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# A comparative cross-cultural study of fear of COVID-19 in Persian and Turkmen elderly populations

Maliheh Makhtum [1], Naser Behnampour [2], Akram Sanagoo [1], Hossein Nasiri [1], Leila Jouybari [1]*

1. School of Nursing and Midwifery, Golestan University of Medical Sciences, Gorgan, Iran
2. School of Health, Golestan University of Medical Sciences, Gorgan, Iran

* Correspondence: Leila Jouybari. School of Nursing and Midwifery, Golestan University of Medical Sciences, Gorgan, Iran. Tel: +981732456900; Email: jouybari@goums.ac.ir

## Abstract

**Background:** It is believed that COVID-19 has caused significant fear among older adults. The province of Golestan has a unique ethnic diversity, which requires examining the beliefs and concerns of older adults about health and disease. The aim of this study was to compare the fear of COVID-19 among Persian and Turkmen older adults.

**Methods:** This descriptive-analytical study was conducted on 500 older adults of Persian and Turkmen ethnicities covered by health centers in Bandar Turkmen (Golestan-Iran) from 2021 to 2022. Sampling was done by availability, and the samples were extracted from the list of older adults in the NAB system. Demographic data and the COVID-19 fear questionnaire were used to collect information. Data were analyzed using SPSS version 18 and Mann-Whitney U, Chi-square, and ANOVA tests at a significance level of 0.05.

**Results:** The mean and standard deviation age of the participants in the Persian and Turkmen ethnicities were 70.99±6.91 and 73.66±7.66, respectively. The mean score of fear of COVID-19 in Persian older adults was 20.59±2.24, and in Turkmen older adults was 22.02±1.34, which showed a statistically significant difference ($p<0.001$). Fear of COVID-19 had a significant statistical relationship with occupation, education level, history of COVID-19 infection, hospitalization history, and having a COVID-19 patient in the family ($p<0.001$).

**Conclusion**: The results of this study showed that fear of COVID-19 was higher among Persian older adults. Ethnic and clinical differences in COVID-19 can have an impact on preventive care in the healthcare system.

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## Highlights

**What is current knowledge?** The fear of COVID-19 among elderly populations is a significant concern due to their increased vulnerability to severe illness and mortality.
No studies have been conducted on the Turkmen ethnicity group in relation to this issue.

**What is new here?** This study found that Persian elderly individuals experience more fear of COVID-19 than Turkmen individuals.
The results emphasize the need to prioritize strategies to enhance the health status of the elderly population in Iran, with counseling and care being important objectives for nursing interventions.
The study's findings can inspire future research and guide healthcare professionals in developing effective solutions for individuals who have recovered from COVID-19.

## Introduction

It has been more than three years since the first diagnosis of the COVID-19 pandemic caused by severe acute respiratory syndrome coronavirus, and despite extensive efforts to reduce virus transmission, produce vaccines, new diagnostic methods, antiviral drugs, and treatment strategies, the virus continues to cause fatalities (1). The risk of disease transmission is similar in all age groups, but the severity and lethality of symptoms vary depending on age and immune system status (2). COVID-19 cases are more prevalent in the elderly due to the weakened anatomical, physiological, and immune defense system against pathogenic microorganisms (3-5). In fact, the elderly is a more vulnerable group and are at higher risk of death from COVID-19 (4). On the other hand, the world is heading towards an aging population, with the global population aged 65 and over increasing from 9.3% in 2020 to around 16% in 2050 (6). In Iran's census in 2016, the elderly population was reported to be 2,405,742 (38.49%) men and 2,465,776 (62.50%) women. In other words, the share of the population aged 65 and over in Iran was 1.6%, and the population aged 60 and over was 9.1% in 2016 (7). According to the Ministry of Health information, the elderly account for 11% of reported COVID-19 cases and 72% of deaths (8).

The rapid spread of this unknown pandemic disease led to fear, terror, anxiety, and worry among all segments of society, and every day countless COVID-19 patients were losing their lives due to this disease. The unknown nature of the disease and its duration caused a great deal of fear in the world (9). Additionally, elderly individuals who had close friends or family members who were infected with COVID-19 experienced even greater fear (10). Fear is a severely suppressed emotional experience that individuals face in dangerous situations and are unable to escape from. It is one of the emotions that has been widely studied (11). The psychological pressure caused by excessive fear disrupts the balance of yin and yang, which may not only cause the recurrence of old diseases, but also lead to the emergence of new symptoms. Long-term fear leads to increased anxiety, hypochondriasis, depression, and other negative emotions in individuals. It also affects the immune system, human growth and development, reproductive function, urinary function, respiratory function, digestive system, mental and emotional activities, and other aspects (12).

