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Anxiety Levels and Associated Factors Among Elderly Patients with Cardiovascular Diseases: A Mixed-Methods Study

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Abstract

The increasing prevalence of cardiovascular diseases among the elderly is often accompanied by psychological problems, particularly anxiety, which may worsen health outcomes and quality of life. However, limited studies have comprehensively explored anxiety levels and their associated factors among elderly patients in primary healthcare settings. This study aimed to assess anxiety levels and identify associated factors among elderly individuals with cardiovascular disorders in the working area of Puskesmas Anak Air, Padang City. A mixed-methods approach with an explanatory sequential design was employed, combining quantitative and qualitative data. The study involved 139 participants in the quantitative phase and eight participants in the qualitative phase. Most participants were aged 60–74 years (87.1%) and female (69.1%). A small proportion had both hypertension and cardiovascular disease (7.2%), while 30.9% experienced moderate anxiety. Qualitative findings revealed that anxiety was mainly triggered by exposure to distressing information, such as news about death, disasters, and conflicts. Participants commonly managed anxiety through distraction techniques, including light physical activity, watching television, and avoidance coping. In conclusion, moderate anxiety is prevalent among elderly individuals with cardiovascular disorders and is influenced by psychosocial factors. These findings highlight the need for appropriate coping strategies and supportive interventions to reduce anxiety and improve the well-being of the elderly.

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1. INTRODUCTION

The elderly are individuals aged 60 years and older (Arbel et al., 2022; Husna et al., 2020; Tavassoli et al., 2022; Savic et al., 2023). Aging is a natural process characterized by progressive declines in physical, psychological, and social functioning, which interact and increase the risk of various health problems among older adults (Pragholapati et al., 2021). These changes make the elderly more vulnerable to both physical and mental health disorders. One of the most common physical health problems experienced in this population is cardiovascular disease, which results from impaired cardiac function and includes conditions such as hypertension, stroke, and coronary heart disease. Globally, Non-Communicable Diseases (NCDs) account for more than 36 million deaths each year, representing approximately 63% of all deaths, with cardiovascular diseases being a major contributor. Premature mortality due to cardiac diseases is reported at around 4% in high-income countries and up to 42% in low-income countries (Tagan et al., 2019; Hasani et al., 2023; Khaltaev, & Axelrod, 2024; Prasad, & Gupta, 2025).

In addition to physical health problems, psychological conditions, particularly anxiety, are also prevalent among the elderly. Anxiety is defined as an emotional state characterized by discomfort, uncertainty, and feelings of helplessness, often without a clearly identifiable cause (Pragholapati et al., 2021; Kibtyah, Zahra, & Juniati, 2024). This condition may persist even in the absence of real threats and can negatively affect both mental and physical health. Excessive anxiety may lead to poor self-care behaviors, reduced adherence to treatment, and worsening of existing chronic conditions (Wiriansyah, Syafriati, & Nurjannah, 2023).

Previous studies have highlighted the occurrence of anxiety among the elderly; however, most research has primarily focused on descriptive quantitative assessments without adequately exploring the underlying psychosocial factors and lived experiences of elderly individuals, particularly those with cardiovascular disorders. Furthermore, limited studies have applied a comprehensive mixed-methods approach in primary healthcare settings to understand better both the magnitude of anxiety and its contributing factors. This indicates a gap in the literature regarding the integration of quantitative and qualitative findings to provide a more holistic understanding of anxiety among elderly patients with cardiovascular diseases.

Therefore, the novelty of this study lies in the use of an explanatory sequential mixed-methods design to simultaneously assess anxiety levels and explore the underlying factors and experiences contributing to anxiety among elderly individuals with cardiovascular disorders in a primary healthcare setting. This study aims to assess the level of anxiety and identify associated factors among the elderly with cardiovascular (cardiac) disorders. Specifically, it seeks to identify the characteristics of the elderly, analyze the distribution of anxiety levels, and explore the experiences of elderly individuals related to anxiety.

