



Original Article

# Gerascophobia and its Related Factors in Medical Students of Kerman University of Medical Sciences

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## Abstract

**Background:** Gerascophobia is one of the factors affecting people's quality of life. The present study sought to examine gerascophobia and its related factors in medical students at Kerman University of Medical Sciences.

**Methods:** The participants in this cross-sectional study were medical students of Kerman University of Medical Sciences in 2023, who were selected using non-probability quota sampling. The data were collected using Lasher and Faulkender's Anxiety about Aging Scale (AAS) and analyzed with SPSS-26 software.

**Results:** The participants in this study were 230 medical students. The participants' average age was  $22.95 \pm 2.38$  years, and 61.3% of the students were female. The mean scores for gerascophobia and the subscales of fear of old people, psychological concerns, physical appearance, and fear of loss were 57.66, 14.15, 13.20, 14.61, and 16.51, respectively. The linear regression analysis showed that the average fear of aging was higher in female students ( $P=0.019$ ) and the students who did not have job experience and the experience of caring for older adults ( $P=0.007$ ).

**Conclusion:** In line with findings from the present study, it can be argued that to reduce gerascophobia and create a more positive attitude toward aging in medical students, suitable facilities should be provided to create more contact between medical students, especially female students, and older adults during their studies.

**Keywords:** Gerascophobia, Geriatric anxiety, Medical students

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## Introduction

Following significant medical advances in the second half of the 20<sup>th</sup> century, human life expectancy increased, such that the life expectancy of less than 50 years in the 19<sup>th</sup> century reached more than 66 years in the 21<sup>st</sup> century, and this has changed the age composition of the world's population (1). Iran's population is aging like other countries in the world, and it is predicted that older adults will account for about 14% of the country's population by 2041 (2-4).

Functionally, old age is a period in which changes occur in the shape and function of body organs as the result of the gradual erosion of vital organs, leading to problems in the individual's adaptability to the environment (5). Thus, for a person to have a healthy and dynamic life in old age, he/she must receive good healthcare in all stages of life. In other words, the quality of life in old age depends on the quality of life in the previous stages and the phenomenon of fear of aging (gerascophobia) is one of the factors affecting the quality of life of people both in old age and before that (6,7).

Gerascophobia is defined as an irrational and persistent fear that can be experienced by people of any age group and negatively affects their health and well-being (8,9). Gerascophobia is people's worry about growing up and aging and its consequences such as health decline, financial problems, dementia, and changes in physical appearance, and people with it experience severe anxiety even if they are in good condition. Studies have shown that gerascophobia is associated with harmful health consequences such as the increased risk of chronic diseases including cardiovascular problems and depression (8,10,11). For example, a 14-year-old boy perceived his body's growth as a threat due to his fear of aging, to the extent that he took drastic measures to stop growth, such as restricting what he ate, and showed negative attitudes toward puberty (12).

Analyzing the prevalence of gerascophobia can be a starting point for examining positive and negative attitudes toward aging and positive factors affecting the quality of aging, and highlights the necessity of further measures to increase the positive view of aging and reduce



the signs of gerascophobia (13).

Given the adverse consequences of gerascophobia on health and its impact on the quality of life and the type of relationship with older adults, it seems necessary to identify the factors affecting it, especially in groups such as medical students who are in contact with many older adults. To this end, the present study aimed to examine gerascophobia and the factors affecting it among the medical students of Kerman University of Medical Sciences to provide more effective solutions to reduce this fear and help people manage it.

## Methods

This descriptive-analytical study was conducted using a cross-sectional design in 2023 at Kerman University of Medical Sciences. The participants were 230 medical students in different academic years at Kerman University of Medical Sciences. The inclusion criterion was medical students studying at Kerman University of Medical Sciences in 2023 and the exclusion criteria were students' unwillingness to participate in the study and failure to answer more than 5% of the questionnaire items.

According to the study by Ebrahimi et al, the sample size was estimated as 200 persons using the following sample size formula and taken into account the standard deviation of gerascophobia as 9.69 (14) at a 95% confidence interval, an error rate of 1.3, and a significance level of 0.05. However, taking a 10% dropout rate, the sample size was considered 230 persons.

$$n = Z^2_{1-\alpha/2} S^2/d^2$$

The participants were selected through non-probability quota sampling based on the ratio of the number of students studying basic sciences, introduction to clinical medicine, internship, and externship courses to the total number of students at the university. The protocol for this study was confirmed by the ethics committee of the university. After making the required arrangements with the educational staff of the Faculty of Medicine, the questionnaires were distributed among the students.

