

# Study of Anxiety Among Older People in Kazakhstan and Factors Affecting This Indicator

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## Abstract

**Aim:** The purpose of this research was to study of anxiety among older people in Kazakhstan and factors affecting this indicator.

**Methods:** A cross-sectional survey was conducted with 221 randomly selected elderly people from different regions of Kazakhstan. The survey covered questions of socio-demographic type and also used the GAD-7 (Generalized Anxiety Disorder-7).

**Results:** The majority of participants showed low levels of anxiety on the test. Nevertheless, a significant proportion of older adults experienced mild and moderate anxiety, accounting for 33% and 23.1%, respectively. The analysis showed that age (OR = 0,852, 95% CI: 0,779-0,931,  $p < 0,001$ ), gender (OR = 8,167, 95% CI: 3,232-20,642,  $p < 0,001$ ), level of education (OR=9,928, CI 95%: 3,760 - 26,212,  $p < 0,001$ ) and living conditions (OR=0,167, 95% CI: 0,060-0,467,  $p = 0,001$ ) have a statistically significant impact on the anxiety level of this population group.

**Conclusion:** The results of the analysis confirm the importance of developing and implementing a set of measures aimed at improving the quality of life of older people, taking into account the individual characteristics and needs of each person. The following measures can be suggested to improve the quality of life of older persons: organize social activity and community involvement programs through clubs and activities; establish accessible health and social service centers where older persons can receive qualified care; use technology, such as mobile applications and smart devices, to facilitate daily life, including telemedicine and home-based services.

**Keywords:** anxiety, older people, risk factors.

## Introduction

Aging is an inevitable process that occurs in all people. It is a natural stage of life during which various physical, psychological and social changes occur. Aging can be described as a gradual and irreversible decline in physical and mental abilities [1]. According to the World Health Organization (WHO), the proportion of people over the age of 65 in the world population is as high as 20%, with approximately 70% of them living in developing countries [2]. Older adults experience a gradual decline in organ function, leading to multiple chronic diseases such as cardiovascular disease (e.g., hypertension, coronary heart disease), skeletal diseases (e.g., arthritis, osteoporosis), and mental disorders (e.g., anxiety and depression) [3].

Although anxiety can occur at any age, it is particularly prevalent among older adults and has a greater impact on them. Older people are more likely to experience stress and anxiety due to loss or decline in self-esteem, decreased activity and stimulation, loss of close friends and relatives, loss of physical independence, chronic illness, changes in daily life or environment, fear of death and lack of social support [4]. More than 40 million adults in the United States suffer from anxiety disorders, which is a serious problem. In older adults, anxiety symptoms are common, especially in those with chronic diseases. The prevalence of anxiety symptoms in older adults is 15-52%, and anxiety disorders occur in 3-15% of adults. Anxiety in older adults can manifest with a variety of physical and

psychological symptoms such as insomnia, behavioral changes, sensory, urinary, cardiovascular, and gastrointestinal disorders. Anxiety is characterized by excessive worry and unrealistic fears about ordinary events. These symptoms can be present almost every day for long periods of time. Undetected and untreated anxiety can lead to decreased quality of life, increased disability, greater demand for medical care, and even increased mortality. Therefore, it is important to detect and treat anxiety in a timely manner to prevent such negative consequences [5].

In assessing anxiety levels, the use of the GAD-7 scale, Generalized Anxiety Disorder Screening, has shown high reliability and validity. It helps to identify potential cases of generalized anxiety disorder and to assess the severity of symptoms [6]. In their study, Shrestha S. et al. investigated the psychometric properties of common anxiety and worry assessment techniques among African American and Caucasian older adults living in low-income communities. The GAD-7 showed high convergent, discriminant, and predictive validity [7]. Researchers in Pakistan adapted the GAD-7 scale for use in primary health care settings. Principal component analysis confirmed the univariate structure of the scale explaining 64.8% of the variation. The total score showed a negative correlation with positive affect and life satisfaction, and a positive correlation with negative affect, indicating high validity. Cronbach's alpha was 0.92 and the split-half reliability was 0.82, confirming the high reliability of the instrument. Thus, the GAD-7 is an effective and concise tool for the diagnosis of anxiety disorders in primary care [8].

