoretical approach, considering only one or two factors. Finally, to the best of our knowledge, no studies have explored the factors related to benevolent and hostile ageism, although these two dimensions appear prevalent in health care.

Our study aimed to examine the direct and indirect associations between (1) ageist attitudes, (2) benevolent and hostile ageist attitudes, (3) perceptions of working with older adults, and the following factors: fear of death, anxiety about aging, knowledge of aging and gerontological care, and perceptions of older adults among paramedical students. Based on the literature, we developed and tested the following hypotheses among these students (see Figure 1):

First, we hypothesised that knowledge of aging and gerontological care negatively predicts anxiety about aging (H1), fear of death (H2), ageist attitudes (H3), and perceptions of working with older adults (H4) and positively predicts perceptions of older adults (H5). Second, we hypothesised that fear of death positively predicts anxiety about aging (H6) and ageist attitudes, both directly (H7) and indirectly, via perceptions of older adults and anxiety about aging, and positively predicts perceptions of older adults (H8). Third, we hypothesised that anxiety about aging negatively predicts perceptions of older adults (H9), which, in turn, negatively predict ageist attitudes (H10). Fourth, we hypothesised that anxiety about aging has a direct effect on ageist attitudes (H11). Finally, we hypothesised that ageist attitudes (H12), perception of older adults (H13), and anxiety about aging (H14) positively predict perceptions of working with older adults.

Design and methods

Procedure

A cross-sectional study was conducted among 783 first- to last-year paramedical students studying physiotherapy, occupational therapy, and nursing at a graduate school in Belgium. An electronic version of the survey was sent to all students via their academic e-mail and social

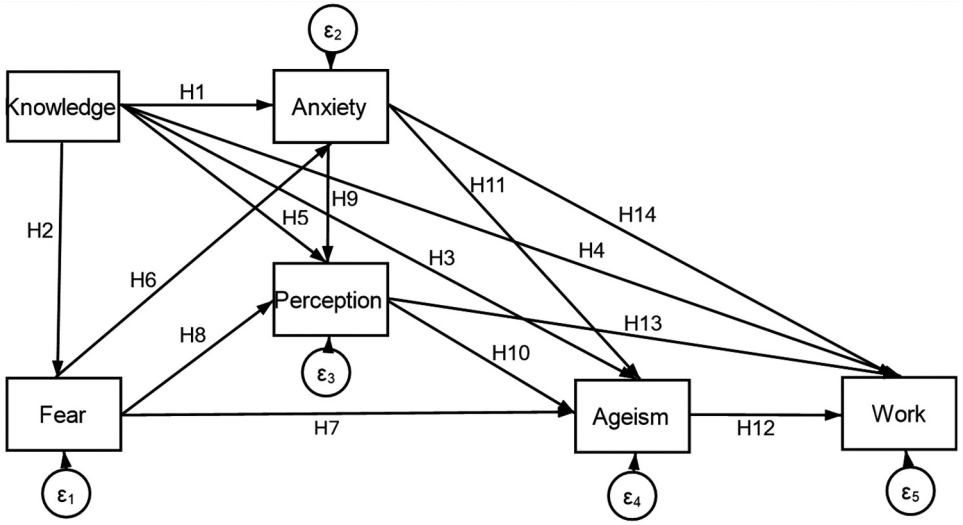

Figure 1. Path analysis – hypothetical model. Note. H: hypothesis; Knowledge: Knowledge of aging and gerontological care; Fear: Fear of death; Anxiety: Anxiety about aging; Perception: Perceptions of older adults; Ageism: Ageist attitudes; Work: Perceptions of working with older adults.

media. Additionally, a paper version was distributed to students by a researcher during lunch breaks or at the end of classes. Data collection was carried out from March to June 2022. Data were strictly anonymous. All participants provided informed written consent before taking the survey. A priori sample size calculation revealed that 258 participants were needed for a 95% confidence interval and a 5% margin of error. Our study was approved by the Saint Luc Hospitalo-Facultaire Ethics Committee (2022/21MAR/130).

Participants

The sample consisted of 265 participants, yielding a response rate of 33,84%, including 134 nursing students, 73 occupational therapist students, and 51 physiotherapist students. The mean age was 21.86 (SD = 3.42), and 84.5% were female (see Table 1).

