



A multidimensional evaluation of the relationship between anxiety, depression, and functional status with quality of life in geriatric individuals living in a nursing home

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Abstract

Objective: This study aimed to investigate the relationship between anxiety, depression, and functional status indicators and quality of life in elderly individuals residing in a nursing home.

Method: This descriptive and correlational study was conducted with 21 volunteer participants living in a nursing home in Istanbul. The mean age of the participants was 78 ± 6.49 years, with 52.4% being female and 47.6% male. Data were collected through face-to-face interviews. Functional status was assessed using the Bath Ankylosing Spondylitis Functional Index (BASFI); anxiety levels with the Geriatric Anxiety Scale (GAS); depression levels with the Geriatric Depression Scale (GDS); and general quality of life with the WHO-5 Well-Being Index. SPSS 25.0 software was used for statistical analyses, and relationships between variables were examined using Pearson correlation analysis. A significance level of $p < 0.05$ was accepted.

Results: The mean BASFI score of the participants was 1.55 ± 1.64 , indicating that their functional status was generally preserved. GAS scores were found to be 20.17 ± 11.66 and GDS scores 16.72 ± 4.3 , suggesting a moderate risk of anxiety and depression in the individuals. The WHO-5 score was 16.48 ± 7.35 , indicating a moderate level of psychological well-being. Correlation analyses revealed significant positive relationships between BASFI and GAS ($r=0.52$, $p=0.02$) and between BASFI and GDS ($r=0.49$, $p=0.03$). Furthermore, a strong positive correlation was found between GAS and GDS ($r=0.67$, $p=0.002$). No significant relationship was observed between WHO-5 and the psychological variables.

Conclusion: This study demonstrates that increased functional limitations in geriatric individuals living in nursing homes may elevate levels of anxiety and depression. Additionally, a strong relationship between anxiety and depression was identified. A holistic approach to the mental and physical health of geriatric individuals plays a crucial role in improving their quality of life.

Introduction

Globally, and in Turkey specifically, demographic structures are shifting, with the proportion of older individuals within the total population steadily increasing. This rise is projected to accelerate further in the coming years [1]. Influenced by social, economic, medical, scientific, and technological advancements, the elderly population worldwide is growing. Between 2015 and 2050, the proportion of individuals aged 60 and over is expected to increase from 12% to 22% of the global population. Furthermore, it is anticipated that 80% of older individuals will reside in low- and middle-income countries by 2050. This demographic change presents various challenges for all nations [2,3]. In developed countries, individuals aged 65 and over constitute approximately 12% to 22% of the total population. While the proportion of the elderly population in developing countries may not be at this level, projections indicate a global aging trend. According to the 1987 report by the World Health Organization's Expert Committee on the Health of the Elderly, the population aged 60 and above is predicted to reach 1.2 billion by 2025 and 2 billion by 2050 [4]. Individuals aged 65 and over are generally considered to be in the early stage of old age [5]. Although not all individuals in this age group are ill or require care, the risk of disease and the likelihood of physical disabilities increase. Due to functional and physical limitations that may arise during this period, one of the societal care options available to older individuals is living in nursing homes [6]. For geriatric individuals, functional independence is a fundamental determinant of quality of life. A decline in functional capacity significantly impacts not only physical health but also mental well-being [7]. Notably, individuals residing in nursing homes may exhibit higher rates of anxiety and depression symptoms due to limited social support systems [8]. The aging process often leads to a decrease in physical functions, restricted mobility, and increased dependence in daily living activities. This situation is closely linked to psychological issues such as depression, anxiety, and social isolation, which negatively affect individuals' quality of life [9,10]. As is well-known, the increasing proportion of the elderly population also brings with it a higher incidence of chronic diseases and a greater prevalence of age-specific health problems. This leads to health issues affecting multiple systems becoming more common in older individuals [11,12]. When comparing older individuals living in the community to those in nursing homes, social support emerges as a crucial factor. This is because high levels of social support are associated with a reduced risk of mental disorders, illness, and mortality, while also contributing to an improved quality of life [13,14]. Furthermore, research conducted in developing countries often reveals that the quality of life for older individuals living in nursing homes is generally lower compared to their peers living in the community [15,16]. The higher prevalence of physical and mental health issues among older individuals residing in nursing homes can increase their risk of functional dependence and their likelihood of requiring assistance with daily living activities [17]. It is stated that physiological and physical changes occurring with the aging process lead to difficulties in performing daily living activities [18]. One study found that as individuals age, their independence in daily living activities decreases, and consequently, their quality of life also declines [19]. Furthermore, older individuals residing in nursing homes are observed to be less active in their daily lives [20]. Therefore, encouraging older individuals to lead physically active lives is considered one of the primary objectives of physiotherapy and rehabilitation interventions [21].