Elderly individuals, in the face of the sudden spread of the coronavirus, not only face the damage caused by their weakened immune system, but also must confront the complex psychological challenges of this period of their lives. In fact, in addition to physical and bodily effects, the outbreak of this disease also has multiple psychological effects on them. These psychological effects include anxiety, stress, or agitation. Furthermore, these effects can be even harder for individuals with cognitive impairments or dementia. On the other hand, the outbreak of this disease can also worsen the mental health of elderly individuals who are socially isolated and feel lonely (13). Excessive fear resulting from a sense of threat can lead to physical symptoms such as headaches and physical fatigue. These symptoms are similar to the symptoms of COVID-19, which can cause discomfort and increase negative moods in individuals. This process of isolation can easily lead to depression, sadness, despair, fear, and even extreme fatigue, weak spirits, thinking in a sickly manner, and daily lack of concentration (12).

In this regard, a study on perceived fear of COVID-19 in the elderly population in Nepal showed that increasing age, Dalit ethnicity, distance from health centers, and fear of contracting the disease were associated with higher levels of fear of COVID-19 (13). In a study by Nino et al. (2021), they examined the role of race/ethnicity, gender, and age in fear of contracting COVID-19. The findings of this study showed that race/ethnicity, gender, and age play an important role in perceived threat of COVID-19. In comparison between Caucasians and African Americans, the likelihood of COVID-19 threat was higher for African Americans. No significant statistical difference was observed between African American and Caucasian Americans, but Asian Americans have a significantly higher chance of perceiving COVID-19 as a major threat to public

**Table 1. Comparison of the frequency distribution of clinical characteristics between the Fars and Turkmen ethnic groups**

| Variable | | Fars (Percentage) Number | Turkmen (Percentage) Number | All (Percentage) Number | Test statistics* P-value |
|---|---|---|---|---|---|
| History of infection | Yes | 221(88.4) | 104 (41.6) | 325 (65) | <0.0001 |
| | No | 29 (11.6) | 146 (58.4) | 175 (35) | |
| Being admitted to the hospital | Yes | 58 (23.2) | 13 (5.2) | 71 (14.2) | <0.0001 |
| | No | 192 (76.8) | 237 (94.8) | 429 (85.8) | |
| Having a infected patient with COVID-19 in the immediate family | Yes | 235 (94) | 76 (30.4) | 33 (62.2) | <0.0001 |
| | No | 15 (6) | 174 (96.6) | 189 (8.37) | |
| Having a death in the family | Yes | 17 (6.8) | 13 (5.2) | 30 (6) | 0.573 |
| | No | 233 (93.2) | 237 (94.8) | 470 (94) | |

*Chi-Square

**Table 2. Comparison of mean and standard deviation of the fear of death from COVID-19 score among the elderly populations of Persian and Turkmen**

| Items | Ethnicity | Mean ± SD | P-value* |
|---|---|---|---|
| 1. I am most afraid of COVID-19. | Fars | 3.87±0.60 | 0.021 |
| | Turkmen | 3.85±0.45 | |
| | All | 3,82±0.53 | |
| 2. It makes me uncomfortable to think about Coronavirus disease | Fars | 3.71±0.78 | <0.0001 |
| | Turkmen | 4.04±0.24 | |
| | All | 3.88±0.60 | |
| 3. My hands become clammy when I think about Coronavirus disease | Fars | 2.05±0.79 | <0.0001 |
| | Turkmen | 2.81±0.43 | |
| | All | 2.43±0.74 | |
| 4. I am afraid of losing my life because of Coronavirus disease | Fars | 4.06±0.70 | 0.643 |
| | Turkmen | 2.81±0.33 | |
| | All | 4.09±0.55 | |
| 5. When watching news and stories about Coronavirus disease on social media, I become nervous or anxious. | Fars | 2.98±0.92 | 0.036 |
| | Turkmen | 3.14±0.81 | |
| | All | 3.06±0.87 | |
| 6. I cannot sleep because I'm worrying about getting Coronavirus disease | Fars | 2±0.14 | 0.006 |
| | Turkmen | 1.95±0.34 | |
| | All | 1.98±0.26 | |
| 7. My heart races or palpitates when I think about getting Coronavirus disease. | Fars | 1.98±0.32 | 0.007 |
| | Turkmen | 2.06±0.41 | |
| | All | 2.02±0.37 | |
| 8. The total score of the fear of Coronavirus disease. | Fars | 20.59±2.24 | <0.0001 |
| | Turkmen | 22.02±1.34 | |
| | All | 21.30±1.98 | |

*Mann U-Whitney test

health. Additionally, women expressed COVID-19 as a greater threat to health compared to men. Age and perceived threat of COVID-19 were not significant, but the perception of COVID-19 as a major threat to public health was higher among respondents aged 65 and above compared to respondents between 18 to 29 years old (14).