Measures

All the scales (except for the first one) were translated into French by one translator with the help of an external investigator. Then, an independent professional translator performed a back translation into English. The two translations were compared, and a pretest version was produced. Six students from the study population tested the scale and evaluated the comprehensiveness and acceptability of the survey in a face-to-face interview.

Ageism The Ambivalent Ageism Scale in the health care sector ($AAS_{hc,}$ D'hondt et al., 2023) was used to measure benevolent and hostile ageist attitudes. The AAS_{hc} is an 18-item scale with five factors including Infantilisation, Control, Overaccommodation, Hostile ageism, and Unwanted help. The revision and validation process of the scale was explained in a previous study (See D'hondt et al., 2023). To analyse the factors

Table 1. Participants' characteristics ($n = 265$).

Characteristics	Sample
Sex %	
Male	15.5
Female	84.5
AgeMean (SD)	
Mean (SD)	21.86 (3.42)
Academic year %	
1st year	33.2
2nd year	21.1
3rd year	24.5
4th year	13.6
Specialisation year	7.5
Academic orientation %	
Nursing	50.6
Physiotherapy	19.2
Occupational therapy	27.5
Dietetic	1.1
Speech therapy	1.5
Experience with older adults[a] %	
Caring for older relatives	75.5
Volunteering	19.2
Working in a hospital	38.1
Working in a long-term care institution	21.9
Internship	92.8
Working at home	18.1
Visiting your grandparents	78.5
Working in a day center	7.9
No experience	0
Familiarity with the concept of ageism ($N = 262$) [b] %	
Not at all, I've never heard of it	30.2
Yes, I have heard of it, but I don't know what it means	9.5
Yes, I am vaguely familiar with the concept	26.3
Yes, I am familiar with the concept	14.5
Yes, I am familiar with the concept and try to pay attention to it	19.5
If yes, in which context? %	
During classes	60.4
During internship	21.1
On social network	7.2
On television	10.9
During a conversation with relatives	6.8
During a seminar	6.8
Don't know	0.4

[a]The following question was asked with specific response options, along with an open-ended "Other" option for additional input: So far, what are your experiences with older adults? [b] The following question was asked: Have you heard about the concept of ageism?

related to benevolent ageism, the factors of Infantilisation, Overaccommodation, Control and Unwanted help were combined to create the dimension of benevolent ageism. Participants responded on a 6-point scale ("Strongly disagree" to "Strongly agree"), with higher scores indicating greater ageism.

Perceptions of older adults The Competence and Warmth Scale (CWS, Fiske et al., 2002) is an 18-item scale measuring the level of warmth (e.g., sincere) and competence (e.g., independent) attributed to older adults. Participants rated how descriptive each item was of older adults on a 4-point scale ("Not at all descriptive" to "Extremely descriptive"), with higher scores indicating more positive perceptions.

Perceptions of working with older adults The Students' perceptions of working with older people scale (SPWOPS, Nolan et al., 2006) includes 15 items divided into three dimensions: Students' perceptions of working with older people in general; Students' personal disposition toward work with older people; and Students' perceptions of the consequences of working with older people. Participants indicated their agreement on a 6-point scale ("strongly agree" to "strongly disagree"), with higher scores representing more negative perceptions of working with older adults. Items 2, 4, 5, 7, 12, and 15 required reverse coding.

Knowledge of aging and gerontological care The Revised Flemish Facts on Aging Quiz (RFAQ, Van der Elst et al., 2014) is a 36-item multiple-choice test assessing knowledge about older adults, aging, and gerontological care. Students answered "true," "false" or "don't know," with higher scores indicating a greater knowledge.

Anxiety about aging The Anxiety about Aging Scale (AAS, Lasher & Faulkender, 1993) consists of 20 items assessing overall anxiety about aging on four dimensions: Fear of Old People, Psychological Concerns, Physical Appearance, and Fear of Losses. Participants responded on a 6-point Likert scale ("Strongly disagree" to "Strongly agree"), with higher scores representing higher anxiety. Items 1–5 and 7–14 required reverse coding.

Fear of death The Revised Collett Lester Fear of Death Scale (RCL-FODS, Lester, 1990) is a 28-item scale focusing on four aspects of death and dying: your own death; your own dying; the death of others; and the dying of others. Participants indicated their level of fear on a 5-point Likert scale ("not" to "very"), with higher scores representing higher fear.

