

Description of Anxiety Levels and Mean Arterial Pressure (MAP) in Patients with Congestive Heart Failure

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ABSTRACT

Introduction: Congestive Heart Failure (CHF) stands as a leading cause of mortality globally, with high hospitalization rates. CHF patients tend to exhibit higher degrees of adverse feelings like anxiety and depression compared to healthy individuals. Anxiety triggers several bodily changes, particularly in vital signs, manifesting as increased blood pressure. This study aims to describe anxiety levels and Mean Arterial Pressure (MAP) among patients with Congestive Heart Failure. **Methods:** This research utilized a descriptive, analytical, quantitative methodology featuring a cross-sectional design. The participant group comprised of 36 respondents selected using consecutive sampling according to the inclusion criteria. Data were collected using research instruments, including the Hamilton Anxiety Rating Scale (HARS) questionnaire, as well as blood pressure and pulse rate measurement sheets. The data analysis used was univariate. **Results:** The characteristics of the respondents showed that most were male, had varied educational backgrounds, had incomes below the regional minimum wage, and had an average age of 61 years. The findings suggested that individuals mainly encountered moderate levels of anxiety (38.9%) and severe anxiety (61.1%). In addition, most patients had elevated Mean Arterial Pressure (MAP), with 75% classified as hypertensive (MAP greater than 107 mmHg). **Conclusions:** Anxiety in patients with chronic diseases such as heart disease can lead to very severe anxiety and even depression. Blood pressure in patients with heart failure may also increase due to compensatory arterial vasoconstriction aimed at maintaining reduced cardiac output. Nurses, as part of the healthcare team, must be able to assess the degree of anxiety in individuals suffering from Congestive Heart Failure (CHF) and analyze vital sign findings to provide appropriate interventions.

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1. INTRODUCTION

Congestive Heart Failure (CHF) is an ailment where the heart struggles to pump blood efficiently. As a result, there is insufficient transportation of oxygen and nutrients throughout the body [1]. The main contributors to CHF are high blood pressure and coronary artery disease [2]. Congestive heart failure is a cardiac disease whose incidence and prevalence continue to increase annually. This condition contributes to rising morbidity and mortality associated with congestive heart failure [3]. Psychological issues in patients with congestive heart failure (CHF) arise from a mix of behavioral factors and interactions with physiological responses, which, if not addressed properly, can lead to a worsening of clinical symptoms and a higher likelihood of hospitalization. Individuals suffering from CHF frequently endure physical discomfort and anxiety. Anxiety is linked to a greater risk of mortality among individuals with this condition [4]. Chronic heart failure (CHF) is a long-lasting and widespread condition that continues to be one of the top causes of mortality around the globe, impacting a significant number of people [5]. Nearly half of patients with

CHF experience symptoms of stress. Patients with CHF commonly feel uncertain, anxious, and depressed [2]. Heart failure remains a major health problem in Indonesia due to its high prevalence. According to [6] mortality due to CHF ranges from 6% to 12%, and the recurrence rate among CHF patients reaches 29%.

The World Health Organization (WHO) indicated that in the year 2015, approximately 70% of global deaths were caused by non-communicable diseases, including 45% of total deaths attributable to cardiovascular diseases. Mortality due to cardiovascular diseases reached 17.7 million out of a total of 39.5 million deaths [7]. The five-year mortality rate for chronic heart failure (CHF) is roughly 50% [1]. Annually, between one and two million individuals affected by heart failure pass away around the globe [8]. Asia records the highest number of fatalities from heart disease, amounting to roughly 712,100 deaths. Within Southeast Asia, the Philippines leads with the most heart disease-related deaths, reaching a total of 376,900 cases. Indonesia follows as the second highest in Southeast Asia, with 371,000 deaths [9]. The occurrence of CHF in Indonesia is quite significant. As reported by Riskesdas (2016), the occurrence of CHF in Indonesia accounts for 0.3% of the overall population [1]. The three provinces with the highest rates of heart disease are North Kalimantan (2.2%), Gorontalo (2%), and the Special Region of Yogyakarta (2%) [7].