2. METHOD

This study employed a mixed-methods approach using an explanatory sequential design, in which quantitative data were collected and analyzed in the first phase, followed by qualitative data collection to further explain and enrich the quantitative findings. This design was selected to provide a more comprehensive understanding of anxiety levels and their associated factors among elderly individuals with cardiovascular disorders. The quantitative component focused on describing anxiety levels and participant characteristics, while the qualitative component explored the experiences, triggers, and coping mechanisms related to anxiety among the elderly.

The study participants consisted of elderly individuals aged 60 years and above who were diagnosed with cardiovascular problems, particularly hypertension, in the working area of Puskesmas Anak Air. The population included 212 elderly individuals, and the sample size was determined using the Lemeshow formula with a significance level of 0.05, resulting in 139 participants for the quantitative phase (Lemeshow, Hosmer, & Klar, 1997). For the qualitative phase, a subset of participants was selected purposively based on specific inclusion criteria, including the presence of anxiety symptoms and willingness to participate in in-depth discussions. From the screening process, 13 participants with hypertension and cardiac conditions were identified, of whom eight met the inclusion criteria and were included in the focus group discussions.

Data were collected between July 8 and August 2, 2024. Quantitative data were obtained using the Hamilton Rating Scale for Anxiety (HARS), which consists of 14 items assessing the severity of anxiety symptoms. Participants were also asked to provide demographic and clinical information, including age, gender, and medical diagnosis. Age was categorized into two groups: 60–74 years and 75–90 years. The HARS scoring system ranges from 0 to 4 for each item, with total scores categorized as no anxiety (<14), mild anxiety (14–20), moderate anxiety (21–27), severe anxiety (28–41), and panic (45–56). Following the quantitative phase, qualitative data were collected through focus group discussions (FGDs) to explore participants' experiences of anxiety, including perceived triggers, duration, and coping strategies.

Quantitative data were analyzed using IBM SPSS Statistics, employing descriptive statistical methods such as frequencies, percentages, means, and standard deviations to summarize participant characteristics and anxiety levels. The qualitative data obtained from FGDs were analyzed using a thematic approach, involving data transcription, coding, categorization, and identification of key themes related to anxiety experiences and coping mechanisms. The findings from the qualitative phase were used to complement and explain the quantitative results, in line with the explanatory sequential mixed-methods design.

This study was conducted following ethical approval from the Health Research Ethics Committee of Perintis University of Indonesia (number: 637/KEPK.F1/ETIK/2024). All participants provided informed consent prior to data collection. Ethical principles, including respect for autonomy, confidentiality, anonymity, and the right to withdraw without penalty, were strictly upheld throughout the study. All data were used solely for research purposes and were securely stored, with access limited to the research team.

3. RESULTS AND DISCUSSION

Table 1. Age, sex, medical diagnosis, and anxiety level in the frequency distribution (N=139).

Characteristics	n = 139	%
Age (Year)		
Young Elderly (60 - 74)	121	87.1
Old Elderly (75 - 90)	18	12.9
Sex		
Male	43	30.9
Female	96	69.1
Medical Diagnose		
Hypertension	126	90.6
Hypertension, cardiovascular disease	10	7.2
Cardiovascular disease	3	2.2

Anxiety		
No Symptoms	19	13.7
Mild	50	36.0
Moderate	43	30.9
Severe	20	14.4

Table 1 presents the distribution of age, sex, medical diagnosis, and anxiety levels among 139 elderly participants. The majority of respondents were categorized as young elderly aged 60–74 years (87.1%), while only a small proportion were in the older age group of 75–90 years (12.9%). This indicates that the study population was predominantly composed of younger elderly individuals.

In terms of sex distribution, most participants were female (69.1%), compared to males (30.9%), suggesting a higher representation of elderly women in this study. Regarding medical diagnosis, hypertension was the most prevalent condition, affecting 90.6% of participants. A smaller proportion had both hypertension and cardiovascular disease (7.2%), while only 2.2% were diagnosed solely with cardiovascular disease. This finding highlights that hypertension is the dominant health issue among the elderly in this setting.