Other variables Participants provided background information on their experience caring for older adults and their level of familiarity with the concept of ageism. Additional variables included academic year, field of study, age, and sex.

Statistical analysis

To enhance result interpretation, the score of the scales were transformed into percentage scores for analysis. Descriptive statistics were produced for all variables, including normality tests, missing data analysis, and distribution of the variables. First, Pearson's correlation coefficient was used to analyse linear associations between the variables. Path analysis, based on the maximum likelihood estimation method, was used to test the hypothetical model. This method enables to test, quantify, and model both the direct and indirect effects of independent variables on dependent variables. To accurately estimate the values of the parameters, we used Jackson's *N:q* ratio suggested by Kline, where N is the number of cases (*N*), and q is the number of model parameters that requires statistical estimates (such as the number of paths, the number of curved arrows, the number of exogenous variables, and the number of disturbance terms). A minimum recommended sample-size-to-parameters ratio is 10:1 (Kline, 2016; Streiner, 2005). With 20 parameters to estimate, a minimum of 200 participants was needed to test the hypothesised model. To further analyse the links to ageism, the direct and indirect effects on benevolent and hostile ageism were also analysed. Model fit was evaluated using the following goodness-of-fit indices: chi-square value, root mean square error of approximation (RMSEA <0.07), comparative fit index (CFI >0.9), standardised root

mean square residual (SRMR <0.08), and Tucker–Lewis index (TLI >0.9) (Watkins, 2018). Data were analysed using the Statistical Package for the Social Sciences (SPSS; IBM Corp, version 27) and Stata Statistical Software (Stata; StataCorp, version 18).

Results

Descriptive analysis

Descriptive statistics and internal consistency indices are presented in Supplementary table S1. The normality analysis indicated that the absolute values of skewness and kurtosis of all variables were within the normal range.

The results showed that participants exhibited moderate levels of knowledge of aging and gerontological care ($M = 56.97\%$, SD = 10.85%), ageism ($M = 42.62\%$, SD = 10.94%), fear of death ($M = 64.97\%$, SD = 17.08%), anxiety about aging ($M = 50.40\%$, SD = 10.25%) and perceptions of older adults ($M = 68.31\%$, SD = 10.11%), and perceptions of working with them ($M = 42.68\%$, SD = 9.80%). However, when we analysed specific items more in detail, some numbers were striking. Concerning ageism, 48.3% agreed that speaking slowly to older people is good, as they may take longer to understand. Regarding perceptions of older adults, 68.6% did not view older adults as "independent." Concerning perceptions of working with older adults, 42.9% reported that they prefer to see younger patients rather than older ones. Related to knowledge about aging and gerontological care, 60.4% thought that the majority of older people are unable to carry out their activities of daily living without help. Finally, 63.6% were afraid that people will ignore them when they grow old. These figures suggest that our sample of paramedical students still hold some strong internalised ageist stereotypes and attitudes, as well as fears of death and aging.

Correlation analysis

Pearson's correlation analyses revealed significant relationships between (1) ageist attitudes, (2) benevolent and hostile ageist attitudes, (3) perceptions of working with older adults, and the variables (see Table 2). Only, fear of death was not significantly related to ageist attitudes and perceptions of working with older adults.

Table 2. Correlations – Pearson correlations among variables ($n = 265$).

	Ageism	Hostile	Benevolent	CWS	RFAQ	SPWOPS	AAS	RCL-FODS
Ageism – AAS_{hc}	0			− 0,30**	− 0.30**	0.29**	0.23**	0.05
Hostile – AAS_{hc}		0	0.56**	−0.30**	−0.22**	0.38**	0.27**	0.06
Benevolent – AAS_{hc}			0	−0.24**	−0.30**	0.18**	0.16*	0.03
Perception – CWS				0	0.18**	−0.36**	−0.32**	0.04
Knowledge – RFAQ					0	−0.19**	−0.10	−0.06
Work – SPWOPS						0	0.32**	−0.16*
Anxiety – AAS							0	0.31**
Fear – RCL- FODS								0

*Significant at 0.05; ** Significant at 0.01.