While it is believed that COVID-19 may have caused significant fear among elderly individuals, there is no data on fear related to the ongoing COVID-19 pandemic in Iran. Since the Golestan province has a unique ethnic diversity, especially among the Turkmen ethnicity, ethnic effects can have an impact on health. The aim of this study was to compare fear of contracting COVID-19 in elderly individuals of Fars and Turkmen ethnicity.

## Methods

This descriptive-analytical study was conducted on the elderly population covered by the health network in Bandar Turkmen (Golestan - Iran) in the years 2021-2022. Based on the study by Ahorsu et al. (2021) (15), to find the average score of fear of COVID-19 with an error of less than one unit, considering a 95% level of significance and the standard deviation provided, information was collected from 500 individuals. Therefore, 250 samples were selected from each group (Fars and Turkmen) available from the system. The inclusion criteria for the elderly included being over 60 years of age, residing in Bandar Turkmen, willingness to participate in the study, no history of referral to a psychiatrist, no use of medication for psychological disorders (based on family reports), and no history of cognitive problems (based on family reports). The exclusion criteria included incomplete questionnaire completion of more than 10%.

The data collection tools in this study included a demographic information collection form and the Fear of COVID-19 Scale questionnaire (FCV-19S) (15). The demographic information collection form included age, gender, marital status, place of residence, education, occupation, and other relevant factors (history of COVID-19, having a family member with the disease, having healthcare personnel in the family, having a chronic illness, and having a family member die from COVID-19). The Fear of COVID-19 Scale questionnaire was developed by Ahorsu et al. (2020) (15) to assess individuals' fear of the coronavirus. Responses were based on a 5-point Likert scale and ranged from "strongly disagree" to "strongly agree." The minimum and maximum scores for each question were 1 and 5, respectively, and the total score ranged from 7 to 35. A higher score indicated greater fear of the coronavirus. The validity and reliability of this tool in Iran were assessed by Heydari et al. (2020), with an internal consistency of 0.82 and a test-retest reliability of 0.72. The item-total correlations ranged from 0.47 to 0.56, and the factor loading ranged from 0.66 to 0.74 (16). In a study conducted by Mohammadpour and colleagues (2020) to investigate the psychometric properties of the Iranian version of the COVID Anxiety Scale, a Cronbach's alpha coefficient of 0.82 was reported for the scale of fear of COVID-19 (17).

To collect data, after the research plan was approved by the ethics committee of Golestan University of Medical Sciences, the names and phone numbers of the elderly were obtained from the health network in Bandar Turkmen. Phone calls were made to them during the day and throughout the week. After coordinating with one of the household members and obtaining verbal informed consent from the elderly person, the study objectives were explained to them, and they were invited to participate in the study. Data collection was possible through phone calls due to the short length of the questions, and this method has also been used in published studies on COVID-19 and other topics (18,19).

SPSS version 18 was used for data analysis. The normality of the data distribution was assessed using the Shapiro-Wilk and Kolmogorov-Smirnov tests. Quantitative and qualitative variables were reported with central tendency, dispersion, and frequency (percentages), and the Mann-Whitney, Kruskal-Wallis, and ANOVA tests were used to compare the mean fear of COVID-19 scores between the Fars and Turkmen ethnic groups at a significant level of 0.05.

## Results

The mean (standard deviation) age of individuals in the Fars ethnic group was 70.99 ± 6.91 years, and in the Turkmen ethnic group, it was 73.66±7.6 years. About half of the individuals in both ethnic groups were female (53.2% in the Fars group and 58.4% in the Turkmen group). The mean (standard deviation) income in the Fars ethnic group was 7.72±3.59 million Tomans, and in the Turkmen ethnic group, it was 7.84±3.39 million Tomans. The marital status of 83.6% of the Fars ethnic group and 56.6% of the Turkmen ethnic group was married. 52.2% of the Fars group and 37.2% of the Turkmen group had university education. 62.4% of the Fars group and 71.2% of the Turkmen group were retired, and 98.8% of the Fars group and 98.4% of the Turkmen group were living with their families. 94.4% of the Fars group and 94% of the Turkmen group did not have any disabilities. All participants had insurance.