Older individuals living in nursing homes face various challenges that can negatively impact their quality of life, such as limited access to healthcare services, reduced social participation, insufficient support from family and friends, and sleep disturbances [22]. In the literature, studies examining the relationship between functional status and respiratory functions in older individuals residing in nursing homes are quite limited. Given that respiratory functions are an important indicator of physical performance, evaluating these parameters and identifying problems based on functional status is crucial for determining appropriate treatment approaches and planning public health initiatives for older individuals [23]. Promoting a higher level of physical activity and sustaining this habit in older individuals is vital for both preserving cognitive functions and supporting healthy aging [24]. Research indicates that quality of life scores significantly decrease with increasing levels of depression, a greater number of chronic diseases, and difficulties in performing daily living activities [25,26]. Depression, in particular, stands out as a significant factor that negatively affects quality of life, either alone or in conjunction with other illnesses. If left untreated, it can lead to serious consequences such as early mortality and a worsening of general health; however, significant improvements in quality of life can be achieved with appropriate treatment [25]. Studies have shown that as depression levels rise, the number of chronic diseases increases, and older individuals become less able to perform daily living activities independently, quality of life scores significantly decrease [25,26]. It has also been determined that older individuals living in nursing homes exhibit more psychological symptoms compared to those living at home [27]. A study conducted with patients presenting to the emergency department highlighted depression as a frequently overlooked but significant health problem in older individuals, reporting its prevalence at 32% [28]. One important factor influencing the perception of aging is the individual's environment and surroundings. Living in one's own home, a child's home, or a nursing home can affect the aging process. Studies with older individuals residing in nursing homes have found that these individuals often feel dependent on others, useless, and lonely, and also experience depression [29,30]. Research has demonstrated that physical disabilities increase the risk of depression and anxiety, which in turn negatively impacts an individual's quality of life [31,32]. The Bath Ankylosing Spondylitis Functional Index (BASFI), commonly used in functional status assessment, is an effective tool for measuring an individual's participation in daily living activities [33]. Similarly, scales such as the Geriatric Anxiety Scale (GAS) and the Geriatric Depression Scale (GDS) are frequently used to assess the mental state of older individuals, while the WHO-5 Well-Being Index is employed to evaluate overall quality of life [34,35]. This study aims to examine the relationship between functional status and anxiety, depression, and general quality of life in geriatric individuals residing in nursing homes. By doing so, it seeks to contribute to the planning of holistic assessments and interventions aimed at improving the quality of life for older individuals.

Materials and methods

Research design and participants

This study was designed as a descriptive and correlational research. A total of 21 geriatric individuals (11 females, 10 males) participated in the study. All participants were 65 years and older, residing in a nursing home in Istanbul, capable of communication, and possessed the cognitive ability to complete

the assessment scales. Voluntary consent forms were obtained from all participants.

Inclusion criteria for the study were:

- Being 65 years of age or older and living in a nursing home.
- Being literate.
- Having no functional impairment (such as limb, visual, or hearing loss).

Data collection instruments

In addition to a demographic information form, the following assessment scales were administered to the participants:

Bath Ankylosing Spondylitis Functional Index (BASFI): This index was used to determine the level of functional limitation in participants' daily living activities. Higher scores indicate greater functional limitation [33].

Geriatric Anxiety Scale (GAS): This is a widely used, valid, and reliable scale designed to measure anxiety levels in geriatric individuals. It consists of 20 items, with higher scores indicating increased anxiety levels [34].

Geriatric Depression Scale (GDS): This 15-item short form was used to assess symptoms of depression in participants. Scores of 5 or higher are considered indicative of a risk for depression [35]. The Geriatric Depression Scale (GDS) (long form) is a 30-item self-report scale with yes/no answers that is easy for older individuals to complete. Scores between 0-10 indicate no depression, 11-13 suggest possible depression, and 14 or higher indicate definite depression. The total score ranges from 1 to 30. The validity and reliability study of the scale in Turkish was conducted by Ertan et al. in 1997 [36].

WHO-5 well-being index: This is a 5-item self-report scale with positive statements used to assess participants' general well-being. Higher scores indicate better well-being [37]. This scale was developed to measure individuals' mental well-being and mood. It consists of five items that evaluate the positive feelings experienced by the participant over the past two weeks. The scale is available to researchers in 32 different languages, and validity and reliability studies have also been conducted for its Turkish version [38].