Knowledge: Knowledge of aging and gerontological care (RFAQ: Revised Flemish Facts on Aging Quiz); Fear: Fear of death (RCL-FODS: Revised Collett Lester Fear of Death scale); Anxiety: Anxiety about aging (AAS: Anxiety about Aging Scale); Perception: Perceptions of older adults (CWS: Competence and Warmth Scale); Ageism: Ageist attitudes (AAS_{hc}: Ambivalent Ageism Scale in the health care sector); Work: Perceptions of working with older adults (SPWOPS: Students' perceptions of working with older people scale).

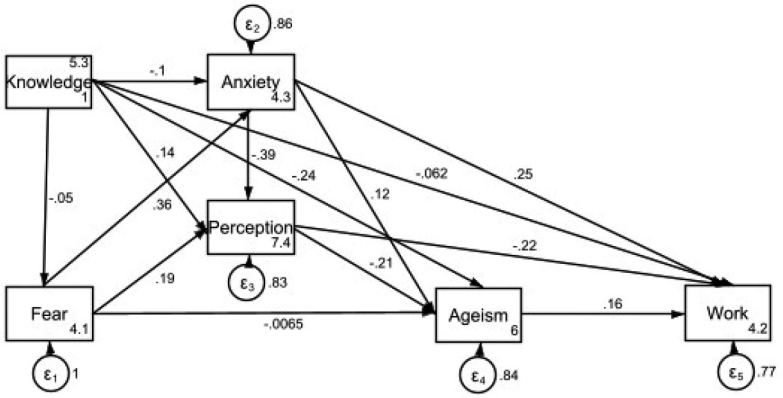

Figure 2. Path analysis – standardised total effects of the hypothesised model. Note. $X^2(p) = 28.645$ (.00), RMSEA = 0.324, CFI = 0.872, NNFI=-0.918, SRMR = 0.056, AIC = 11531.517

Path analysis

In this study, the goodness-of-fit indices indicated that the hypothesised model did not fit well (see Figure 2), so revised models were developed using the modification indices of Stata. Table 3 summarises the total, indirect and direct paths of the revised models.

Factors related to Ageist Attitudes (see Figure 3).

Knowledge of aging and gerontological care (β= −0.24, $p < 0.001$), anxiety about aging (β = 0.14, $p < 0.01$), and perceptions of older adults (β= −0.21, $p < 0.001$) had significant direct effects. Fear of death (β = 0.06, $p < 0.001$), knowledge of aging and gerontological care (β= −0.03, $p < 0.05$) and anxiety about aging (β = 0.06, $p < 0.001$) had indirect effects through perceptions of older adults.

Factors related to Hostile Ageist Attitudes (see Figure 4).

Knowledge of aging and gerontological care (β= −0.16, $p < 0.001$), anxiety about aging (β = 0.19, $p < 0.001$), and perceptions of older adults (β= −0.21, $p < 0.001$) had significant direct effects. Fear of death (β = 0.08, $p < 0.001$), knowledge of aging and gerontological care (β= −0.03, $p < 0.05$) and anxiety about aging (β = 0.06, $p < 0.001$) had indirect effects through perceptions of older adults.

Factors related to Benevolent Ageist Attitudes (see Figure 5).

In contrast to the model of hostile ageism, there were fewer factors related to benevolent ageism. Only, knowledge of aging and gerontological care (β= −0.25, $p < 0.001$) and perceptions of older adults (β= −0.20, $p < 0.001$) had significant direct effects. Knowledge of aging and gerontological care (β= −0.03, $p < 0.05$) had significant indirect effects through perceptions of older adults.

Factors related to Perception of working with older adults via Ageist Attitudes (see Figure 6).

Perceptions of older adults (β= −0.24, $p < 0.001$), anxiety about aging (β = 0.21, $p < 0.001$), and ageist attitudes (β = 0.17, $p < 0.001$) had significant direct effects. Knowledge of aging and gerontological care (β= −0.08, $p < 0.001$), anxiety about aging (β = 0.11, $p < 0.001$), fear of death (β = 0.10, $p < 0.001$), and perceptions of older adults (β= −0.03, $p < 0.05$) had significant indirect effects through ageist attitudes.

Table 3. Path analysis - standardised direct and indirect effects of the models.