Older people may experience a gradual deterioration in their quality of life as they age. Quality of life can be described as a harmonious combination of the pleasures people enjoy in their daily lives, taking into account physical, psychological and social well-being. Improved well-being, the ability to carry out daily tasks and maintaining independence are all key components of a good quality of life for older people. Help and support for older people is therefore aimed at achieving this goal [9]. According to the Statistics Agency of the Republic of Kazakhstan, as of 2023, about 7.7% of the country's population is over 65 years of age, and this figure is expected to grow. Older people in Kazakhstan also face many stressors, including loneliness, financial difficulties and chronic diseases. However, there remains a significant gap in the scientific literature in understanding the specifics of anxiety among this group, as well as the factors contributing to its development. There are no accurate data on the prevalence of anxiety disorders among older people in Kazakhstan, and the factors that cause them remain poorly understood.

The study of anxiety among older adults represents an important field of research aimed at improving their quality of life, social adaptation and psychological well-being. Analyzing this phenomenon contributes to the development of effective strategies for the prevention and treatment of anxiety, which ultimately contributes to the comfort and satisfaction of older adults. In addition, the study of anxiety among this population allows the creation of support and adaptation programs that contribute to improving their lives, as well as the development of effective methods of psychological assistance for those who suffer from anxiety manifestations.

## Materials and methods

A cross-sectional study was conducted with voluntary participation of 221 older people from different regions

of Kazakhstan, including Southern, Northern, Western, Eastern and Central Kazakhstan. In some cases, relatives (close relatives) of older people helped them to complete the questionnaire. In the future, it is planned to conduct larger-scale studies involving a larger number of participants. The research design is a cross-sectional study.

Inclusion criteria:

- elderly people (60–74 years old);
- voluntary participation in the study;
- capable persons.

Exclusion criteria:

- refusal to participate in the study;
- presence of mental illness;
- people under 60 years of age and over 74 years of age.

The online platform Google Forms was used to conduct the survey. The link to the survey was distributed via social media. Participants were selected randomly, and the principle of 'Recommendations and Chains' was also applied: participants could recommend other suitable candidates to take part in the survey.

The survey covered questions of socio-demographic type and also used the GAD-7 Anxiety questionnaire.

The GAD-7 Anxiety Questionnaire is a widely used instrument with high reliability and validity, making it an effective tool for identifying and assessing the level of generalized anxiety disorder in people. The GAD-7 is a validated tool for diagnosing generalized anxiety disorder. The tool consists of only 7 questions, making it quick and easy to use. This is especially important for older adults who may have difficulty sustaining attention for long periods of time or become fatigued by long questionnaires. The questions in the GAD-7 are formulated in simple and clear language, which makes it easier for older people to complete them, and also facilitates interpretation of the results for both professionals and patients. The questions assess the frequency and degree of worry about various anxiety symptoms over the past two weeks. The results of the questionnaire help to assess the presence and degree of anxiety disorder in an individual. The GAD-7 anxiety severity score is calculated by assigning scores of 0, 1, 2, and 3 to the response categories 'not at all', 'some days', 'more than half of the days', and 'almost every day' respectively. The total GAD-7 score for the seven items ranges from 0 to 21. (Table 1) The interpretation of the results is as follows: 0–4 points – minimal anxiety; 5–9 points – mild anxiety; 10–14 points – moderate anxiety; 15–21 points – severe anxiety. Informed consent was obtained from the

**Table 1** GAD-7 Anxiety questionnaire

| In the past two weeks, how often have you been bothered by any of the following prob-blems? | Not at all | For a few days | More than half the days | Almost every day |
|---|------------|----------------|-------------------------|------------------|
| 1. Feeling nervous, anx-ious or worried   | 0          | 1              | 2                       | 3                |
| 2. Inability to stop or control anxiety   | 0          | 1              | 2                       | 3                |
| 3. Too much anxiety about all sorts of things   | 0          | 1              | 2                       | 3                |
| 4. Inability to relax   | 0          | 1              | 2                       | 3                |
| 5. Being so restless that it's hard to sit still  | 0          | 1              | 2                       | 3                |
| 6. Easily irritated or be-come irritable  | 0          | 1              | 2                       | 3                |
| 7. A feeling of dread, as if something terrible might happen                                | 0          | 1              | 2                       | 3                |

study participants before conducting the study. Protection of personal data and confidentiality was guaranteed by the researchers. Descriptive statistics was used to analyse the data. Multinomial logistic regression analysis was conducted to determine the risk factors of anxiety in elderly people. Statistical analysis was performed using SPSS version 20.0 software (IBM Ireland Product Distribution Limited, Ireland). The level of statistical significance was set at  $p < 0.05$ .

