



Evaluation of Nursing Students' Attitudes Towards Age Discrimination in Türkiye: A Systematic Review and Meta-Analysis Study

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Research Article

Abstract

Aim: Despite the fact that aging results in individuals with a higher demand for health services, geriatric nursing is not preferred. The study was carried out to determine the ageism of nursing students in Türkiye and reveal whether or not there were differences in ageism attitudes of students based on gender, grade, and living with aged individuals.

Methods: A systematic review and meta-analysis were conducted. PubMed, Scopus, Google Academic, and National Thesis Center databases were screened.

Results: A total of 23 studies were included. The attitudes of nursing students toward aged people were slightly positive. The attitudes of last year students were statistically more positive. The attitudes of students living with aged individuals against ageism were found more positive. No effect of gender on ageism was found.

Conclusion: It is seen that knowledge of aging and interacting with aged people increase positive attitudes. It is recommended to include geriatrics in the nursing curriculum and to increase activities in that nursing students can interact with aged individuals.

Keywords: Ageism, Nursing Education, Aged People, Systematic Revi

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INTRODUCTION

The world's population is getting older rapidly, and the number of aged people in the population is increasing daily. It is currently known that more than 1 billion individuals are 60+ years old (WHO, 2021). Türkiye is among the countries with an aging population. The proportion of the old aged population in the total population is 9.7%, and the population aged 65+ will be 8.2 million in 2021 (TUIK, 2022).

One of the negative aspects brought forth by the increase in the old aged population is ageism, defined as “stereotypes, prejudice, and discrimination directed at the self or others about age.” Ageism is a universal problem (Wilson et al., 2019); it is seen in populations with gradually increasing density everywhere and displayed unconsciously (Ayalon & Tesch-Römer, 2018). It is known that age discrimination is more common and more invisible than sexism or racism (Chang et al., 2020). Globally, at least one in two people hold an age-discriminatory attitude towards aged people. It is seen more frequently in young adults (Mikton et al., 2021).

Many factors affect young people's negative attitude towards older individuals. In modern societies, one of these factors is the difference in education and knowledge between old and young individuals who emerged with the effect of technology. In addition, due to urbanization, young individuals tend to move to the city and leave their older family members alone. This causes a loss of contact between the young and the aged people (Ayalon & Tesch-Römer, 2018). Also, the aging of the population and the relevant increase in retirement and health expenditures contribute to the idea that aged people are a burden for national economies (Previtali et al., 2020).

It is known that age discrimination can adversely affect health and result in worse health outcomes (Chang et al., 2020; WHO, 2020). Age discrimination impacts all aspects of the health of the aged people, such as shortening their lifespan, low quality of life, high blood pressure, adverse cardiovascular outcomes, high mortality rates, worsening their physical and mental health, hindering disability recovery, and accelerating cognitive decline (Rababa et al., 2020; Mikton et al., 2021).

Attitudes and stereotypes towards ageism not only contribute to adverse health outcomes but also ageism among healthcare professionals can lead to discriminatory practices that put the aged person at risk. Research shows widespread negative attitudes toward aged people and aging among doctors, medical students, and nurses (Burnes et al., 2019). Nurses and other health professionals tend to provide inadequate care or treatment to the aged people

(Gallo, 2019). Such negative attitudes can lead to providing more limited medical information, not evaluating some treatment options, and excluding patients from clinical trials (Burnes et al., 2019). Age stereotypes and bias among healthcare providers can influence the quality and quantity of care older people receive and thus lead to adverse health outcomes (Burnes et al., 2019; Rababa et al., 2020). Moreover, such behaviors can cause prioritization of young adults concerning health sources (Rababa et al., 2020).

The increasing needs of the aged people for care (Alquwez et al., 2018), the inadequate knowledge and experience of nurses in the care of aged adults (Rababa et al., 2020), and the time pressure felt by healthcare professionals (Chang et al., 2020) contribute to the negative attitudes displaying ageism. Recent studies show that nurses report they intended or unintended negative ageism behaviors with high frequencies in daily life, and communication problems are encountered in communication with aged people because of prejudice, negative values, or beliefs (Rababa et al., 2020). In particular, it is seen that newly graduated nurses have more negative opinions about aged people than older nurses (Alquwez et al., 2018).

In addition to nurses, nursing students' attitudes towards aged people have increased more negatively in the last ten years (Chang et al., 2020). Curriculums focusing only on the acute care and treatment of the disease in some nursing programs and neglecting holistic care result in a lack of nurses' knowledge in aging and care of the aged people and students having fears concerning the establishment of relations with aged adults and being restless in such relations (Alquwez et al., 2018). Furthermore, gender, students' academic year, family structure, and interaction level with aged individuals also influence their attitudes toward the aged people (Alquwez et al., 2018; Rababa et al., 2021). Studies show that females, senior students, and students living with the aged individuals have more positive attitudes towards the aged.

With the aging of the global population, it is becoming increasingly evident that there will be a greater demand for nurses specializing in aged care in the future. However, studies generally show that nursing students are unwilling to work in jobs involving aged individuals (Alquwez et al., 2018; Gallo, 2019). Furthermore, it has been stated that there are concerns related to whether or not nursing students have acquired proper attitudes toward aging and the care to be provided to aged adult patients (Alquwez et al., 2018). This may negatively affect the interest in aged care and gerontology (Gallo, 2019). Nurses are healthcare professionals pioneering the provision of quality healthcare to aged individuals (Alquwez et al., 2018). For this reason, it is essential to address ageist attitudes and behaviors starting from a student's early years and offer appropriate training through a well-designed curriculum to prevent them.

Therefore, it is crucial to investigate the factors that may contribute to ageism among nursing students.

In this study, the studies investigating ageism in nursing students in Türkiye were scanned systematically, and a meta-analysis was carried out. It is known that culture is an essential factor affecting age discrimination, and age discrimination is affected by cultural thoughts in countries (Chang et al., 2020; Wilson et al., 2019). For this reason, only one country was handled in this study. This study aimed to investigate ageism among nursing students in Türkiye and identify the key factors contributing to it. To achieve this, we conducted a meta-analysis to determine the level of ageism among nursing students and its influencing factors.

1. RESEARCH METHODOLOGY

This systematic review and meta-analysis were conducted, and results were reported following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) checklist (Page et al., 2021). This systematic review and meta-analysis protocol has been registered in PROSPERO (CRD42022367267).

In this study, only studies using the Ageism Attitude Scale were evaluated. Studies conducted with other tools measuring ageism were not included. An examination of studies in Türkiye shows that the most frequently used scale is the Ageism Attitude Scale (AAS) developed by Vefikulucay et al. (2011). The scale consists of three parts, including Restricted Life of Elderly People (min: 9 - max: 45), Positive Attitudes Towards Elderly People (min: 8 - max: 40), and Negative Attitudes Towards Elderly People (min: 6 - max: 30). The higher score resulted from this scale presents more positive attitude towards aged people (Vefikulucay et al., 2011).

Ethical approval is not required.

Search Strategy and study Selection Process: Google Academic, PubMed, Scopus, and National Thesis Center databases were screened by two separate investigators between 18.10.2022 and 30.10.2022. The words "Türkiye," "ageism," "nursing students," and "university" in Turkish or English languages were used as keywords. Screening was limited with studies conducted after January 01, 2010. Two investigators (O.G. and O.O.) working independently read headlines and abstracts of studies that were accessed, and those studies compliant with the purpose of this study were included in the evaluation. Duplicated studies were excluded, and full texts of studies were accessed.