The data in this study were collected using a demographic information form and Lasher and Faulkender's Anxiety about Aging Scale (AAS). The demographic information form assessed the participants' demographic data such as age, gender, marital status, educational level, and satisfaction with the field of study. The form also contained yes/no questions about satisfaction with the field of study, having elderly parents (over 60 years old), living with grandparents, being nursed by grandparents in childhood, visiting nursing homes, taking courses in geriatrics, participating in a conference on geriatrics, and having job experience and the experience of caring for older adults. The student's attitude toward the needs of older adults was also assessed using a question: "In

your opinion, which of the types of care (physical, psychological, social, or spiritual care) do older adults need more?"

Lasher and Faulkender's AAS was used to assess gerascophobia in medical students (15). The scale contains 20 items in four general areas, including fear of older people, psychological concerns, physical appearance, and fear of loss. The items are scored on a five-point Likert scale from strongly agree (5) to strongly disagree (1). The lowest and highest scores in different domains are 5 and 25, respectively, and the lowest and highest total scores of gerascophobia are 20 and 100, respectively. Higher scores indicate that the respondent has a greater fear of aging. The validity and reliability of the Persian version of the AAS were confirmed with Cronbach's alpha of 0.76 by Poorsattar Bejeh Mir et al (16). Ebrahimi et al also found the validity and reliability of the Persian version of the scale with Cronbach's alpha of 0.84. The corresponding values for the subscales of fear of old people, psychological concerns, physical appearance, and fear of loss were 0.72, 0.52, 0.66, and 0.63, respectively (14).

The collected data were analyzed with SPSS-26 software. Descriptive statistics including mean, standard deviation, frequency, and percentage were used to describe the data. Moreover, Pearson's correlation test, independent samples *t* test, one-way analysis of variance (ANOVA), and linear regression analysis were used to analyze the data. After establishing the presumptions of linear regression analysis, the variables with a significance level of less than 0.2 in the univariate analysis were entered into the model. The statistical significance level in this study was defined as 0.05.

Verbal informed consent was obtained from the participants before conducting the study. The participants were told that their participation would be voluntary and their information would be kept confidential. The questionnaires were also completed anonymously. The collected data were used only for research purposes.

## Results

The participants in this study were 230 medical students. The participants' average age was  $22.95 \pm 2.38$  years with a median of 23, an interquartile range of 22 to 25, and the minimum and maximum age was 18 and 33 years. Moreover, most of the students were female (61.3%) and single (89.1%). Other demographic data are displayed in Table 1.

The participants in the present study stated that psychological (64.3%), physical (21.7%), social (11.7%), and spiritual (2.3%) needs were the highest priorities among older adults. The data also showed that the mean scores for the total gerascophobia and the subscales of fear of old people, psychological concerns, physical appearance, and fear of loss were 57.66, 14.15, 13.20, 14.61, and 16.51, respectively. Thus, psychological

concerns and fear of loss received the lowest and highest scores, respectively (Table 2).

The results of Table 3 showed that gerascophobia increases with age ( $r=0.121$ ), but this increase was not statistically significant ( $P=0.070$ ). Besides, the average gerascophobia was lower in male students ( $P=0.007$ ), in students with a history of visiting nursing homes ( $P=0.048$ ), and in students with job experience and the experience of caring for older adults ( $P=0.002$ ).

The multivariable linear regression analysis indicated that the variables of gender ( $P=0.019$ ) as well as job experience and the experience of caring for older adults ( $P=0.007$ ) are predictive factors of gerascophobia in medical students. In other words, female gender and lack of job experience and the experience of caring for older adults lead to the increased fear of older adults (Table 4).

## Discussion

The present study examined gerascophobia and its related factors in medical students of Kerman University of Medical Sciences. The results showed that the mean score of gerascophobia in the participants was 57.66. The data also indicated that gerascophobia was greater in female students and students who did not have job experience and the experience of caring for older adults. The findings also showed that the mean score of gerascophobia in the

participants was 57.66 based on Lasher and Faulkender's AAS. Similarly, in their study in Babol, Poorsattar Bejeh Mir et al reported that gerascophobia in dental students was 51.58 based on the AAS (16). However, Ebrahimi et al reported that the mean score of gerascophobia in the students at the University of Welfare and Rehabilitation Sciences in Teheran based on the AAS was 70.08, which was higher than the score reported in the present study (14). It seems that the attitude toward aging and gerascophobia in students is influenced by factors such as field of study, demographic variables, gerontology education, job experience and the experience of caring for older adults, and other economic and social factors that may lead to differences in the mean score of gerascophobia in different studies (17-19). Furthermore, one of the reasons for the relatively low score of gerascophobia in medical students in the present study compared to some studies is that medical students have more contact with older adults due to the longer duration of their studies and the observation of more cases of older patients admitted to different clinical departments, which leads to the feeling of sympathy and as a result their more positive attitude toward aging and reduction of their fear of aging.