## Results

A total of 221 elderly people participated in the study. The median age was 67 years [Q1-Q3=63–71 years]. Table 2 presents the socio-demographic characteristics of the study participants. The majority (63.8%) of them were women. More than half (58.4%) of the respondents had secondary specialised education. 74.7% of the elderly were married at the time of the study. The participants mostly lived with their family members and were retired. The results of the test are presented in Table 3. The median score obtained by participants when taking the GAD-7 Anxiety questionnaire was 5 points [Q1-

Q3=1–7 points]. The majority of participants showed low levels of anxiety on the test. Nevertheless, a significant proportion of older adults experienced mild and moderate anxiety, accounting for 33% and 23.1%, respectively. It is comforting to note that no severe anxiety was found among the respondents. Table 4 shows multinomial logistic regression using moderate anxiety as the control group. The results revealed that age, gender, education level and living conditions of the elderly were statistically significant influencing factors. A decrease in the probability of minimal anxiety compared to moderate anxiety (OR = 0.868, 95% CI: 0.798-0.948,  $p = 0.001$ ) and a decrease in the probability of mild anxiety compared to moderate anxiety (OR = 0.852, 95% CI: 0.779-0.931,  $p < 0.001$ ) was associated with increasing age. Men were significantly more likely to have minimal anxiety compared to moderate anxiety (OR = 8.167, 95% CI: 3.232–20.642,  $p < 0.001$ ). Compared to low anxiety, people with high levels of education were 9.928 times more likely to experience moderate anxiety (95% CI: 3.760 - 26.212,  $p < 0.001$ ). People living with family were 0.167 times less likely to develop moderate anxiety compared to mild anxiety (95% CI: 0.060–0.467,  $p = 0.001$ ).

## Discussion

The results of our study revealed that the majority of participants showed low levels of anxiety. Nevertheless, a part of the elderly people had insignificant or moderate levels of anxiety. The analysis showed that age, gender, level of education and living conditions have a statistically significant impact on the anxiety level of this population group. There is a higher predisposition to moderate anxiety among older adults with a high level of education compared to those with a lower level of education. This may be due to greater awareness of health and social changes that can cause stress and anxiety. In Kazakhstan, there are cultural and social stereotypes that influence the manifestation of anxiety in men. In traditional societies, men are most often associated with strength and resilience, which may lead to minimizing the expression of their feelings and anxiety. At the same time, living in a family environment reduces the likelihood of developing moderate anxiety among the Kazakh population. This may be due to the support and stability that family provides, which is especially important in line with Kazakhstan's cultural traditions, where family values play a key role.

A study by Chinese scientists found that anxiety is a common problem among the elderly, with 30.11% of patients showing symptoms related to anxiety. However, anxiety levels varied according to multiple factors including gender, education level, occupation, place of residence, marital status and income. Interestingly, age had no effect on the development of anxiety disorders. Multiple regression analysis revealed that

**Table 2** Characterisation of respondents

| Variabes          |                       | n (%)      |
|-------------------|-----------------------|------------|
| gender            | male                  | 80 (36,2)  |
|                   | female                | 141 (63,8) |
| education         | higher                | 92 (41,6)  |
|                   | specialised secondary | 129 (58,4) |
| marital status    | married               | 165 (74,7) |
|                   | divorced              | 9 (4,1)    |
|                   | widow/widower         | 47 (21,3)  |
| living conditions | with the family       | 187 (84,6) |
|                   | alone                 | 34 (15,4)  |
| occupancy         | work                  | 19 (8,6)   |
|                   | retiree               | 202 (91,4) |

**Table 3** Interpretation of the results of the GAD-7 Anxiety questionnaire

| Score       | The severity of the anxiety | n (%)     |
|-------------|-----------------------------|-----------|
| 0–4 score   | minimal anxiety             | 97 (43,9) |
| 5–9 score   | mild anxiety                | 73 (33,0) |
| 10–14 score | moderate anxiety            | 51 (23,1) |
| 15–21 score | severe anxiety              | -         |

**Table 4** Multinomial logistic regression

| Variables         |                       | Minimal anxiety VS moderate anxiety |                |       |              | Mild anxiety VS moderate anxiety |                |       |              |
|-------------------|-----------------------|-------------------------------------|----------------|-------|--------------|----------------------------------|----------------|-------|--------------|
|                   |                       | Odds ratio                          | Standard error | p     | 95%CI        | Odds ratio                       | Standard error | p     | 95%CI        |
| age               |                       | 0,868                               | 0,043          | 0,001 | 0,798-0,948  | 0,852                            | 0,046          | 0,000 | 0,779-0,931  |
| gender            | male                  | 8,167                               | 0,473          | 0,000 | 3,232-20,642 | 0,992                            | 0,564          | 0,988 | 0,328-2,997  |
|                   | female                |                                     |                |       |              |                                  |                |       |              |
| education         | higher                | 1,415                               | 0,448          | 0,439 | 0,588-3,404  | 9,928                            | 0,495          | 0,000 | 3,760-26,212 |
|                   | specialised secondary |                                     |                |       |              |                                  |                |       |              |
| living conditions | with the family       | 4,551                               | 0,821          | 0,065 | 0,911-22,734 | 0,167                            | 0,525          | 0,001 | 0,060-0,467  |
|                   | alone                 |                                     |                |       |              |                                  |                |       |              |