Eligibility criteria: Studies meeting the determined criteria were included. The inclusion criteria for studies were as follows:

- Quantitative studies carried out in Türkiye,
- Studies written in Turkish or English,
- Studies that the universe-sample groups were students attending nursing departments of universities in Türkiye,
- Studies using the Ageism Attitude Scale (AAS),
- Studies with data presented based on year of education, gender, or status of living together with an aged individual.
- Studies conducted on students attending several departments in universities, including nursing students, and showing the results of nursing students were also included.

The exclusion criteria for studies were as follows:

- Did not have the full text available,
- Studies with data not allowing comparative analyses,
- Studies using scales other than the one stated above,
- Studies targeting university students attending departments other than nursing,
- Studies were qualitative, systematic reviews, case reports, meeting reports, or did not provide sufficient data to calculate the mean or median scores,
- Moreover, studies earlier than 2010 were not included since ageism is a relatively new concept, and there can be differences between sample groups arising from generation differences.

Data Extraction: A Microsoft Excel form created by investigators was used for data extraction. This form includes the study year, study type, author(s), heading, purpose of the study, study universe, language of publication, number of students, gender, years of education (first and fourth years), status of living together with an aged individual (yes or no), and the means and standard deviations of the scale totals and sub-dimensions of the scale.

Risk of bias (quality) assessment: A modified version of the Newcastle-Ottawa scale was used to assess the quality of studies (Modesti et al., 2016). Based on the overall score, we classified studies as low (≥ 7), moderate (4-6), or high risk of bias (≤ 3). Researchers (OG and OO) independently evaluated and rated the included reviews. Any disagreement was resolved through discussion by researchers.

Meta-Analysis: The meta-analysis was conducted using the Comprehensive Meta-Analysis (CMA) software. The standardized effect size determined whether fixed or random effect models were used. To test the heterogeneity of effect size, Q and I² tests were performed. Kendall's tau analysis, Egger's regression analysis, and Orwin's fail-safe N value were used to detect publication bias. With a significance level of 0.05 in the studies included, this study also used a significance level of 0.05.

2. ANALYSIS

2.1. Search results summary

The literature review accessed a total of 190 studies. After removing 15 duplicate studies, 138 more were excluded by examining their titles and abstracts. Out of the remaining 37 studies, only 8 met the criteria after reading their complete texts. Additionally, 15 studies were included as a result of citation searching. In total, 23 studies were included, and the selection process flowchart can be seen in Figure 1.

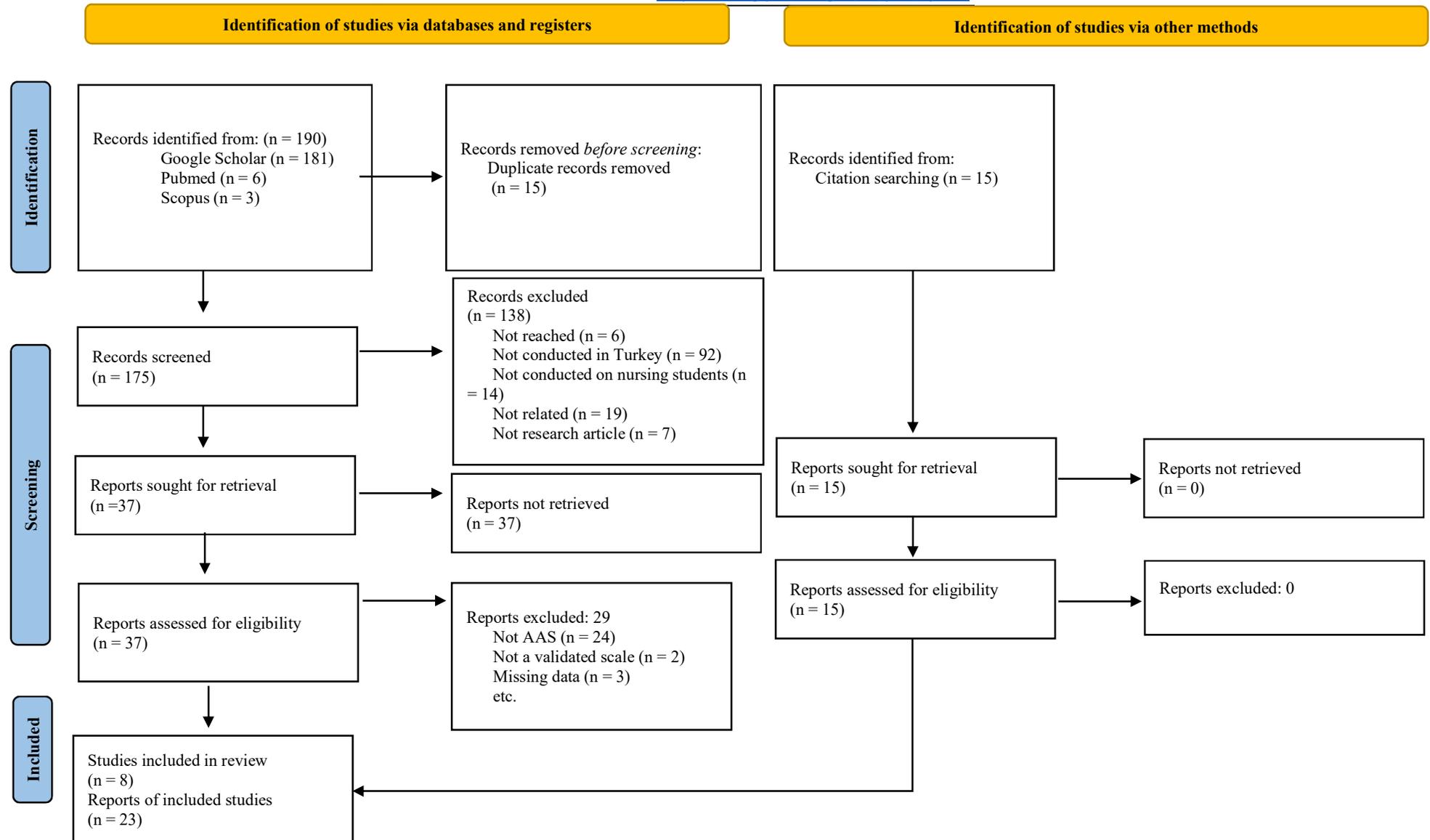


Figure 1. Flowchart for selection of included studies

2.2. Characteristics of the included studies

The characteristics of 23 studies, which covered a total of 7,806 nursing students, are presented in Table 1. The year 2020 had the highest number of published studies, followed by 2017 (with 7 and 4 studies respectively). All the studies, except for one, were research articles. Eighteen studies were conducted solely on nursing students. However, two studies focused on the differences between nursing students and elderly care students, one study on the differences between nursing students and physical therapy students, and one on the differences between nursing students and medical students. The results of these studies showed that the mean AAS points of nursing students ranged from 68.27 ± 6.88 (the lowest) to 100.92 ± 5.62 (the highest).

The mean ASS scores of fourth-year students were found to be significantly high in 7 of the studies. Together with this, 1 study shows that first-year students have high AAS total scores, and four studies show no differences between the years. The total AAS scores of males are more elevated in 2 studies, while the total AAS scores of females are higher in 3 studies. In ten studies, however, there are no significant differences between groups based on gender. There are no significant differences between groups in 13 studies as regards the status of living together with aged individuals. Two studies show that the total AAS scores in students living with an old individual are higher. In addition, different dimensions of a different scale in 5 studies show that students living with aged individuals have higher scores.