Data analysis

The collected data will be analyzed using SPSS software. Descriptive statistics will be presented as means, standard deviations, and percentages. Relationships between variables will be assessed using Pearson or Spearman correlation tests, depending on their suitability for parametric test assumptions. A significance level of $p < 0.05$ was set.

Results

A total of 21 geriatric individuals participated in the study. The mean age of the participants was 78 ± 6.49 years, with a mean height of 163.1 ± 9.3 cm and a mean body weight of 72.81 ± 13.92 kg. Of the participants, 52.4% were female ($n=11$) and 47.6% were male ($n=10$). Regarding lifestyle habits, 38.1% of participants smoked, and 9.5% consumed alcohol. Furthermore, 66.7% of participants had a regular exercise habit, while 33.3% did not. The demographic information and clinical characteristics of the participants are presented in Table 1.

Table 1: Demographic Information and Clinical Characteristics of Participants.

Feature	Category	N	%
		(Count)	(Percentage)
Total Participants	Female	11	52.4
	Male	10	47.6
Smoking Status	Yes	8	38.1
	No	13	61.9
Alcohol Use	Yes	2	9.5
	No	19	90.5
Exercise Habit	Yes	14	66.7
	No	7	33.3
Chronic Disease	Yes	15	71.4
	No	6	28.6
Medication Use	Yes	18	85.7
	No	3	14.3
Dominant Hand	Right	15	71.4
	Left	4	19
	Both Hands	2	9.5
	Mean \pm SD	Minimum	Maximum
Age (Years)	78.00 ± 6.49	67	96
Weight (kg)	72.81 ± 13.92	49	110
Height (cm)	163.10 ± 9.30	145	180

The average score on the Bath Ankylosing Spondylitis Functional Index (BASFI), used for assessing functional status, was found to be 1.55 ± 1.64 . This result indicates that the participants' independence levels were generally preserved.

In terms of psychological assessments, the Geriatric Anxiety Scale (GAS) score was 20.17 ± 11.66 , and the Geriatric Depression Scale (GDS) score was 16.72 ± 4.3 . These data suggest that a significant portion of participants exhibited moderate levels of anxiety and depression symptoms. The mean WHO-5 Well-Being Index score was 16.48 ± 7.35 , indicating that overall psychological well-being was at a moderate level. The evaluation results for functional, psychological, and general well-being are presented in Table 2.

In correlation analyses, a positive and significant relationship was found between BASFI and the Geriatric Anxiety Scale ($r=0.52$, $p=0.02$). Similarly, a positive correlation was identified between BASFI and GDS ($r=0.49$, $p=0.03$). This indicates that increased functional limitation is associated with higher levels of anxiety and depression. According to the Pearson correlation analysis, a statistically significant and strong positive relationship was detected between anxiety and depression ($r=0.670$, $p=0.002$). This finding suggests that individuals with Mean \pm SD Minimum Maximum Age (Years) 78.00 ± 6.49 67 96 Weight (kg) 72.81 ± 13.92 49 110 Height (cm) 163.10 ± 9.30 145 180 higher anxiety levels also experience increased symptoms of depression. No significant relationship was found between WHO-5 scores and psychological variables ($p > 0.05$).

Table 2: Descriptive statistics of participants' assessment results.

Assessment scale	Mean±SD	Minimum–Maximum
BASFI (Functional status)	1.55±1.64	0–6.6
Geriatric Anxiety Scale (GAS)	20.17±11.66	4–41
Geriatric Depression Scale (GDS)	16.72±4.30	8–23
WHO-5 Well-Being Index	16.48±7.35	4–25

Discussion

This study investigated the relationships among functional status, psychological symptoms, and general well-being in geriatric individuals residing in a nursing home. Our findings indicate that individuals with reduced functional capacity exhibit higher symptoms of anxiety and depression, and significant relationships exist between psychological status and overall well-being. The low average BASFI scores observed in this study suggest that most participants were able to maintain independence in their basic daily activities. However, we found that as functional limitation increased, so did levels of anxiety and depression. This outcome aligns with previous literature. For instance, Kim et al. (2017) highlighted functional limitation as a significant risk factor for increased anxiety and depression in older adults [39]. Our results specifically showed a significant rise in both anxiety and depression scores as BASFI scores increased, meaning functional capacity decreased. This demonstrates the negative impact of functional limitations on psychological well-being. Similarly, Seidel et al. (2019) reported that loss of mobility and reduced self-care abilities lead to an increase in depressive symptoms in older individuals [40]. Furthermore, a study by Brown and Flood (2013) emphasized that reductions in physical capacity can cause individuals to lose their sense of control, thereby increasing levels of anxiety and depression [41]. In this study, the mean scores on the Geriatric Anxiety Scale (GAS) and Geriatric Depression Scale (GDS) were found to be above average. This suggests that psychological health problems may be common among individuals living in nursing homes. Indeed, social isolation, physical disabilities, and chronic illnesses can exacerbate psychological distress in older adults (Lenze & Wetherell, 2011) [42]. Mohlman (2004) noted that anxiety disorders in older individuals often co-occur with depression, and this comorbidity significantly reduces quality of life [43]. Additionally, Flint (1994) stated that in older age, depression and anxiety are difficult to differentiate during both diagnosis and treatment and are frequently comorbid [44]. The strong positive correlation found between anxiety and depression suggests that these two psychological conditions often co-occur and can influence each other. This finding was also highlighted in a systematic review by Choi et al. (2020), which reported a high rate of comorbidity between depression and anxiety disorders in older age [45].