The data in the present study indicated psychological concerns and fear of loss as the two subscales of gerascophobia had the lowest and highest mean scores

**Table 1.** The participants' demographic characteristics

Variable	Categories	No. (%)	Variable	Categories	No. (%)
Gender	Male	89 (38.7%)	Nursed by grandparents in childhood	Yes	60 (26.4%)
	Female	141 (61.3%)		No	167 (73.6%)
Marital status	Single	205 (89.1%)	Visiting nursing homes	Yes	23 (10%)
	Married	25 (10.9%)		No	207 (90.0)
Education	Basic sciences	70 (30.4%)	Passing geriatric courses	Yes	26 (11.4%)
	Introduction to clinical medicine	37 (16.1%)		No	202 (88.6%)
	Internship	94 (40.9%)	Attending geriatric conferences	Yes	13 (5.7%)
	Externship	29 (12.6%)		No	217 (94.3%)
Family income	Poor	12 (5.3%)	Job experience and the experience of caring for older adults	Yes	49 (21.3%)
	Moderate	150 (66.4%)		No	181 (78.7%)
	Good	64 (28.3%)	Living with grandparents	Yes	17 (7.4%)
Satisfaction with the field of study	Yes	179 (78.9%)		No	213 (92.6%)
	No	48 (21.1%)			
Having old parents	Yes	43 (18.9%)			
	No	184 (81.1%)			

**Table 2.** The descriptive statistics for gerascophobia and its subscales

Variable	Mean	SD	Median	Interquartile range	Min	Max
Fear of old people	14.15	3.13	14	12-16	7	25
Psychological concerns	13.20	3.27	13	11-15	5	24
Physical appearance	14.61	4.07	15	12-17	5	25
Fear of loss	16.51	3.66	16.5	14-19	5	25
Gerascophobia	57.66	10.73	57	50.75-64	30	89

**Table 3.** Comparing the mean score of gerascophobia in terms of demographic variables

Variable	Categories	Mean	SD	P value
Gender	Male	55.25	9.13	0.007
	Female	59.19	11.40	
Marital status	Single	57.44	10.85	0.362
	Married	59.52	9.70	
Education	Basic sciences	57.40	11.47	0.933
	Introduction to clinical medicine	58.37	11.02	
	Internship	57.35	10.77	
	Externship	58.44	8.80	
Satisfaction with the field of study	Yes	57.11	10.61	0.122
	No	59.81	11.0	
Having old parents (over 60)	Yes	61.35	13.84	0.828
	No	57.37	10.43	
Living with grandparents	Yes	61.35	13.84	0.142
	No	57.37	10.43	
Nursed by grandparents in childhood	Yes	57.33	11.67	0.836
	No	57.67	10.46	
Visiting nursing homes	Yes	53.47	9.46	0.048
	No	58.13	10.78	
Passing geriatric courses	Yes	56.46	10.35	0.579
	No	57.70	10.78	
Attending geriatric conferences	Yes	59.07	12.23	0.628
	No	57.58	10.66	
Family income	Poor	58.66	12.41	0.777
	Moderate	58.09	10.33	
	Good	57.04	11.22	
Working with or caring for older adults	Yes	53.53	10.92	0.002
	No	58.79	10.43	

**Table 4.** The multivariable linear regression analysis for predictors of gerascophobia

Variable	B	P value	95% Confidence interval for B	
			Lower boundary	Upper boundary
Gender	3.35	0.019	0.56	6.15
Job experience and the experience of caring for older adults	-4.61	0.007	-7.93	-1.29
Visiting nursing homes	-3.84	0.094	-8.36	0.66
Satisfaction with the field of study	-2.955	0.080	-6.26	0.35
Living with grandparents	5.107	0.053	-0.07	10.28

(13.20 and 16.51). In a similar vein, Ebrahimi et al reported that the greatest fear of students was caused by fear of loss, but contrary to the present study, the fear of older people received the lowest score (14). Fear of loss involves issues that all mean “lack” or “absence”, such as the fear of losing loved ones, friends, the attention of those around oneself, and health in old age, which is extremely anxiety-provoking. Thus, fear of loss had the highest mean score compared to other components of gerascophobia. However, psychological concerns refer to whether a person feels happy in old age or whether a

person can do all their tasks in old age. It seems that such concerns create less anxiety for an old person than other components of gerascophobia.