2.3. Results of meta-analysis

The meta-analysis was conducted to synthesize the results of the included studies. AAS scores of all the nursing students were evaluated in the meta-analysis. Furthermore, analyses were performed on nursing students based on gender, year of education (first or fourth year), and status of living together with an aged individual.

Meta-analysis on AAS was performed on 22 studies because data were missing in one of the studies included. Likewise, analyses on gender subgroups were carried out in 16 studies, analyses on years of education in 15 studies, and analyses on the status of living together with an aged individual were carried out in 18 studies.

Table 1. Characteristics of included studies

Nb.	Year	Study type	Author/s	Title	Aim	Population of study	Publication language	Students included to the study	Nb. of nursing students (sample)	Mean of ASS \pm SS	Class	Gender	Living with aged people	Risk of bias
1	2010	Research Article	Yilmaz and Ozkan	Attitudes of Nursing Students towards Ageism	To assess nursing students' attitudes towards Ageism and the factors causing differentiation in these attitudes	171 nursing students at a Health School in the 2008-2009 academic year	Turkish	Nursing students	167	100,92 \pm 5.62	The fourth-year students have higher scores for all except positive discrimination	NA	Not significant	9
2	2012	Research Article	Karadag et al	Attitudes of Nursing Students Towards Ageism	To determine the attitudes of nursing students about ageism	110 nursing students at a Health School in the 2011-2012 academic year	Turkish	Nursing students	85	83.67 \pm 9.25	Not significant	NA	Not significant	8
3	2014	Research Article	Canli Ozer and Terkes	Evaluation of nursing students' attitudes towards ageism in Turkey	To determine nursing students' attitudes towards ageism and the factors that affect these attitudes	Nursing students at Akdeniz University in 2011	English	Nursing students	285	68.27 \pm 6.88	The fourth-year students have lower scores for all except positive attitudes	Male have higher score for Restricted Life and total ASS	Not significant	7
4	2015	Research Article	Altay and Aydin	Evaluation of the Attitudes of Nursing Students towards Ageism	To determine the attitudes of nursing students towards ageism	340 nursing students at a university in the 2011-2012 academic year	Turkish	Nursing students	298	68.82 \pm 8.54	The fourth-year students have higher scores for positive attitude and total ASS	Male have a higher score for Restricted Life and lower score for positive attitude	Students living with aged people have a higher score for Restricted Life	9

5	2015	Research Article	Unsar et al.	Evaluation of Ageism Attitudes of Nursing Students	To determine the attitudes of nursing students towards ageism and the affecting factors	451 nursing students at Trakya University	Turkish	Nursing students	319	84.8 ±9.32	The fourth-year students have higher scores for negative attitudes and total ASS.	Not significant	Students living with the aged people have higher scores for Restricted Life and positive attitudes	9
6	2017	Research Article	Çilingir et al.	Attitudes of Nursing Students Towards Ageism	To determine the attitudes of nursing students towards ageism	557 nursing students at Karadeniz Technical University	Turkish	Nursing students	344	87.20 ±4.60	Not significant	Not significant	Not significant	9
7	2017	Research Article	Olak and Tumer	Freshman and Senior Nursing Students' Attitudes Towards Elderly Discrimination	To examine freshman and senior nursing students' attitudes towards elderly discrimination	366 nursing students at the 1st and 4th grades of nursing faculty at Mugla Sitki Kocman University	Turkish	Nursing students	233	69.51 ±7.13	The fourth-year students have lower scores for total ASS	Not significant	NA	9
8	2017	Research Article	Çayır Yılmaz and Ince	Relationship Between Nursing and Elderly Care Students' Attitudes Towards Ageism	To identify the relationship between nursing and elderly care program students' attitudes towards ageism	124 students in the Nursing Department and 176 students in the Elderly Care Program of Health Services Vocational School	English	Nursing students and elderly care students	71	86.72 ±7.62	NA	NA	NA	7
9	2017	Research Article	Zaybak et al.	Examining Nursing Students' Behaviors Related to Elderly Discrimination	To examine nursing students' behaviors related to elderly discrimination	142 nursing students at the 4th grade at Ege University	Turkish	Nursing students	116	85.75 ±10.35	NA	Not significant	Not significant	9

10	2018	Research Article	Bahadir-Yilmaz	The relationship between nursing students' professional values and their attitudes towards the elderly people: A cross-sectional study	To determine the relationship between nursing students' professional values and their attitudes towards the elderly	326 nursing students in the 2016–2017 academic year	English	Nursing students	275	82.70 ±8.80	The fourth-year students have higher scores for total ASS.	Not significant	Not significant	9
11	2019	Research Article	Yardimci Guler	Attitudes of Nursing Students Towards Ageism and Related Factors	To determine the attitudes of nursing students towards ageism and the related factors	417 nursing students at Sinop University	Turkish	Nursing students	312	85.18 ±7.99	Not significant	Female have higher scores for Restricted Life and negative attitudes but lower scores for positive attitudes	Not significant	9
12	2020	Research Article	Kaplan-Serin and Tuluce	Determining nursing students' attitudes and empathic tendencies regarding aged discrimination	To determine nursing students' attitudes and empathic tendencies regarding aged discrimination	472 nursing students at the second, third, and fourth years in the nursing department of a university	English	Nursing students	229	68.59 ±5.67	The fourth-year students have higher scores for Restricted Life and negative attitudes but lower scores for positive attitudes	Female have higher scores for Restricted Life, positive attitudes and total ASS	Not significant	9

13	2020	Master Thesis	Atug	Attitudes of Nursing Students Regarding Age Discrimination (Ageism) And Affecting Factors	To determine the attitudes of nursing students towards age discrimination and the affecting factors	1056 nursing students at Aydin Adnan Menderes University	Turkish	Nursing students	337	84.59 ±9.33	Not significant	Not significant	Students living with aged people have higher scores for total ASS	9
14	2020	Research Article	Bozdogan et al.	Determination of Nursing Students' Attitudes Towards Elderly Discrimination and Affecting Factors	To determine the attitudes and factors affecting nursing students towards elderly discrimination	1200 nursing students at a university	Turkish	Nursing students	851	80.78 ±8.67	The first-year students have higher scores for positive attitudes	Not significant	Students living with aged people have higher scores for positive attitudes but lower scores for negative attitudes	9
15	2020	Research Article	Can et al.	Attitudes of students towards ageism: an example of university	To determine young people attitudes towards individuals aged 65+	745 students enrolled in the Department of Nursing and the School of Physical Therapy and Rehabilitation	Turkish	Nursing students and physical therapy and rehabilitation departments	331	84.45 ±9.74	NA	NA	NA	8
16	2020	Research Article	Toygar and Kardakovan	Factors affecting the attitudes of nursing students toward ageism	To determine the attitudes of nursing students toward ageism and the factors affecting it	509 students at the 1st to 4th year at the Nursing Faculty in Izmir	English	Nursing students	439	83.97 ±7.72	The fourth-year students have higher scores for negative attitudes and total ASS	Female have higher scores for restricted life, negative attitudes and total ASS	Students living with aged people have higher scores for restricted life, positive attitudes	7