Predictors (a)	Parameter (b)	Dependent variable (c)	Direct effect (a➔b)	Direct effect (a➔c)	Direct effect (b➔c)	Indirect effect (a➔b➔c)
Ageism						
Knowledge of aging and gerontological care	Perception of older adults	Ageist attitudes	0.15 (.01)	−0.24 (.00)	−0.21 (.00)	−0.03 (.04)
Anxiety about aging			−0.30 (.00)	0.14 (.01)		0.06 (.00)
Fear of death						0.06 (.00)
Fear of death	Anxiety about aging	Perception of older adults	0.32 (.00)			−0.10 (.00)
Hostile Ageism						
Knowledge of aging and gerontological care	Perception of older adults	Hostile ageist attitudes	0.14 (.01)	−0.16 (.00)	−0.21 (.00)	−0.03 (.04)
Anxiety about aging			−0.30 (.00)	0.19 (.00)		0.06 (.00)
Fear of death						0.08 (.00)
Fear of death	Anxiety about aging	Perception of older adults	0.32 (.00)			−0.10 (.00)
Benevolent Ageism						
Knowledge of aging and gerontological care	Perception of older adults	Benevolent ageist attitudes	0.18 (.00)	−0.25 (.00)	−0.20 (.00)	−0.03 (.03)
Perception of working with older adults						
Perception of older adults	Ageist attitudes	Perception of working with older adults	−0.21 (.00)	−0.24 (.00)	0.17 (.00)	−0.03 (.02)
Anxiety about aging			0.14 (.02)	0.21 (.00)		0.11 (.00)
Fear of death			/			0.10 (.00)
Knowledge of aging and gerontological care			−0.25 (.00)			−0.08 (.00)
Fear of death	Anxiety about aging	Perception of older adults	0.32 (.00)			−0.10 (.00)
Knowledge of aging and gerontological care	Perception of older adults	Ageist attitudes	0.15 (.01)			−0.03 (0.04)
Anxiety about aging			−0.30 (.00)			0.06 (.00)
Fear of death						0.06 (.00)
Perception of older adults	Hostile ageist attitudes	Perception of working with older adults	−0.21 (.00)	−0.22 (.00)	0.26 (.00)	−0.05 (.00)
Anxiety about aging			0.20 (.00)	0.18 (.00)		0.13 (.00)
Fear of death						0.10 (.00)
Knowledge of aging and gerontological care			−0.16 (.00)			−0.08 (.00)
Fear of death	Anxiety about aging	Perception of older adults	0.32 (.00)			−0.10 (.00)
Knowledge of aging and gerontological care	Perception of older adults	Hostile ageist attitudes	0.15 (0.01)			−0.03 (.04)
Anxiety about aging			−0.30 (.00)			0.06 (.00)
Fear of death						0.08 (.00)

Note. Range of −1;1.

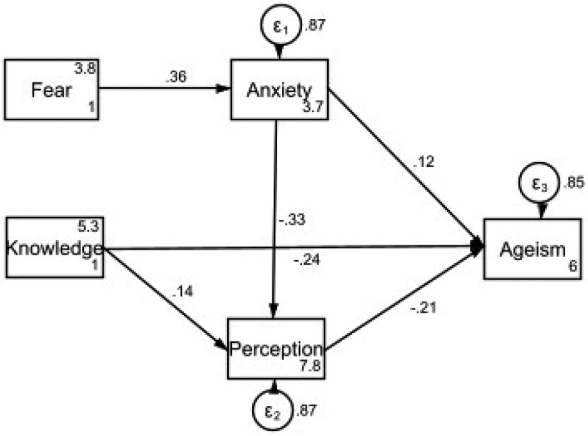

Figure 3. Path analysis – standardised total effects of the model of ageism. Note. $X^2(p) = 8.917$ (0.030), RMSEA = 0.087, CFI = 0.946, TLI = 0.837, SRMR = 0.045, AIC = 9704.242