Concerning anxiety levels, the largest proportion of participants experienced mild anxiety (36.0%), followed by moderate anxiety (30.9%). A smaller percentage reported severe anxiety (14.4%), while 13.7% had no anxiety symptoms. These results indicate that although severe anxiety is less common, the majority of elderly individuals experience some level of anxiety, with mild to moderate anxiety being the most prevalent.

Table 2. Result of Focus Group Discussion (N=8).

Question	Quote from the interview	Source
What causes anxiety?	<i>“Sometimes, I feel anxious because of news about the deaths of family or relatives and the noise around me.”</i>	respondent 1
	<i>“I feel anxious when I hear loud noises, my heart starts to race, and when I hear words I don’t like.”</i>	respondent 2
	<i>“Usually, it’s because I get started or hear bad news about conflicts or disasters, so that my heart rate increases.”</i>	respondent 3
	<i>“I often worry about how my grandchildren are doing, which makes me feel lonely.”</i>	respondent 4
	<i>“Receiving bad news, or sometimes getting a call from my hometown at midnight.”</i>	respondent 5
	<i>“Receiving bad news like conflict, natural disaster, accident, and others.”</i>	respondent 6
	<i>“Receiving bad news, got a call at midnight, or bad news from my hometown.”</i>	respondent 7

	<i>"Got a call from my hometown, like yesterday, my older sibling passed away, and I got a call from my younger sibling."</i>	respondent 8
When does the anxiety arise?	<i>"Anxiety arises when there is death news from my relatives and also because of loud noises from the surrounding environment."</i>	respondent 1
	<i>"Anxiety arises when I hear a loud noise and unpleasant words from family or other people."</i>	respondent 2
	<i>"Anxiety arises when I hear unpleasant news, such as conflict or news about natural disaster."</i>	respondent 3
	<i>"Anxiety arises when I think of my grandchildren."</i>	respondent 4
	<i>"Anxiety arises when I hear telephone ringtones, hear bad news, or hear death news from my hometown."</i>	respondent 5
	<i>"Anxiety arises as I hear bad news."</i>	respondent 6
	<i>"Anxiety arises as I hear bad news, the ringtones of a telephone, receiving bad news or death news from hometown."</i>	respondent 7
	<i>"Anxiety arises as I hear bad news, the ringtones of the telephone, receiving bad news, or death news from my hometown."</i>	respondent 8
How long has the anxiety been felt?	<i>"The anxiety I felt lasted for ± 30 minutes."</i>	respondent 1
	<i>"The anxiety arises for ± 10 minutes."</i>	respondent 2
	<i>"Just a moment, usually appears for ± 5 minutes."</i>	respondent 3
	<i>"Just a moment, usually appears for ± 5 minutes."</i>	respondent 4
	<i>"Just a moment, usually appears for ± 5 minutes."</i>	respondent 5
	<i>"Usually around ± 10 minutes."</i>	respondent 6
	<i>"Usually around ± 15 minutes."</i>	respondent 7

	<i>"I feel this anxiety for around 5 minutes."</i>	respondent 8
How long has the anxiety been felt?	<i>"I will say istigfar (One of the ways Muslims praise the Creator) and pray to ease my cardiac Ya Allah, and surrender myself."</i>	respondent 1
	<i>"I watch the TV that I find enjoyable."</i>	respondent 2
	<i>"Usually, I recite the Quran or listen to murotal (a recitation) of the Quran on the phone."</i>	respondent 3
	<i>"Wudu (purify), reciting the Quran, and placing my trust in God."</i>	respondent 4
	<i>"I just ignore it."</i>	respondent 5
	<i>"Usually, I pray and look for an activity."</i>	respondent 6
	<i>"Usually, I wait for the news from my hometown about the bad news that I hear while walking."</i>	respondent 7
	<i>"Usually, I just surrender myself."</i>	respondent 8

Table 2 shows the results of the Focus Group Discussion (FGD) involving eight elderly participants, which revealed several key themes related to the causes, onset, duration, and coping mechanisms of anxiety.