													and total ASS	
17	2020	Research Article	Uysal et al.	Comparison of Nursing Students' and Clinical Nurses' Attitudes towards Ageing	To compare the clinical nurses' and nursing students' attitudes towards ageing	1st and 4th year students at the Nursing Department of a university and clinical nurses working in a training and research hospital	Turkish	Nurses and Nursing students	212	NA	The fourth-year students have higher scores for positive attitudes and negative attitudes	NA	Not significant	6
18	2020	Research Article	Koc et al.	Attitudes of nursing and medical school students towards ageism	To evaluate the attitudes of nursing and medical school students towards age discrimination and to determine the association between these attitudes and various variables	445 students in Nurse Education Department and 496 students in Medical School	English	Nursing students and medical school students	328	86.51 ±8.22	The fourth-year students have higher scores for total ASS	Female have higher scores for restricted life and negative attitudes and total ASS	Not significant	7
19	2021	Research Article	Kaplan et al.	Attitudes of first-and fourth-year nursing students at a foundation university regarding elder discrimination	To determine the attitudes of first year and fourth-year nursing student of Hasan Kalyoncu University regarding elder discrimination	180 students at the first and fourth year of the Nursing Department	Turkish	Nursing students	102	86.76 ±11.59	The fourth-year students have higher scores for total ASS	Not significant	Not significant	9
20	2021	Research Article	Kose-Tosunoz and Gungor	Ageism: An Example of Nursing and Elderly Care Students	To determine the attitudes of nursing and elderly care students towards ageism and the factors affecting these attitudes	543 nursing students at a university and 256 elderly care department students of a different university	Turkish	Nursing students and elderly care students	346	83.65 ±0.40	NA	NA	NA	8

21	2021	Research Article	Ozdil et al.	Views of Senior Nursing Students on the Problems of the Elderly During the Covid-19 Process and Attitudes Against Ageism	To examine the attitudes of senior nursing students towards ageism and their views on the problems experienced by the older adults during the COVID-19 pandemic	78 nursing students who took the geriatrics course (elective course) at a university	English	Nursing students	75	88.13 ±8.08	NA	Not significant	Not significant	8
22	2022	Research Article	Tayaz and Koc	Attitude of Nursing Students Toward Ageism	To determine the attitudes of nursing students towards ageism	4.327 nursing students studying in different universities in Ankara	Turkish	Nursing students	1744	70.05 ±7.27	The first-year students have higher scores for negative attitude and total ASS	Male have higher scores for restricted life and total ASS	Students living with aged people have higher scores for positive attitudes but lower scores for restricted life	9
23	2022	Research Article	Aydin	Attitudes Toward Ageism Among Nursing Students Studying a University	To determine attitudes toward ageing and factors affecting these among university nursing students	408 nursing students at a university in the West of Turkey	English	Nursing students	307	68.53 ±6.91	Not significant	Not significant	Not significant	7

2.4.Subgroup analyses

2.4.1. Analysis results on years of education

The meta-analysis implemented on 15 studies for **AAS total** values showed high heterogeneity (Cochran Q: 211.074 $p < 0.001$, I²:93.367%). The random effect model was used (effect size: -0.244 (%95 CI: -0.538: 0.051), $p = 0.105$). No publication bias was found (test value: -0.248, $p = 0.099$). However, there was publication bias with Egger's regression analysis method (β_0 : -4.823, t: 2.062, $p = 0.03$). After correction of the effect size with Duval and Tweedie's trim and fill method, the random effect model gave a significant result of -0.692 (%95 CI: -1.087: -0.297). Analysis results showed a difference in this dimension of the scale regarding the first and fourth-year students, and ageism attitudes of the fourth-year students were more positive.

The meta-analysis implemented on 13 **Restricted Life** values studies showed heterogeneity (Cochran Q: 22.136, $p = 0.036$, I²: 45.79%). The random effect model was used (effect size: -0.011 (%95 CI: -0.122: 0.099), $p = 0.841$). There was no publication bias based on Kendall's tau analysis (test value: -0.064, $p = 0.38$) and Egger's regression analysis (β_0 : 0.758, t: 0.721 and $p = 0.242$) results. Analysis results showed that there was no difference in this dimension of the scale between the first and fourth-year students.

Meta-analysis was implemented on 13 studies for **Positive Attitude** values; analysis showed heterogeneity (Cochran Q: 41.883, $p < 0.001$, I²: 71.349%). The random effect model was examined, and the effect size found was -0.103 (%95 CI: -0.254: 0.049), which was insignificant ($p = 0.185$). There was no publication bias based on Kendall's tau analysis (test value: -0.064, $p = 0.38$) and Egger's regression analysis (β_0 : -1.033, t: 0.717 and $p = 0.244$). Analysis results showed that there was no difference in this dimension of the scale between the first and fourth-year students.

In the meta-analysis implemented on 13 studies for **Negative Attitudes** values, heterogeneity analysis showed high heterogeneity (Cochran Q: 63.732, $p < 0.001$, I²: 81.171%). The random effect model was examined, and the effect size found was -0.076 (%95 CI: -0.261: 0.11), which was insignificant ($p = 0.423$). There was no publication bias based on Kendall's tau analysis (test value: 0, $p = 0.5$) and Egger's regression analysis (β_0 : -2.831, t: 1.742 and $p = 0.055$). Analysis results showed no difference in this scale dimension between the first and fourth-year students (Table 2).

Although there were no differences in sub-dimensions as regards the years of nursing students (first or fourth year), there was a difference in total ASS scores. Ageism attitudes of fourth-year students were more positive.

2.4.2. Analysis results based on gender

The meta-analysis implemented on 16 studies for **AAS total** values showed heterogeneity (*Cochran Q*: 48.333, $p < 0.001$, *I*²: 68.965%). The random effect model was examined, and the effect size found was 0.052 (%95 *CI*: -0.059: 0.164), which is insignificant ($p = 0.355$). There was no publication bias based on Kendall's tau analysis (test value: 0.142, $p = 0.222$) and Egger's regression analysis (β_0 : 1.897, $t = 1.827$, $p = 0.05$). Analysis results showed that there was no difference in this dimension of the scale between the female and male students.

The meta-analysis implemented on 11 **Restricted Life** values studies showed high heterogeneity (*Cochran Q*: 54.726, $p < 0.001$, *I*²: 81.727%). The random effect model was examined, and the effect size found was -0.03 (%95 *CI*: -0.189: 0.129), which was insignificant ($p = 0.713$). There was no publication bias based on Kendall's tau analysis (test value: 0.145, $p = 0.267$) and Egger's regression analysis (β_0 : 2.038, t : 1.216, $p = 0.127$). Analysis results showed that there was no difference in this dimension of the scale between the female and male students.

The meta-analysis implemented on 11 studies for **Positive Attitude** values showed no heterogeneity (*Cochran Q*: 16.56, $p = 0.085$, *I*²: 39.614%). The random effect model was examined, and the effect size found was -0.036 (%95 *CI*: -0.098: 0.025), which was insignificant ($p = 0.247$). There was no publication bias based on Kendall's tau analysis (test value: 0.073, $p = 0.378$) and Egger's regression analysis (β_0 : 0.279, t : 0.281, $p = 0.392$). Analysis results showed that there was no difference in this dimension of the scale between the female and male students.

The meta-analysis implemented on 11 **Negative Attitudes** values studies showed heterogeneity (*Cochran Q*: 30.36, $p = 0.001$, *I*²: 67.062%). The random effect model was examined, and the effect size found was 0.112 (%95 *CI*: -0.009: 0.232), which was insignificant ($p = 0.069$). There was no publication bias based on Kendall's tau analysis (test value: 0.073, $p = 0.378$) and Egger's regression analysis (β_0 : 0.449, t : 0.336, $p = 0.372$). Analysis results showed no difference in this scale dimension between the female and male students (Table 2).