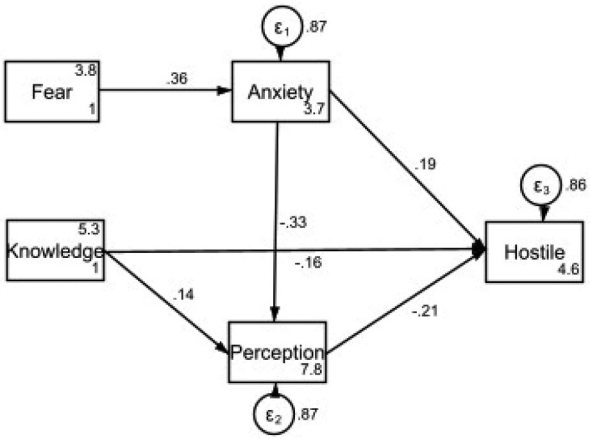

Figure 4. Path analysis – standardised total effects of the model of hostile ageism. Note. $X^2(p) = 8.92$ (0.030), RMSEA = 0.087, CFI = 0.943, TLI = 0.830, SRMR = 0.045, AIC = 9253.078

Factors related to Perception of working with older adults via Hostile Ageist Attitudes (see Figure 7).

Perceptions of older adults ($\beta = -0.22$, $p < 0.001$), anxiety about aging ($\beta = 0.18$, $p < 0.001$), and hostile ageist attitudes ($\beta = 0.26$, $p < 0.001$) had significant direct effects. Knowledge of aging and gerontological care ($\beta = -0.08$, $p < 0.001$), anxiety about aging ($\beta = 0.13$, $p < 0.001$), fear of death ($\beta = 0.10$, $p < 0.001$), and perceptions of older adults ($\beta = -0.05$, $p < 0.001$) had significant indirect effects through hostile ageist attitudes. Contrary to hostile ageism, benevolent ageist attitudes were not significantly related to perceptions of working with older adults.

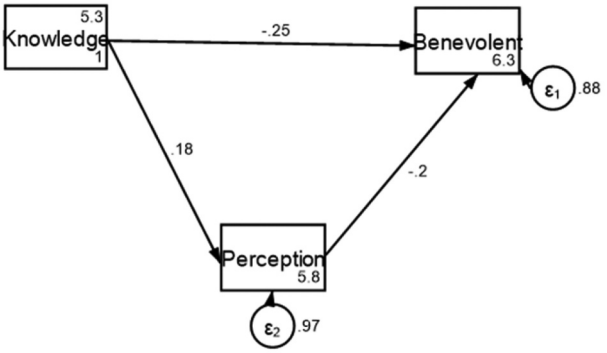

Figure 5. Path analysis - standardised total effects of the model of benevolent ageism. Note. $X^2(p) = 42.166$ (0.00), RMSEA = 0.00, CFI = 1, TLI = 1, SRMR = 0.00, AIC = 5095.861

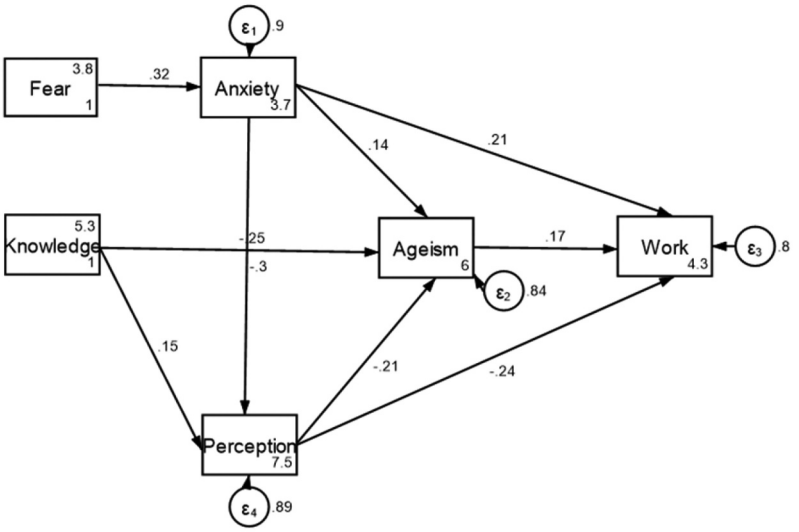

Figure 6. Path analysis – standardised total effects of the model of perception working with older adults through ageist attitudes. Note. $X^2(p) = 30.62$ (0.00), RMSEA = 0.140, CFI = 0.862, TLI = 0.613, SRMR = 0.072, AIC = 11512.355

Discussion & conclusions

Our study aimed to examine paramedical students' fear of death, anxiety about aging, knowledge about aging and gerontological care, perceptions of older adults, and their direct and indirect associations with (1) ageist attitudes, (2) benevolent and hostile ageist attitudes, and (3) perceptions of working with older adults.