The findings of the present study indicated that the mean score for gerascophobia was significantly higher in female students than in male students. Most studies have demonstrated that women experience more anxiety about their aging than men (20). For example, a study by Koukoulis et al in Greece showed that compared to men, women are more worried about some aspects of gerascophobia, especially their physical appearance

(21). Another study by Saxena and Shukla in India revealed that women have more anxiety about aging than men (22), as confirmed in the present study. However, a few studies have found no difference in the average gerascophobia in women and men (23) and even reported a greater gerascophobia in men (15). For example, Poorsattar Bejeh Mir et al showed no significant difference in gerascophobia in male and female dental students (16), which was contrary to the present study. Women's greater anxiety about aging compared to men depends on several factors, including social factors. Evidence shows the fear of becoming a widow, losing a spouse as a financial supporter and provider of living expenses, and continuing to live in poverty, especially in societies where women lack adequate social and family support and do not have financial independence will lead to increased anxiety and gerascophobia in the future in women. In addition, previous studies have shown that the anxiety of losing one's position with aging is more intense for women than for men, leading to fear and anxiety for many women when remembering aging. For example, the loss of beauty and attractiveness, fertility, and especially health following old age causes severe anxiety in some women. In principle, women may be more motivated than men to maintain their youthful appearance and abilities that enable them to protect themselves, and this is more evident in lower social classes, weaker family ties, and less social support (22,24).

The results of the present study showed that in addition to gender, prior experience of working with or caring for an old person is another predictor of gerascophobia. Thus, the average level of gerascophobia in students who had the experience of working with or caring for an elderly person was significantly higher than fewer students who lacked this type of experience. Numerous studies have demonstrated that job experience and the experience of caring for older adults create positive attitudes in caregivers (17,25). In line with the findings from this study, it seems that one of the most important factors in creating a positive attitude toward aging in healthcare workers, especially medical students, is increasing their contact via caring for this age group because more contact with older adults leads to an increase in the sense of empathy. As a result, healthcare staff will have more positive attitude toward older adults and, thus, feel less anxiety and fear of old age.

The data in this study indicated that gerascophobia increases with age, but this increase was not statistically significant. However, most studies in this field have indicated that anxiety and gerascophobia decrease with age. For example, in their study in India, Saxena and Shukla showed that young and middle-aged people have more anxiety and fear of aging than older adults (22). Another study by Kakabarai and Moazinejad on older adults in Shiraz showed that death anxiety decreases with

age in older adults (26). The relationship between age and gerascophobia is influenced by the cultural and social norms of the community. For example, in youth-oriented cultures that value youth and youth-related characteristics, people depend on their physical appearance and youth for their identity and attribute negative characteristics such as illness, bad manners, and lack of physical attractiveness to older people, and gerascophobia is more prevalent in young people (22). The findings of the present study also implied that gerascophobia is influenced by more important factors, especially gender and job experience and the experience of caring for older adults.

The data in the present study showed that gerascophobia in medical students was not related to taking courses in geriatrics, attending conferences on geriatrics, and visiting nursing homes. In a similar vein, Harris and Dollinger found no significant difference in the average gerascophobia in the two groups of students who completed the geriatric psychology training course and those who did not (24). Moreover, some studies have shown that passing training courses in gerontology does not affect students' attitude toward aging, as was confirmed in the present study (3,4,27). However, some studies have indicated gerontology training creates positive attitude toward old age (17-18). These conflicting findings concerning gerontology training and its impacts on attitude toward old age and fear of old age depend on the quantity and quality of education provided in this field and students' academic disciplines.

The present study showed that gerascophobia in medical students had no significant relationship with other variables such as having or not having elderly parents, satisfaction with the field of study, family income, level of education, and marital status. In contrast, other studies reported that the experience of living with older adults, income levels, and satisfaction with the field of study were effective in fear of old age (14,16,19). However, the present study indicated that aging anxiety and fear of old age are affected by more important factors such as gender, work experience, and the experience of caring for older adults.

The participants in this study were selected through non-probability sampling, which may restrict the generalizability of the findings to other groups and populations. Thus, future studies can use random sampling with larger samples of medical students from different universities to enhance the generalizability of the findings.

## Conclusion

In line with findings from the present study, it can be argued that to reduce gerascophobia and create a more positive attitude toward aging in medical students, suitable facilities should be provided to create more contact between medical students, especially female students, and



older adults during their studies.

#### Authors' Contribution

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#### Competing Interests

The authors declare that they have no competing interests.

#### Ethical Approval

The protocol for this study was approved with code IR.KMU.REC.1400.127 by the Research Ethics Committee of Kerman University of Medical Sciences.

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