No significant differences were found between ageism attitudes of female and male students.

Table 2. Meta-analysis results based on years of education, gender and the status of living together with aged individuals

	Scale	Model	Results of meta-analysis				Results of heterogeneity			
			ES (%95 CI)	SE	Test Statist.	p	Q	p	I ²	
Meta-analysis results based on years of education	AAS total	Constant	-0.004 (-0.076: 0.068)	0.037	-0.111	0.911	211.074	<0.001	93.367	
		Random	-0.244 (-0.538: 0.051)	0.150	-1.620	0.105				
	RLEP	Constant	-0.022 (-0.097: 0.053)	0.038	-0.571	0.568	22.136	0.036	45.790	
		Random	-0.011 (-0.122: 0.099)	0.056	-0.200	0.841				
	PATEP	Constant	-0.070 (-0.145: 0.005)	0.038	-1.830	0.067	41.883	<0.001	71.349	
		Random	-0.103 (-0.254: 0.049)	0.077	-1.326	0.184				
	NATEP	Constant	0.005 (-0.070: 0.080)	0.038	0.121	0.904	63.732	<0.001	81.171	
		Random	-0.076 (-0.261: 0.110)	0.095	-0.800	0.423				
Meta-analysis results based on gender	AAS total	Constant	-0.002 (-0.058 - 0.055)	0.029	-0.057	0.955	48.333	<0.001	68.965	
		Random	0.052 (-0.059 - 0.164)	0.057	0.924	0.355				
	RLEP	Constant	-0.091 (-0.153 - -0.029)	0.032	-2.877	0.004	54.726	<0.001	81.727	
		Random	-0.03 (-0.189 - 0.129)	0.081	-0.368	0.713				
	PATEP	Constant	-0.036 (-0.098 - 0.025)	0.031	-1.158	0.247	16.560	0.085	39.614	
		Random	-0.032 (-0.12 - 0.057)	0.045	-0.699	0.484				
	NATEP	Constant	0.095 (0.033 - 0.156)	0.032	3.002	0.003	30.360	0.001	67.062	
		Random	0.112 (-0.009 - 0.232)	0.061	1.820	0.069				
Meta-analysis results based on the status of living together with aged individuals	AAS total	Constant	0.075 (0.025 - 0.125)	0.026	2.940	0.003	23.866	0.123	28.770	
		Random	0.081 (0.017 - 0.146)	0.033	2.475	0.013				
	RLEP	Constant	0.03 (-0.022 - 0.082)	0.027	1.122	0.262	53.389	<0.001	71.904	
		Random	0.072 (-0.035 - 0.18)	0.055	1.324	0.185				
	PATEP	Constant	0.115 (0.063 - 0.167)	0.027	4.323	0.000	23.177	0.080	35.281	
		Random	0.109 (0.039 - 0.18)	0.036	3.029	0.002				
	NATEP	Constant	-0.025 (-0.077 - 0.027)	0.027	-0.945	0.345	23.634	0.072	36.531	
		Random	-0.034 (-0.105 - 0.038)	0.037	-0.921	0.357				

ES: Effect Size; CI: Confidence Interval; SE: Standard Error

ASS: Ageism Attitude Scale

RLEP: Restricted Life of Elderly People

PATEP: Positive Attitudes Towards Elderly People

NATEP: Negative Attitudes Towards Elderly People

Table 3. Meta-analysis results for the total

Scale	Model	n	Results of meta-analysis				Results of heterogeneity		
			ES (%95 CI)	SE	Test İst.	p	Q	p	I2
AAS total	Constant	22	83.34 (83.299-83.381)	0.021	3991.217	0.000	14195.409	<0.001	99.852
	Random		81.326 (78.193-84.459)	1.599	50.874	0.000			
RLEP	Constant	22	34.701 (34.683-34.718)	0.009	3874.069	0.000	36395.706	<0.001	99.942
	Random		32.841 (30.269-35.413)	1.312	25.026	0.000			
PATEP	Constant	22	30.7 (30.68-30.721)	0.011	2918.597	0.000	5443.465	<0.001	99.614
	Random		29.62 (28.493-30.747)	0.575	51.529	0.000			
NATEP	Constant	22	18.092 (18.074-18.111)	0.009	1928.696	0.000	3695.362	<0.001	99.432
	Random		18.498 (17.795-19.201)	0.359	51.572	0.000			

ES: Effect Size; CI: Confidence Interval; SE: Standard Error

ASS: Ageism Attitude Scale

RLEP: Restricted Life of Elderly People

PATEP: Positive Attitudes Towards Elderly People

NATEP: Negative Attitudes Towards Elderly People

2.4.3. Analysis results regarding living with aged people

The meta-analysis implemented on 18 studies for **AAS total** values showed no heterogeneity (Cochran Q: 23.866, $p=0.123$, I2: 28.77%). A fixed effect model was used, and the effect size found was 0.075 (%95 CI: 0.025: 0.125), which was statistically significant ($p=0.003$). The effect size of 0.081 was taken as 0.001 to make it insignificant, and Orwin's fail-safe N value was found to be 1336. There was no publication bias based on Kendall's tau analysis (test value: -0.052, $p=0.381$) and Egger's regression analysis (β_0 : 0.222, t: 0.299, $p=0.384$). The analysis results showed a difference between students based on the status of living together with an aged individual; ageism attitudes of students living with aged individuals are more favorable.

The meta-analysis implemented on 16 **Restricted Life** values studies showed heterogeneity (Cochran Q: 53.389, $p<0.001$, I2: 71.904%). The random effect model was examined, and the effect size found was 0.072 (%95 CI: -0.035: 0.18), which was statistically insignificant ($p=0.185$). There is no publication bias based on Kendall's tau analysis (test value: 0.092, $p=0.31$) and Egger's regression analysis (β_0 : 1.711, t: 1.478, $p=0.081$). Analysis results showed no difference in this dimension of the scale based on the status of living together with an aged individual.

Meta-analysis was implemented on 16 studies for **Positive Attitudes** values; analysis showed no heterogeneity (Cochran Q: 23.177, $p=0.08$, I²: 35.281%). A fixed effect model was used, and the effect size found was 0.115 (%95 CI: 0.063: 0.167), which was statistically significant ($p=0.002$). The effect size of 0.115 was taken as 0.001 to make it insignificant, and Orwin's fail-safe N value was found to be 1822. There was no publication bias based on Kendall's tau analysis (test value: -0.108, $p=0.278$) and Egger's regression analysis (β_0 : -0.331, t: 0.405, $p=0.346$). The analysis showed a difference between students based on the status of living together with an aged individual; ageism attitudes of students living with aged individuals were more positive.

Meta-analysis was implemented on 16 studies for **Negative Attitude** values, and analysis showed no heterogeneity (Cochran Q: 23,634, $p=0.072$, I²: 36.531%). A fixed effect model was used, and the effect size found was -0.025 (%95 CI: -0.077: 0.027), which was statistically insignificant ($p=0.345$). There was no publication bias based on Kendall's tau analysis (test value: -0.008, $p=0.482$) and Egger's regression analysis (β_0 : -0.543, t: 0.666, $p=0.258$). Analysis results showed no difference between students in this dimension of the scale (Table 2).

The total ASS scores of students living together with an aged individual in the same house and the points in the "Positive Attitudes Towards Elderly People" dimension of the scale were higher.