patients with depression, loneliness, and cognitive impairment, as well as women living in rural areas or living alone, were at increased risk of developing anxiety disorders [10]. Our study also found that a significant proportion of elderly individuals experience varying degrees of anxiety. Mild anxiety was diagnosed in 33% of the participants, while moderate anxiety was observed in 23.1% of them. In addition, factors such as age, gender, level of education and living conditions were found to have a statistically significant effect on the level of anxiety in older adults. Gender differences in the perception and expression of emotions affect anxiety levels, with women being more likely to suffer from anxiety disorders, which may be related to culture, family and social roles. Women working in low-paid and unstable jobs may experience higher levels of anxiety due to financial hardship. In addition, socioeconomic factors such as income and employment levels may also interact with gender and education to create anxiety problems. Thus, in order to better understand anxiety in Kazakhstan, it is important to consider the complex interaction of gender, education and socioeconomic factors, which will allow for the development of more effective strategies to support the mental health of the population.

During a study by Canadian scientists, 16.4 per cent of respondents reported experiencing chronic anxiety symptoms. Women were found to be more likely to experience these symptoms [11]. During our study, it was revealed that 23.1 per cent of the studied elderly individuals have moderate anxiety. It was found out that the gender factor influences the level of anxiety conditions.

Socio-demographic risk factors for anxiety in older adults may include aspects such as age, gender, education level, marital status, social relations, financial status, and others. Some of these factors may increase the risk of developing anxiety disorders in older adults [12]. With age, the risk of anxiety disorders in older adults may increase due to physical and cognitive changes associated with aging. Women tend to be more prone to anxiety disorders than men. This may be due to differences in hormones, social expectations, and stressful situations that women face. People with lower levels of education may be more at risk for developing anxiety disorders, as they may have fewer resources to cope with stress and other life challenges [13]. Older people who live alone or have lost loved ones may be more at risk of anxiety disorders due to lack of social support and isolation. Older people with limited socialisation and social connections may be more at risk of anxiety disorders. Lack of social support and low self-esteem can also contribute to the development of anxiety disorders. People with low income or financial difficulties may be more at risk for anxiety disorders because they may experience increased levels of stress due to financial problems. Older adults with chronic illnesses or limited mobility may be more at risk for anxiety disorders because of physical and emotional difficulties related to their health conditions [14]. Older adults may experience problems with memory and cognitive function, which can cause anxiety and restlessness [15]. To cope with anxiety in older people, it is important to seek the help of professionals such as doctors, psychologists or social workers who can offer support and treatment and help find solutions to the problems causing the anxiety [16].

Anxiety, according to scientific research, is an emotional and behavioural state characterised by feelings of worry, fear and anxiety. It can be a normal response to stressful situations or a symptom of anxiety disorders such as generalised anxiety

disorder, sociophobia, panic attacks, etc. [17]. Anxiety can be caused by a variety of factors including genetic, biological, psychological and social factors. Studies show that anxiety is associated with brain dysfunction, particularly in areas responsible for processing emotions, such as the limbic system and prefrontal cortex [18].

Anxiety prevention in older adults may include the following: physical activity, balanced nutrition, social interaction, fun and hobbies, meditation and relaxation, healthy sleep, and professional help. Physical activity, including regular exercise such as walking, yoga or aerobics, helps to improve mood and reduce anxiety levels [19]. A balanced diet that includes plenty of fruit, vegetables, whole-grain foods and healthy fats helps to maintain physical and emotional well-being. Social interaction, such as participation in communities, clubs or interest groups, can help older people feel accepted and supported, which in turn reduces anxiety levels. Engaging in recreational activities and hobbies can also bring happiness and fulfilment, thereby reducing anxiety. Practicing meditation, breathing exercises or other relaxation techniques can help in reducing stress and anxiety. Improving sleep patterns, including observing proper rest and wake-up times, also helps to reduce anxiety. If anxiety is significantly affecting quality of life, seeing a psychologist or psychiatrist for professional help and support is appropriate [20].