Our model included multiple direct and indirect associations between the variables. Concerning ageism, less knowledge of aging and gerontological care, anxiety about aging, and negative perceptions of older adults were directly associated with negative and hostile ageist attitudes. Less knowledge about aging and gerontological care, and anxiety about aging were indirectly associated with negative and hostile ageist attitudes

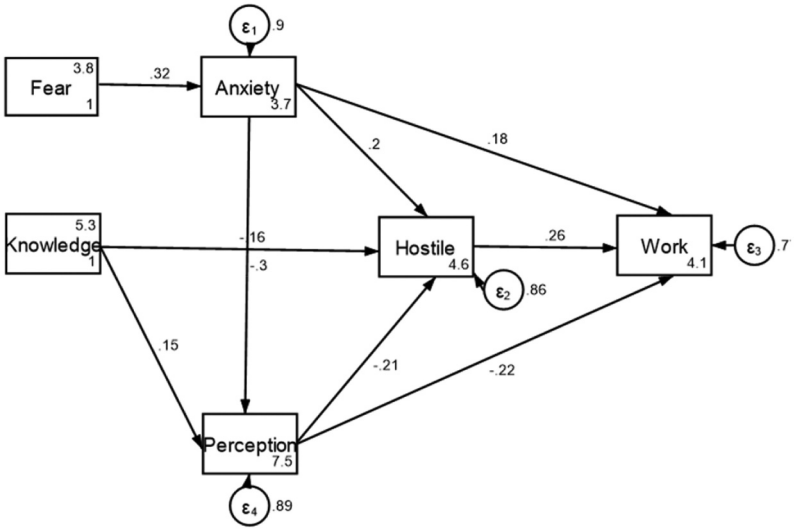

Figure 7. Path analysis – standardised total effects of the model of perception of working with older adults through hostile ageist attitudes. Note. $X^2(p) = 31.325$ (0.00), RMSEA = 0.142, CFI = 0.863, TLI = 0.617, SRMR = 0.072, AIC = 11051.995 Note. Knowledge: Knowledge of aging and gerontological care (Revised Flemish Facts on Aging Quiz); Fear: Fear of death (Revised Collett Lester Fear of Death scale); Anxiety: Anxiety about aging (Anxiety about Aging Scale); Perception: Perceptions of older adults (Competence and Warmth Scale); Ageism: Ageist attitudes (Ambivalent Ageism Scale in the health care sector); Work: Perceptions of working with older adults (Students' perceptions of working with older people scale).

through negative perceptions of older adults. Fear of death was directly related to higher anxiety about aging and indirectly to negative and hostile ageist attitudes through negative perceptions of older adults. Regarding the perception of working with older adults, negative and hostile ageist attitudes, negative perceptions of older adults and anxiety about aging were directly associated with negative perceptions of working with older adults. Knowledge of aging and gerontological care, anxiety about aging, fear of death, and negative perceptions of older adults were indirectly associated with negative perceptions of working with older adults through negative and hostile ageist attitudes. Interestingly, benevolent ageist attitudes were not related to negative perceptions of working with older adults, but were associated with negative perceptions of older adults and less knowledge of aging and gerontological care.

Two main factors related to higher ageism were anxiety about aging and knowledge of aging and gerontological care. These results suggest the importance of addressing both cognitive (knowledge) and emotional (fear and anxiety) aspects. Our model also suggested an important mediating role of perceptions of older adults. These results are consistent with previous studies. A systematic review showed that education about aging seems to be an effective intervention to reduce ageist stereotypes and increase knowledge (Burnes et al., 2019). Chonody et al. also highlighted the importance of interventions focused on anxiety about aging and fear of death, as they may improve the understanding of the process of aging and death, thereby improving attitudes toward older adults and the quality of their care (Chonody et al., 2014).

Contrary to the literature is the absence of a direct association of fear of death with ageism. According to TMT model, older adults present an existential threat to younger people and generate death fear, leading to ageist attitudes as a defense mechanism (Chonody & Teater, 2016). Our contradictory results could be explained by the fact that the young students might feel less threatened by death as they have not yet confronted it directly, but they are more threatened by aging anxiety. However, it is still important to address both aspects jointly to have a better impact, as fear of death was directly related to anxiety about aging and indirectly related to negative and hostile ageist attitudes through perceptions of older adults.