2.4.4. The AAS in all the nursing students

The AAS mean score obtained from 22 studies was 81.33, the restricted life mean score was 32.84, the positive attitudes mean score was 29.62, and the negative attitudes mean score was 18.50. Since the Q test was statistically significant in the heterogeneity test for all score types, the random effect model was considered. It was found that publication bias did not exist for each dimension (Table 3).

Based on the results of the analysis, nursing students' ageism attitudes were high in a general overview. However, the mean scores in the "Negative Attitudes Towards Elderly People" dimension were somehow over the medium level.

3. DISCUSSION AND RECOMMENDATIONS

This meta-analysis examined qualitative studies on Turkish nursing students' ageism attitudes. Nurses are critical in providing care to the aged individual (Alquwez et al., 2018; Henni et al., 2018). For this reason, analyzing the ageism attitudes of nursing students who will assume

essential roles in the care process is vital for developing positive attitudes and realizing improvements targeting the increase of positive attitudes.

Reviews of studies conducted in Türkiye show that ageism attitudes of nursing students are slightly positive (Bahadır-Yılmaz, 2018; Bozdogan-Yesilot et al., 2020; Darling et al., 2018; Ozdemir & Bilgili, 2016). This meta-analysis includes 22 studies on nursing students, and their total AAS mean scores range from a minimum of 68.27 ± 6.88 to a maximum of 100.92 ± 5.62 . The mean score for all 22 studies is 81.326 (CI: 78.193-84.459) with a random effect model. The mean AAS scores of nursing students are slightly high, considering that the maximum possible score on the scale is 115. It is important to note that attitudes towards aged people vary across cultures. Therefore, socio-cultural differences may reflect the ageism attitudes of nursing students in different countries. For example, studies carried out in Korea (Ha & Kim, 2021) and Iran (Shojaei & Masoumi, 2014) have shown that ageism attitudes of nursing students are neutral, while a study carried out in Spain has shown that the same is positive (Lopez-Hernandez et al., 2021). A different study found that Swedish students' attitudes towards aged people were more positive compared to Austrian students (Heckemann et al., 2022). A study carried out in Canada has shown that ageism can be as high as 91% (Wilson et al., 2019). However, in some underdeveloped countries like Nepal, cultural beliefs support positive ageing (Chang et al., 2020).

Although nursing students in Türkiye have positive ageism attitudes, a study indicates lower scores compared to students in other health departments at universities (Can et al., 2020). Considering this aspect reveals the necessity of exerting efforts to support nursing students in developing positive attitudes toward aged people.

Previous studies have found that fourth-year students tend to have more positive attitudes towards aged people, which is consistent with the findings of Bahadır-Yılmaz (2018), Demiray and Dal Yılmaz (2017), and Gherman et al. (2022). One possible explanation for this finding is that younger people with less knowledge tend to display more negative attitudes, as noted by Rababa et al. (2021). However, courses and practical studies on aging taken throughout nursing education can enhance positive attitudes toward aging and older adults. (Lopez-Hernandez et al., 2021). However, studies with contrasting results show that ageism attitudes are higher in upper grades (Ha & Kim, 2021). Owners of this opposing view advocate that the negative experiences of students with aged individuals and severely ill patients in their clinical practices affect them negatively (Millns Sizer et al., 2016). It is essential to conduct further research in this area in order

to identify the specific training or activities that can improve nursing students' attitudes towards aged people. It is equally important to share the valuable practices identified and integrate them into the educational curriculum.

While some studies have found more positive ageism attitudes in females (Kaplan-Serin & Tuluce, 2020; Koc et al., 2020; Toygar & Kardakovan, 2020), and in others, males are found to have more positive attitudes (Canlı Ozer & Terkes, 2014; Tayaz & Koc, 2022), the meta-analysis did not find any significant differences based on gender. Likewise, despite numerous studies conducted in different countries showing the lack of effect of gender (Gallo, 2019; Ha & Kim, 2021; Shojaei & Masoumi, 2014), Lopez-Hernandez et al. (2021) state that females have more positive ageism attitudes.

Studies in the literature show that attitudes of students living together with an aged individual are more optimistic, like in our research (McKenzie & Brown, 2014; Rababa et al., 2021; Rathnayake et al., 2016). Heckemann et al. (2022) found that when aged individuals live with young people, it positively affects the younger individuals' perception of the aged individuals' autonomy and integrity. In the study conducted by Alquwez et al. in 2018, it was observed that young individuals living in large families and having frequent interactions with older individuals have a positive attitude towards them. Moreover, these students are more inclined towards working in jobs that involve serving the aged people. In recent years, the structure of families in Türkiye has undergone significant changes due to socio-cultural shifts. Nuclear families have replaced the traditional large family structures. However, individuals who uphold traditional socio-cultural values still tend to live with elderly family members. Senior citizens in Türkiye are highly respected and valued. Unfortunately, the reality is changing, and this transformation of family and cultural values is expected to create a significant problem for aged care in Türkiye, just as it has occurred in all developed countries.

The global increase in the aged population also increases the number of individuals older than 65 years of age demanding healthcare services (Dahlke & Hunter, 2022; Gherman et al., 2022). This increases the need for geriatric nurses, while nurses are unwilling to give care to aged individuals globally (Dobrowolska et al., 2019; Gherman et al., 2022). Nursing students have recently seen gerontology as a less attractive career option, and nurses consider it less prestigious than other nursing branches. This indifference of nurses in aged care and gerontology nursing renders aged individuals more fragile against functional obstacles and reduced quality of life

(Rababa et al., 2020). Furthermore, ageism reduces the quality of care given to aged individuals (Burnes et al., 2019; Gallo, 2019).

It is important to note that this study has certain limitations. Firstly, the small size of the universe and the limited sample size of the studies included have reduced the ability to generalize the results obtained to all nursing students. Secondly, the measurement of ageism using AAS relies on the self-statements of nursing students. We do not know how differences related to data collection processes between studies - such as time (before the course hour, before or after exams) or data collector (another student, instructor, etc.) - may affect students' responses. Thirdly, the works are distributed over 12 years, which may result in differences in results over time influenced by various factors. Another limitation is that the differences in nursing curriculums in the universities where the studies were conducted were not considered. Optional courses concerning the ageing process or apprenticeships in aged care centers or rest homes were not considered when evaluating the students' responses.

The proportion of aged individuals in Türkiye is increasing yearly, which means there is a greater need for high-quality, timely, and appropriate care for them. It is essential to develop positive attitudes towards aged care among nurses, who play a crucial role starting from their student years.

Therefore, it is recommended that further studies be conducted to identify the reasons for the differences in ageism attitudes between first- and fourth-year nursing students. Additionally, it is advisable to include more geriatric care-related topics in nursing curriculums and encourage more significant interaction between students and aged individuals through practical applications. It is inevitable that family structures change, leading to decreased communication between young and old. However, planning activities that bring them together and implementing volunteering opportunities can be beneficial. Expanding projects involving collaboration between public institutions, non-governmental organizations, and universities is essential.

Conflict of Interest

The Author(s) declare(s) that there is no conflict of interest.