First, regarding the causes of anxiety, most participants reported that anxiety was primarily triggered by exposure to distressing information, particularly news about death, natural disasters, conflicts, or accidents. In addition, environmental stimuli, such as loud noises and unpleasant words, were also identified as contributing factors. Some participants expressed anxiety related to family concerns, including worry about relatives or receiving unexpected phone calls, especially at night. These findings indicate that anxiety among the elderly is largely influenced by psychosocial stressors and external stimuli.

Second, in terms of the onset of anxiety, participants consistently reported that anxiety arises immediately after exposure to triggering events, such as hearing bad news, loud sounds, or recalling distressing thoughts about family members. This suggests that anxiety in this population is often situational and reactive, rather than persistent without a clear trigger.

Third, regarding the duration of anxiety, most participants described their anxiety episodes as short-term, typically lasting between 5 to 30 minutes. This indicates that although anxiety is frequently experienced, it tends to be episodic and transient in nature.

Finally, in relation to coping mechanisms, participants reported a variety of strategies to manage anxiety. The most common approaches included spiritual or religious practices, such as praying, reciting the Qur'an, performing wudu, and surrendering to God. Other coping strategies involved distraction techniques, such as watching television, engaging in activities, walking, or consciously ignoring anxious feelings. These findings suggest that elderly individuals rely on both spiritual coping and behavioral distraction strategies to alleviate anxiety.

DISCUSSION

Age is an important determinant of both physical and psychological conditions in the elderly. Age refers to the length of time a person has lived, calculated from birth until the time of data collection. The elderly represent a stage in the human life cycle characterized by gradual and predictable changes in physical and behavioral functions (Pragholapati A et al., 2021). As individuals age, physiological decline becomes inevitable, increasing vulnerability to various health problems. Shalihah's research (Shalihah et al., 2023) explains that individuals aged 60 years and over are prone to psychological changes caused by degenerative diseases, reduced social support, and decreased independence, which may lead to anxiety and stress. These conditions can further reduce physical activity and worsen overall health status. In addition, degenerative processes increase susceptibility to both physical and mental disorders, including anxiety and depression (Mangapi, 2020). Thus, advancing age plays a significant role in shaping both the physical limitations and psychological vulnerability of the elderly.

In terms of gender, the findings revealed that the majority of respondents were female (69.1%), which is consistent with previous research by Husna (Husna et al., 2020), reporting 78.2% female participants. This suggests that elderly women may be more prone to experiencing anxiety than men. Women are generally more emotionally sensitive and tend to internalize stress, whereas men are often more active and expressive in responding to stressors. Social and cultural factors may also contribute to these differences, as women may feel less comfortable expressing their emotional burdens openly, leading to maladaptive coping responses. Furthermore, women are more likely to remain within domestic environments, which may increase exposure to internal stressors, while men tend to engage more in external social activities (Tagan et al., 2019). These differences may contribute to the higher prevalence of anxiety observed among elderly women.

Regarding medical diagnosis, a small proportion of respondents (7.2%) were diagnosed with both hypertension and cardiovascular disease. Health problems in the elderly are strongly associated with degenerative conditions, particularly cardiovascular diseases (Wiryansyah, Syafriati, & Nurjannah, 2023). Cardiovascular disease (CVD) includes a range of disorders affecting the heart and blood vessels, such as coronary heart disease, cerebrovascular disease, and related conditions. These diseases remain a leading cause of global mortality, with cardiac events and strokes accounting for a significant proportion of deaths, including those occurring prematurely in individuals under the age of 70 (Rindayati et al., 2020). Marbun (2023) explains that coronary heart disease is caused by reduced blood flow to the heart muscle due to atherosclerosis. The development of cardiovascular diseases is influenced by both non-modifiable factors, such as age, gender, and genetics, and modifiable factors, including obesity, lack of physical activity, smoking, dietary habits, education, and occupation (Rahayu et al., 2021). These findings highlight the complex interplay between biological and lifestyle factors in shaping cardiovascular health among the elderly.