Finally, the distinction between benevolent and hostile ageism is important to highlight, as the factors related to these two forms of ageism were not the same. Based on our results, we suggest that strategies to address these two forms of ageism should differ. For benevolent ageism, interventions should focus principally on correcting misconceptions and improving students' knowledge about older adults. On the other hand, addressing hostile ageism may require a more comprehensive approach, tackling not only misconceptions and lack of knowledge but also the fears of death and anxieties of aging that contribute to these negative attitudes.

Practical implications

Health care students appear to report no or low interest in working in the gerontological care sector compared to other sectors (Jackson et al., 2017; Rathnayake et al., 2016). Some studies revealed that most nursing students reported no interest in choosing geriatrics as a specialty (Bernardini Zambrini et al., 2008; Rathnayake et al., 2016). Stevens (2011) even highlighted that nursing students' willingness to work in gerontological care gradually decreases during their academic program (Stevens, 2011). With an aging population, it is of utmost importance to foster positive perceptions of working with older adults, as future health care professionals will have a critical role in providing care to older patients and ensuring the quality of their care.

According to our findings, interventions tackling ageism among paramedical students should be comprehensive, addressing both misconceptions about older adults and the aging process as well as underlying students' anxieties and fears about aging and death. Learning to acknowledge and cope more directly with these issues could counter them and other age-related attitudes. It is important to consider changing health care students' perceptions of older adults through education about older adults, their care, and the aging/death process to address ageism in the health care sector and improve their perception of working with older adults. Therefore, health care students need to acquire evidence-based gerontological knowledge and skills gained through enhanced clinical experience and improved nursing program content (Koskinen et al., 2012).

In line with the recent objectives of the WHO report (World Health Organization, 2021), our study emphasises the importance of investing in gerontological education and promoting careers in gerontology. This research contributes to the literature by identifying modifiable factors that universities could address in their curriculum to reduce ageism and enhance students' perceptions of working with older adults.

Strengths and limitation

Our study used path analysis, a more comprehensive analysis method, to provide a more holistic approach of the paths between ageism and several related constructs of importance. It is also the first study to examine the factors related to benevolent and hostile ageist attitudes. This is an important step to better understand these constructs and address them, as they seem to be prevalent in the health care sector. As highlighted by the systematic review of São José and colleagues on the conceptualisation of ageism in health care, recent studies often overlook the more subtle, implicit forms of ageism (São José et al., 2019). Our research addresses this gap by specifically examining benevolent ageism – a more insidious and pervasive form that warrants careful attention. This study represents an important first step toward understanding the underlying factors and contributing to the development of more effective interventions.

This study also presents some limitations. We decided to focus only on intrapersonal factors; however, interpersonal (such as the frequency and quality of contact (Crutzen et al., 2022) and institutional factors (such as the organisational culture (Killett et al., 2016) or the workload (Masse & Meire, 2012) also appear to play a role in ageism. Furthermore, the cross-sectional design does not allow for causal relationships to be inferred. Therefore, future studies with longitudinal designs are recommended to validate the findings of the present study. Data collection was also limited to a single institution, restricting the representativity of the population. Finally, while we considered multiple theories when constructing our model, others could be explored in future studies. For example, the frequency and quality of contact, as proposed by Allport's intergroup contact theory. This theory suggests that interactions between different groups can reduce prejudice (S. R. Levy, 2016). This would be valuable to investigate further, especially in the health care sector, where interactions with older adults often involve a more vulnerable and dependent population, potentially reinforcing negative stereotypes and affecting the quality of contact with older adults patients (Crutzen et al., 2022).

In conclusion, these results suggest that improving students' knowledge and changing their perceptions of the aging process and older adults could be effective strategies to combat ageism among health care students, enhancing the quality of care for older adults and fostering positive attitudes toward careers in gerontology.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work was supported by an unconditional grant from the Fondation Louvain in charge of developing education and research projects by collecting gifts for the Université Catholique de Louvain.

Data availability statement

The data supporting the findings of this study are available upon reasonable request by contacting the corresponding author because the researchers have not completed the expected analyses for future publications. The conducted research was not preregistered.

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