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REFERENCES

- Alquwez, N., Cruz, J.P., Almazan, J.U., Alamri, M.S. and Mesde, J.J. (2018). The Arabic Version of the Kogan Attitudes Toward Older People Scale among Saudi Nursing Students: A Psychometric Analysis, *Annals of Saudi Medicine*, 38(6):399-407. <https://doi.org/10.5144/0256-4947.2018.399>
- Altay, B. and Aydin, T. (2015). Evaluation of The Attitudes of Nursing Students Towards Ageism, *Journal of Education and Research in Nursing*, 12(1): 11-18. (Original Work Published in Turkish).
- Atug, M. (2020). Attitudes of Nursing Students Towards Ageism and Affecting Factors. Aydın Adnan Menderes University, Institute of Health Sciences, Department of Mental Health and Diseases Nursing. Master Thesis. Advisor: Assist Prof. Mehtap Kızılkaya. Aydın. (Original Work Published in Turkish).
- Ayalon, L. and Tesch-Römer, C. (2018). Contemporary Perspectives on Ageism. Springer Nature, E Book ISBN: 978-3-319-73820-8
- Aydin, A. (2022). Attitudes Toward Ageism Among Nursing Students Studying a University, *SBedergi*, 6(10):1-16. <https://doi.org/10.29228/sbe.55730>
- Bahadir-Yilmaz, E. (2018). The Relationship Between Nursing Students' Professional Values and Their Attitudes Towards the Elderly People: A Cross-Sectional Study, *Nurse Educ Today*, 70:8-12. <https://doi.org/10.1016/j.nedt.2018.08.007>. Epub 2018 Aug 16. PMID: 30125868.
- Bozdogan-Yesilot, S., Yesil-Demirci, P. and Oztunc, G. (2020). Determination of Nursing Students' Attitudes Towards Elderly Discrimination and Affecting Factors, *Journal of Duzce University Health Sciences Institute*, 10(1):87-93. <https://doi.org/10.33631/duzcesbed.537976>. (Original Work Published in Turkish).
- Burnes, D., Sheppard, C., Henderson Jr, C.R., Wassel, M., Cope, R., Barber, C. and Pillemer, K. (2019). Interventions to Reduce Ageism Against Older Adults: A Systematic Review and Meta-Analysis, *American Journal of Public Health*, 109(8):e1-e9. <https://doi.org/10.2105/AJPH.2019.305123>
- Can, R., Tambag, H., Dogru-Huzmeli, E. and Duman, F. (2020). Attitudes of Students Towards Ageism: An Example of University, *Journal of Health Sciences of Adiyaman University*, 6(1):68-76. <https://doi.org/10.30569.adiyamansaglik.669761>. (Original Work Published in Turkish).

- Canli-Ozer, Z. and Terkes, N. (2014). Evaluation of Nursing Students' Attitudes Towards Ageism in Türkiye, *Procedia - Social and Behavioral Sciences*, 116: 2512-2515. <https://doi.org/10.1016/j.sbspro.2014.01.602>
- Cayir-Yilmaz, M. and Ince, F.Z. (2017). Relationship Between Nursing and Elderly Care Students' Attitudes Towards Ageism, *Belitung Nursing Journal*, 3(4):281-296. <https://doi.org/10.33546/bnj.83>
- Chang, E.S., Kanno, S., Levy, S., Wang, S.Y., Lee, J. E. and Levy, B.R. (2020). Global Reach of Ageism on Older Persons' Health: A Systematic Review, *PloS one*, 15:1. e0220857. <https://doi.org/10.1371/journal.pone.0220857>
- Cilingir, D., Bulut, E. and Hintistan, S. (2017). Attitudes of Nursing Students Towards Ageism, *DEUHFED*, 10(3):137-143. (Original Work Published in Turkish).
- Dahlke, S. and Hunter, K.F. (2022). Harnessing Nursing to Diminish Ageism, *Int J Older People Nurs*, 17(2):e12417. <https://doi.org/10.1111/opn.12417>. Epub 2021 Aug 22. PMID: 34420260.
- Darling, R., Sendir, M., Atav, S. and Buyukyilmaz, F. (2018). Undergraduate Nursing Students and The Elderly: An Assessment of Attitudes in A Turkish University, *Gerontology and Geriatrics Education*, 39:3, 283-294. <https://doi.org/10.1080/02701960.2017.131188>
- Demiray, T. and Dal-Yilmaz, U. (2017). Opinions of the Nursing Students on Ageism, *İstanbul Med J*, 18:7-12. <https://doi.org/10.5152/imj.2017.02997>
- Dobrowolska, B., Jędrzejkiewicz, B., Pilewska-Kozak, A., Zarzycka, D., Ślusarska, B., Deluga, A., Kościółek, A. and Palese, A. (2019). Age Discrimination in Healthcare Institutions Perceived by Seniors and Students, *Nurs Ethics*, 26(2):443-459. <https://doi.org/10.1177/0969733017718392>. Epub 2017 Jul 26. PMID: 28745574.
- Gallo, V. (2019). Ageism in Nursing Education: A Review of the Literature, *Teaching and Learning in Nursing*, 14(3): 208-215. <https://doi.org/10.1016/j.teln.2019.04.004>
- Gherman, M.A., Arhiri, L. and Holman, A.C. (2022). Ageism, Moral Sensitivity and Nursing Students' Intentions to Work With Older People – A Cross-Sectional Study, *Nurse Educ Today*, 113:105372. <https://doi.org/10.1016/j.nedt.2022.105372>.
- Ha, J. and Kim, J. (2021). Ageism and The Factors Affecting Ageism Among Korean Nursing Students: A Cross-Sectional Study, *Int J Environ Res Public Health*, 18(4):1798. <https://doi.org/10.3390/ijerph18041798>. PMID: 33673236; PMCID: PMC7918635.

- Heckemann, B., Schüttengruber, G., Wolf, A., Großschädl, F. and Holmberg, C. (2022). Attitudes Towards Oldest-Old Adults (age ≥ 80 years): A survey And International Comparison Between Swedish And Austrian Nursing Students, *Scand J Caring Sci*, 36(4):1083-1093. <https://doi.org/10.1111/scs.13005>. Epub 2021 Jun 1. PMID: 34075609.
- Henni, S. H., Kirkevold, M., Antypas, K. and Foss, C. (2018). The role Of Advanced Geriatric Nurses in Norway: A Descriptive Exploratory Study, *Int J Older People Nurs*, 13(3):e12188. <https://doi.org/10.1111/opn.12188>. Epub 2018 Mar 11. PMID: 29527828.
- Kaplan, B., Ortabag, T., Guler, S., Dirgar, E., Avci, S. and Barlik, M. (2021). Attitudes of First- And Fourth-Year Nursing Department Students at A Foundation University Regarding Elder Discrimination, *Zeugma Journal of Health Researches*, 3(1):33-38. (Original Work Published in Turkish).
- Kaplan-Serin, E. and Tuluca, D. (2021). Determining Nursing Students' Attitudes and Empathic Tendencies Regarding Aged Discrimination, *Perspect Psychiatr Care*, 57(1):380-389. <https://doi.org/10.1111/ppc.12652>. Epub 2020 Oct 26. PMID: 33103768.
- Karadag, E., Vardar-Inkaya, B. and Karatay, G. (2012). Attitudes of Nursing Students Towards Ageism, *JEUNF*, 28 (2): 31-40. (Original Work Published in Turkish).
- Koc, M., Kissal, A., Citil, R. and Onder, Y. (2020). Attitudes of Nursing And Medical School Students Towards Ageism, *Medicine Science*, 9(4):848-855. [10.5455/medscience.2020.05.072](https://doi.org/10.5455/medscience.2020.05.072)
- Kose-Tosunoz, I. and Gungor, S. (2021). Ageism: An Example of Nursing and Elderly Care Students, *Journal of Inonu University Health Services Vocational School*, 9(1):176-190. <https://doi.org/10.33715/inonusaglik.813815>. (Original Work Published in Turkish).
- López-Hernández, L., Martínez-Arnau, F. M., Castellano-Rioja, E., Botella-Navas, M. and Pérez-Ros, P. (2021). Factors Affecting Attitudes Towards Older People in Undergraduate Nursing Students, *Healthcare*, 9:1231. <https://doi.org/10.3390/healthcare9091231>
- McKenzie, E. L. and Brown, P. M. (2014). Nursing Students' Intentions to Work in Dementia Care: Influence of Age, Ageism, And Perceived Barriers, *Educational Gerontology*, 40(8):618–633. <https://doi.org/10.1080/03601277.2013.86354>
- Mikton, C., de la Fuente-Núñez, V., Officer, A. and Krug, E. (2021). Ageism: A Social Determinant of Health That Has Come of Age, *The Lancet*, 39710282:1333-1334. [https://doi.org/10.1016/S0140-6736\(21\)00524-9](https://doi.org/10.1016/S0140-6736(21)00524-9)