The results also showed that a considerable proportion of participants (30.9%) experienced moderate anxiety. Anxiety is defined as an emotional state characterized by tension, worry, and physiological responses such as increased blood pressure, trembling, and headaches (Rindayati et al., 2020). It is a common condition among the elderly and is often manifested as fear, uncertainty, and decreased self-confidence without a clear cause (Arifiati et al., 2019). Symptoms of anxiety may include persistent worry, sleep disturbances, irritability, and exaggerated responses to minor stressors (Maryam et al., 2015). In addition to psychological effects, anxiety can also contribute to physical health

problems, including weakened immune function, dizziness, and muscle spasms, and may exacerbate chronic conditions such as cardiovascular disease and hypertension (Widiani, Jannah, & Widodo, 2024). Therefore, anxiety not only affects mental well-being but also has significant implications for physical health outcomes in the elderly.

The qualitative findings further reinforce the quantitative results by highlighting psychosocial factors associated with anxiety among the elderly. Redjeki and Tambunan (2019) found that anxiety in older adults is often related to fears of death, feelings of being undervalued in family decision-making, reduced productivity, and social isolation. Similarly, Purba and Prasetya (2023) describes death anxiety as involving fear, loneliness, sadness, anger, and helplessness in response to uncontrollable situations. Death anxiety is considered a significant emotional response triggered by thoughts or experiences related to mortality, and is commonly manifested as restlessness and apprehension among the elderly (Prabowo, 2022; Greenblatt-Kimron et al., 2021). Furthermore, loneliness plays a crucial role in worsening anxiety, particularly among elderly individuals who live alone, have lost a spouse, or experience reduced independence (Nurlianawati, Kurniasih, & Widyawati, 2023). These findings indicate that anxiety in the elderly is influenced not only by physical health conditions but also by complex emotional, social, and environmental factors.

Overall, this study demonstrates that anxiety among elderly individuals with cardiovascular conditions is influenced by a combination of demographic factors (age and gender), clinical conditions (particularly hypertension and cardiovascular disease), and psychosocial factors such as fear of death, loneliness, and exposure to distressing experiences. The integration of quantitative and qualitative findings highlights that anxiety in the elderly is multidimensional, involving both physiological and psychosocial components. Therefore, comprehensive interventions addressing both medical and psychological aspects are essential to effectively manage anxiety in this population.

This study has several limitations that should be considered. First, the quantitative analysis was limited to descriptive statistics, which restricts the ability to determine causal relationships between variables. Second, the qualitative component involved a relatively small number of participants ($n=8$), which may limit the generalizability of the findings. Third, the study was conducted in a single primary healthcare setting, which may not fully represent the broader elderly population. Additionally, the use of self-reported questionnaires may introduce response bias. Future research is recommended to include larger and more diverse samples, apply inferential statistical analysis, and incorporate longitudinal designs to better understand the dynamics of anxiety among the elderly.

4. CONCLUSION

This study demonstrates that anxiety is a common condition among elderly individuals with cardiovascular disorders, with most participants experiencing mild to moderate levels of anxiety. The findings indicate that anxiety in this population is influenced by both demographic and clinical characteristics, as well as psychosocial factors. Distressing information, such as news related to death, natural disasters, and conflicts, emerged as a major trigger of anxiety among the elderly. In addition, feelings of concern about family members and environmental stimuli also contribute to the onset of anxiety.

Furthermore, elderly individuals tend to manage their anxiety through various coping strategies, including engaging in daily activities, using distraction techniques, and applying spiritual or personal approaches to regulate their emotions. These findings highlight the importance of addressing both psychological and social aspects in managing anxiety

among elderly patients with cardiovascular conditions. Therefore, appropriate interventions, including supportive and therapeutic approaches, are needed to help reduce anxiety and improve the overall well-being of the elderly.

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