It is noteworthy that no significant relationship was found between the WHO-5 Well-Being Index and psychological variables. This suggests that well-being is not solely limited to variables like anxiety and depression but is influenced by multidimensional factors such as physical health, social relationships, and life satisfaction (Topp et al., 2015) [37]. Therefore, when considering individuals living in nursing homes, environmental factors such as social isolation, weakened family ties, or institutional conditions should be taken into account as they may independently affect well-being scores.

Additionally, approximately one-third of the participants in this study did not engage in regular exercise. A lack of physical activity is a key factor that negatively impacts both functional capacity and psychological health. A study by Aşçı and Çetinkaya (2020) demonstrated that older individuals who exercise regularly have lower symptoms of depression and anxiety and significantly higher life satisfaction [46]. In this context, encouraging regular physical activity among individuals residing in nursing homes could be an important area for intervention, benefiting both physical and mental health.

In conclusion, this study revealed significant relationships among the functional status, anxiety levels, and depression levels of older individuals living in nursing homes. These findings support the necessity of multidisciplinary assessment and intervention approaches in the geriatric population. Specifically, supporting psychological health and preserving functional capacity should be among the primary goals for improving quality of life. Furthermore, early diagnosis and intervention approaches conducted by multidisciplinary teams can be effective in enhancing quality of life.

Limitations of the study

While this study investigated relationships between specific health and functional statuses in geriatric individuals, it has certain limitations that may affect the generalizability and interpretation of its findings.

Small sample size: This research was limited to a sample size of 21 individuals. A small sample size made it challenging to achieve statistical significance, especially for weak or moderate relationships between variables. The high p-values ($p > 0.05$) observed for some relationships in the correlation analysis indicate that these relationships were not found to be statistically significant in this particular sample. This may have led to overlooking relationships that might genuinely exist but could not be detected due to the limited sample size.

Cross-sectional study design: This study employed a cross-sectional design, meaning data were collected at a single point in time. While correlation analysis can show the direction (positive or negative) and strength of a relationship between variables, it cannot establish a causal link. For example, although a relationship between the Bath Ankylosing Spondylitis Functional Index (BASFI) and the Geriatric Depression Scale (GDS), or between the Geriatric Anxiety Scale and GDS, was observed, this design does not allow us to determine which variable causes the other, or if both are influenced by a third underlying factor. Longitudinal studies should be considered in future research to better understand changes over time and potential causal relationships.

Scope and subjectivity of measurement tools: Some of the scales used (e.g., BASFI, GDS, Geriatric Anxiety Scale, WHO Well-Being Index) rely on participants' self-perceptions and statements. Individuals' self-assessments can be influenced by factors such as personal interpretations or current mood. This limits the full objectivity of the measurements and requires careful interpretation of the results.

Conclusion

This study multidimensionally evaluated the relationships between functional status, anxiety, depression, and general well-being in geriatric individuals residing in a nursing home. The findings indicate that decreased functional capacity is as-

sociated with increased levels of anxiety and depression, and that these psychological symptoms are strongly interrelated. However, no statistically significant relationship was found between general wellbeing and the psychological variables. The results reveal that maintaining the physical independence of older individuals is critical not only for their quality of life but also for their psychological health. Therefore, in nursing home settings, we recommend promoting physical activity programs that support functional capacity, conducting early psychological assessments, and encouraging practices that enhance individuals' social interactions. Due to its small sample size and limitation to individuals in a single institution, the generalizability of this study is restricted. However, the data obtained provide important insights highlighting the necessity of co-evaluating both physical and psychological parameters in the older age group. Future research with larger samples, longitudinal designs, and intervention programs will contribute to the healthy aging process of older individuals.

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