- Millns-Sizer, S., Burton, R.L. and Harris, A. (2016). The Influence of Theory and Practice on Perceptions About Caring for Ill Older People - A Literature Review, *Nurse Educ Pract*, 19:41-7. <https://doi.org/10.1016/j.nepr.2016.04.003>. Epub 2016 Apr 14. PMID: 27428691.
- Modesti, P.A., Reboldi, G., Cappuccio, F.P., Agyemang, C., Remuzzi, G., Rapi, S. and et al. (2016). Panethnic Differences in Blood Pressure in Europe: A Systematic Review and Meta-Analysis, *PLoS ONE*, 11(1): e0147601. <https://doi.org/10.1371/journal.pone.0147601>
- Olak, A. and Tumer, A. (2017). Freshman and Senior Nursing Students' Attitudes Towards Elderly Discrimination, *OPUS International Journal of Society Researches*, 8 14:53-67 <https://doi.org/10.26466/opus.337355>. (Original Work Published in Turkish).
- Ozdemir, O. and Bilgili, N. (2016). Attitudes of Turkish Nursing Students Related to Ageism, *The Journal of Nursing Research*, 24(3):211-216. <https://doi.org/10.1097/jnr.0000000000000131>
- Ozdil, K., Kuçuk-Ozturk, G., Catiker, A. and Bulucu-Buyuksoy, G.D. (2021). Views of Senior Nursing Students on the Problems of the Elderly During The COVID-19 Process and Attitudes Against Ageism, *DEUHFED*, 14(4): 357- 369. <https://doi.org/10.46483/deuhfed.870058>
- Page, M.J., McKenzie, J.E., Bossuyt, P.M., Boutron, I., Hoffmann, T.C., Mulrow, C.D. and et al. (2021). The PRISMA 2020 Statement: An Updated Guideline For Reporting Systematic Reviews, *Int J Surg.*, 88:105906. <https://doi.org/10.1136/bmj.n71>.
- Previtali, F., Allen, L.D. and Varlamova, M. (2020). Not only virus spread: The Diffusion of Ageism During the Outbreak of COVID-19, *Journal of Aging and Social Policy*, 32:506-514. <https://doi.org/10.1080/08959420.2020.1772002>
- Rababa, M., Al-Dwaikat, T. and Almomani, M.H. (2021). Assessing Knowledge and Ageist Attitudes and Behaviors Toward Older Adults Among Undergraduate Nursing Students, *Gerontology and Geriatrics Education*, 42(3):347-362. <https://doi.org/10.1080/02701960.2020.1827398>
- Rababa, M., Hammouri, A.M., Hweidi, I.M. and Ellis, J.L. (2020). Association of Nurses' Level of Knowledge and Attitudes to Ageism Toward Older Adults: Cross-Sectional Study, *Nursing and Health Sciences*, 22:593-601. <https://doi.org/10.1111/nhs.12701>

- Rathnayake, S., Athukorala, Y. and Siop, S. (2016). Attitudes Toward and Willingness to Work with Older People Among Undergraduate Nursing Students in A Public University in Sri Lanka: A cross sectional study, *Nurse Education Today*, 36,439–444. <https://doi.org/10.1016/j.nedt.2015.10.007>
- Shojaei, F. and Masoumi, N. (2014). Comparison of the Attitudes of Second and Fourth Year Nursing Students Towards Hospitalized Elderly, *Crescent Journal of Medical and Biological Sciences*, 1(1): 13-17.
- Tayaz, E. and Koc, A. (2022). Attitude of Nursing Students Toward Ageism, *EGEHFD*, 38(2):1-9. <https://doi.org/10.53490/egehemsire.950970>. (Original Work Published in Turkish).
- Toygar, I. and Karadakovan, A. (2020). Factors Affecting the Attitudes of Nursing Students Toward Ageism, *NPT*, 7(1):38-44. <https://doi.org/10.18502/npt.v7i1.2298>
- TÜİK (Turkish Statistical Institute). (2022). Elderly Statistics, 2021 Retrieved 15 May, 2023, <https://data.tuik.gov.tr/Bulten/Index?p=Istatistiklerle-Yaslilar-2021-45636>.
- Unsar, S., Erol, O., Kurt, S., Turung, F., Dinlegor-Sekmen, I., Sak, C. and Turksen, S. (2015). Evaluation of Ageism Attitudes of Nursing Students, *Cumhuriyet Nursing Journal*, 1:12-13. (Original Work Published in Turkish).
- Uysal, N., Unal-Toprak, F. and Koc, A. (2020). Comparison of Nursing Students' and Clinical Nurses' Attitudes Towards Ageing, *Journal of Inonu University Health Services Vocational School*, 8(2):461-471. <https://doi.org/10.33715/inonusaglik.729543>. (Original Work Published in Turkish).
- Vefikulucay-Yilmaz, D. and Terzioglu, F. (2011). Development and Psychometric Evaluation of Ageism Attitude Scale Among the University Students, *Turkish Journal of Geriatrics*, 14(3): 259-268.
- Wilson, D.M., Errasti-Ibarrondo, B. and Low, G. (2019). Where Are We Now in Relation to Determining the Prevalence of Ageism in This Era of Escalating Population Ageing? *Ageing Research Reviews*, 51:78-84. <https://doi.org/10.1016/j.arr.2019.03.001>
- World Health Organization (WHO). (2020). Campaigning to Tackle Ageism: Current Practices and Suggestions For Moving Forward. Retrieved 20 May, 2023, https://cdn.who.int/media/docs/default-source/3rd-edl-submissions/campaigning-to-tackle-ageism.pdf?sfvrsn=c89079ac_1&download=true

World Health Organization (WHO). (2021). Decade of healthy ageing: baseline report. Retrieved 20 May, 2023, <https://www.who.int/publications/i/item/9789240017900>.

Yardimci-Guler, T. (2019). Attitudes of Nursing Students Towards Ageism and Related Factors, *Turkiye Klinikleri J Nurs Sci*, 11(4):381-9. <https://doi.org/10.5336/nurses.2019-65924>. (Original Work Published in Turkish).

Yilmaz, E. and Ozkan, S. (2010). Attitudes of Nursing Students Towards Ageism, *Maltepe Üniversitesi Hemşirelik Bilim ve Sanatı Dergisi*, 3(2):35-53. (Original Work Published in Turkish).

Zaybak, A., Ozdemir, H., Gunes, U. and Baran, L. (2017). Examining Nursing Students' Behaviors Related to Elderly Discrimination, *JEUNF*, 33 (1): 21-32. (Original Work Published in Turkish).