The results of comparing the demographic variables of the participants showed that their frequency distribution was homogeneous between the two ethnic groups, but the frequency distribution of the age ($p<0.0001$), education level ($p<0.0001$), and occupation ($p=0.041$) variables in the two ethnic groups was statistically significantly different.

In both ethnic groups, a significant statistical association was found between having a history of COVID-19, hospitalization, and having a COVID-19 patient in the immediate family and the elderly's fear of COVID-19 ($p<0.0001$). However, there was no statistically significant difference between the two ethnic groups regarding the history of death in the family due to COVID-19 and hospitalization ($p=0.573$) (Table 1).

The average score of fear of COVID-19 in the Fars ethnic group was 20.59±2.24, and in the Turkmen ethnic group, it was 22.02±1.34, which was statistically significantly different, indicating a higher fear score in the Fars ethnic group ($p<0.0001$). Table 2 shows the mean and standard deviation of the fear score of COVID-19 and the total score of the elderly in the Fars and Turkmen ethnic groups.

A multiple linear regression model was utilized to investigate the impact of ethnicity on the fear score of COVID-19 while controlling for age, gender, education level, and occupation. The results of the model showed that only occupation had a significant effect on the score of statement 'feeling upset about COVID-19' (Question 2) ($p=0.047$) and 'thinking about COVID-19 makes my heart race' (Question 7) ($p=0.017$). Moreover, the educational level was found to be significantly associated with the statement 'I become nervous or anxious when watching news and events related to the coronavirus' (Question 5) ($p < 0.014$).

After controlling for the history of infection, hospitalization, and having a COVID-19 patient in the immediate family among both ethnic groups, the results showed that the previous history of infection was significantly associated with the score of statement 'my hands getting wet from the severity of discomfort when I think about COVID-19' (Question 3) ($p=0.001$) and the fear score of COVID-19. Moreover, having a COVID-19 patient in the immediate family was significantly associated with 'feeling upset about COVID-19' (Question 2) ($p=0.005$) and 'my hands getting wet from the severity of discomfort when I think about COVID-19' (Question 3) ($p<0.0001$). The total fear score of COVID-19 was found to be significantly associated with a history of infection ($p=0.03$) and having a COVID-19 patient in the immediate family ($p=0.002$).

## Discussion

The study found a significant difference in the average fear score of COVID-19, excluding the item "I am afraid of dying from COVID-19," between the Fars and Turkmen ethnic groups. The Fars group had a higher mean fear score of COVID-19 than the Turkmen group. Khalaf et al.'s (2021) study found a low level of fear score of COVID-19, whereas the present study found a moderate level of fear score, possibly due to cultural and social differences among individuals (20). Şentürk et al. (2021) reported a slightly higher average fear score of COVID-19, which is consistent with the present study (21). Conversely, Yadav et al. (2020) reported a low level of fear of COVID-19 (13), which may be attributed to environmental and racial differences. Hossain et al.'s (2020) study found a moderate to high average fear score of COVID-19 among women and the elderly, which is not consistent with the present study and may be due to population and cultural differences among participants (22). Gokseven et al.'s (2021) study found a low average fear score of COVID-19 among the elderly in the Sisli Hamidiye Etfal, which is consistent with the present study (23).

Studies have shown that fear of COVID-19 varies among participants, indicating individual differences and varying levels of adaptability to new situations. When examining fear of COVID-19, it is important to consider the psychological and social factors of the participants, and identifying the factors that cause distress can be a crucial step towards improving people's health. Nino et al. (2021) found no statistically significant difference in the fear score of COVID-19 between African American and Caucasian participants, but Asian Americans had a significantly higher chance of fearing COVID-19 as a major threat in the population. Additionally, women were more likely than men to perceive COVID-19 as a significant threat to their health. The relationship between age and perceived threat from COVID-19 was not significant; however, respondents aged 65 and above perceived COVID-19 as a major health threat more often than those between 18 to 29 years of age (14).