Understanding the causes and consequences of anxiety among older people provides an opportunity to create more effective approaches to support and therapy, thereby improving the quality of life of this age group. Anxiety can have adverse effects on the physical and mental well-being of older people, including weakening of the immune system, increased risk of cardiovascular problems and other somatic diseases. Therefore, it is crucial to develop prevention and treatment methods for anxiety disorders to improve health outcomes in this population. Anxiety can lead to social isolation and restricted activity in older adults, which in turn can exacerbate anxiety symptoms and reduce quality of life. Consequently, studying this phenomenon is important for developing strategies to prevent social isolation and promote activity. Anxiety in older people can lead to increased costs of health care and social services, placing an additional financial burden on the health care system and society as a whole. Therefore, the study and prevention of anxiety is key to reducing these costs [21].

Kazakhstan, like many other countries, faces the problem of population ageing. The increasing proportion of older people in the total population leads to an increase in the incidence of anxiety and other mental disorders among older people. The unstable economic situation and low level of pension provision can cause anxiety and worry among older persons, especially if they are dependent on pensions and social benefits. Many older people have little understanding of mental health problems and how to deal with them. In addition, limited access to qualified health care can exacerbate anxiety. In order to solve the problem of anxiety in older people in Kazakhstan, it is necessary to develop comprehensive measures aimed at improving social support, ensuring access to medical care, increasing the level of pension provision and conducting awareness-raising work among the population.

In the context of existing research, the following directions should be emphasized for future research on anxiety levels in older adults: studying the impact of social connections, loneliness and support from family and friends, various methods of psychotherapy, regular physical exercise,

chronic diseases, culture, region, evaluating the effectiveness of digital technologies (e.g., mobile applications, telemedicine), various forms of leisure activities, polypharmacotherapy. All this will allow us to further explore the problem of anxiety emergence in the elderly. The problem of anxiety in the elderly requires intervention at the government level, as this population often faces isolation, loss of loved ones and deteriorating health, which significantly affects their psycho-emotional state. Consequently, comprehensive measures are needed to improve the quality of life of the older generation and reduce anxiety levels. To realize the reduction of anxiety level in the elderly in practice:

1. To develop at the state level free hotlines and support groups for older people where they could get counseling and assistance.

2. Upgrading the skills of health care providers and social services on aging and mental health so that they can at the outpatient level in a timely and correctly identify and treat anxiety disorders.

3. Providing activities and courses that encourage older people to be socially active and interact with the community (e.g. hobby clubs), which requires developing accessible and diverse programs, engaging volunteers and active participants, and conducting information campaigns to raise awareness of opportunities.

4. Facilitating the process of getting help from psychiatrists and psychologists, including telemedicine. Telemedicine allows older people to receive care from home. Conduct seminars and trainings for older people and their families on the use of technology for telemedicine consultations. It is equally important to create accessible information materials (booklets, websites) about mental health and opportunities for help, including contact information of specialists. The use of technology to monitor the mental state of older people will allow timely response to their needs.

5. Increasing awareness of mental health issues among older adults and their families through information about available resources and support.

All of these measures will help to create a supportive environment for older adults, reduce anxiety and improve their overall psycho-emotional well-being.

Our study had some limitations. Firstly, as this was a cross-sectional study, the causality between compared variables cannot be established. Secondly, the surveyed population in this study was relatively small. Also unknown and unmeasured confounders may exist, and the results should be interpreted with caution. Despite these limitations, it is the first study in Kazakhstan where we analyzed anxiety among older people using the valid instruments as GAD-7 scale.

## Conclusion

Multinomial logistic analysis revealed the main correlations between these factors and the level of anxiety in the subjects. The results of the analysis confirm the importance of developing and implementing a set of measures aimed at improving the quality of life of older people, taking into account the individual characteristics and needs of each person, for the realization of which the following specific steps can be proposed:

1. Conduct focus groups and in-depth interviews with older adults to understand their experiences and perceptions of anxiety, which will help supplement quantitative data with qualitative information.

2. Based on the findings, create programs to reduce anxiety such as support groups, stress management courses, and psycho-emotional counseling.

3. Organize trainings for social workers, psychologists, and physicians on working with older adults, including anxiety and stress management techniques.

4. Establish a monitoring system to evaluate the effectiveness of intervention programs and conduct regular measurements of anxiety levels among the elderly to track changes over time.

5. Conduct information campaigns to raise awareness about anxiety among older adults, their needs, and the importance of mental health in the community.

6. Develop an online platform to share expertise and resources among professionals working with older adults, which can help to better understand and support this population.

Thus, the study of anxiety among elderly residents of Kazakhstan requires intervention at the government level and showed that risk factors such as age, gender, level of education and living conditions play a significant role in the development of anxiety disorders in this population group.

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