Other findings of the present study showed that participants' scores of fear of COVID-19 were significantly associated with the question "thinking about the coronavirus disease upsets me, and when I think about the coronavirus disease, I feel palpitations. There was a statistically significant correlation between educational level and fear of COVID-19 (statement: when watching news and events related to the coronavirus on the news, I get nervous or anxious). In the study by Bisht et al. (2021), the effect of gender and age group on the fear score of COVID-19 and the stress caused by it was demonstrated among Indian seniors; fear of COVID-19 was not significantly associated with gender and age group, and generally all participants felt the same fear. Stress caused by COVID-19 was not related to gender, but had a significant inverse relationship with age group, meaning that stress caused by COVID-19 decreased with increasing age (24). This study supported the present study in that age and gender were not significantly associated with fear of COVID-19. The difference between this study and the study by Bisht et al. indicates differences among individuals in terms of their social and cultural backgrounds. On the other hand, in the study by Yadav et al. (2021), high age, Dalit ethnicity, distance from health and treatment centers were found to be associated with fear of COVID-19 (13). Also, in the study by Han et al. (2021), fear of COVID-19 was found to increase with age (19). Although these two studies are not in line with the present study, it is possible that differences in cultural and social backgrounds of the participants have led to differences. Meanwhile, in the study by Khalaf et al. (2021), a significant relationship was found between university-educated participants and fear of COVID-19 (20). Also, in the study by Yagar (2021), a significant negative correlation was found between the fear score of COVID-19 and the level of health literacy, such that an average fear score was reported with a lower level of health literacy. Higher levels of health were associated with less fear of COVID-19. There was a statistically significant difference between educational level, insurance status, smoking status, news follow-up status, and marital status with fear score of contracting COVID-19 (25). This suggests the importance of individuals' health literacy and education level in the study population. In a study by Mistry et al. (2021) among elderly individuals (above 60 years) in Bangladesh, a statistically significant relationship was found between occupation, household status, family dependency, concern about COVID-19, having contracted COVID-19, unemployment, difficulty in accessing medication, feelings of isolation, and friends and family members contracting COVID-19 with fear of contracting COVID-19. This finding confirms the alignment of occupation and fear of COVID-19 with the present study (10).

In the present study, there was a relationship between occupation, and friends and family members being infected with COVID-19 and fear of COVID-19, emphasizing the need to pay attention to the patient's family and identify intervention factors.

The findings of the study by Nino et al. (2021) indicate that race and ethnicity, gender, and age play an important role in perceived threat of COVID-19. Compared to white people, black people are more likely to perceive the threat of COVID-19. Asian Americans have a significantly higher chance of perceiving COVID-19 as a major health threat to the population. Women were more likely than men to perceive the COVID-19 virus as a significant threat to their health (14). Therefore, when examining fear of contracting COVID-19, attention should be paid to other social and psychological factors of the individual being studied. Another finding of this study demonstrated a significant association between fear of contracting COVID-19 and a history of infection, hospitalization, and having a family member with COVID-19. This significant association was confirmed after conducting multiple linear regression analysis, showing that a history of infection was significantly associated with statements 2 and 3 and the total fear score of contracting COVID-19. In the study by Zeraat et al. (2021), the prevalence of COVID-19 among the elderly was associated with negative consequences, including psychological problems, fear of hearing/reading COVID-related news, decreased or no referral to healthcare centers, weakened economic status, complete cessation of physical activities, and obsession with health-related issues (26). The findings of this study and similar evidence suggest the necessity of screening the elderly for fear of contracting COVID-19 and associated psychological disorders, as well as designing appropriate educational programs for those at risk. Additionally, prevention and management of problems arising from COVID-19 are of paramount importance.

One limitation of this study is that not all confounding and mediating factors were identified, and participants' responses were assumed to be correct, which may affect the accuracy of the results.

## Conclusion

The findings of the present study indicate that elderly individuals of Persian ethnicity experience greater fear of COVID-19 when compared to Turkmen individuals. Given the significance of this emerging disease in Iran, strategies to enhance the health status of the elderly population should be prioritized, with counseling and care being key objectives for nursing interventions. Furthermore, the study's results can inspire novel research ideas for investigating the fear of COVID-19. Healthcare professionals may also utilize these findings to develop and implement effective solutions for individuals who have recovered from the disease to ensure optimal and healthy recovery.

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## Ethical statement

Informed consent was obtained from all subjects prior to participation in the study. The study was approved by the Ethics Committee of Golestan University of Medical Sciences (ethical approval code: IR.GOUMS.REC.1400.408).

## Conflict of interest

There is no conflict of interest.

## Author contributions

MM, LJ, AS, NB and HN contributed to the conception and design of the study. MM collected the data. NB performed data analysis. MM, LJ, NB performed data interpretation. MM, LJ, AS, NB and HN evaluated and edited the manuscript.

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