Patients with CHF often experience more sadness and anxiety than healthy people [5]. Based on research conducted by [2] Women with CHF tend to have more severe anxiety and depression symptoms than men. Anxiety is a feeling of worry or fear toward unexpected or dangerous situations. In CHF patients, anxiety is common. It ranges from 13.1% for mild anxiety, 28.79% for moderate anxiety, and up to 55.5% for elevated anxiety symptoms [10]. Several studies reported that about 22% of CHF patients also experience anxiety or depression [11]. Anxiety can lead to physical symptoms, including elevated blood pressure, a fast heartbeat, difficulty breathing, and sensations of a pounding heart. Excessive anxiety may lead to panic. Arini (2017) describes this as an exaggerated bodily response to anxiety-provoking situations [12]. Permatasari (2013) also identified physiological symptoms of anxiety. These include sweating, hypertension, increased heart rate, palpitations, dry mouth, diarrhea, muscle tension, and rapid breathing [13].

Given the high prevalence of anxiety among CHF patients and the limited family knowledge regarding independent non-medical care, The researchers are focused on exploring additional studies concerning individuals with CHF. This investigation seeks to detail the levels of anxiety and the mean arterial pressure (MAP) among CHF patients, as stated in the title "Description of Anxiety Levels and Mean Arterial Pressure (MAP) in Patients with Congestive Heart Failure".

2. RESEARCH METHOD

This research utilized a quantitative methodology with a descriptive design strategy. This approach aims to provide a comprehensive description of social conditions or to explain and clarify existing phenomena in society by describing the research variables [14]. This study describes the occurrence and levels of anxiety. The research was conducted in 2023 at the Cardiac Specialty Unit of Mitra Keluarga Bintaro Hospital. The sampling technique used was consecutive sampling, involving 36 patients with congestive heart failure (CHF) who were hospitalized in the Cardiac Specialty Unit of Mitra Keluarga Bintaro Hospital. Data analysis was performed using univariate analysis.

Data collection is a methodical procedure for acquiring and assessing information to address research queries. Data collection was carried out in accordance with the procedures outlined in the research design and the instrument techniques used [15]. The data collection process began with obtaining a research permit, followed by ethical clearance and permission for data collection. After approval from all relevant parties was obtained, the researcher conducted the study through several stages, including approaching elderly participants to obtain their consent to participate as respondents, signing informed consent forms, distributing questionnaires, and collecting the completed questionnaires on the same day. The researcher then checked and evaluated the responses provided by the respondents. Research instruments are tools used to collect valid, reliable, and up-to-date data [14].

The tools utilized for research in this study included the Hamilton Anxiety Rating Scale (HARS) and a blood pressure measurement sheet, and the instruments were closed-ended. The stages of data processing in this study were as follows: (1) Editing, which involved rechecking the questionnaire contents to ensure that all responses from respondents were complete; (2) Coding, which involved classifying respondents' answers by assigning numerical codes. Data management was carried out by collecting the data and assigning codes according to the predetermined categories in the form of numbers; (3) Scoring, which was performed by the researcher by assigning values based on categories and scores. The results from the questionnaire were scored using numerical codes. Scoring was conducted as follows: (a) Item scores: a score of 0 represented the absence of symptoms, a score of 1 represented one symptom from the listed options, a score of 2 represented half of the symptoms, a score of 3 represented more than half of the symptoms, and a score of 4 represented the presence of all symptoms; (b) Total scores: scores below 14 indicated no anxiety, scores between 14 and 20 indicated mild anxiety, scores from 21 to 27 indicated moderate anxiety, scores from 28 to 41 indicated severe anxiety, and scores ranging from 42 to 56 indicated panic. (4) Tabulating, which involved entering the data into tables and calculating the frequency of each collected variable, including both general and specific data; and (5) Percentage calculation, which was performed after the data were grouped into frequency distribution tables using appropriate formulas to obtain percentages.

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This study analyzed data by categorizing them into general data and specific data related to anxiety and Mean Arterial Pressure (MAP) using descriptive analysis. Descriptive analysis was conducted to determine anxiety levels and Mean Arterial Pressure (MAP). Research ethics were applied through the use of informed consent forms completed by respondents, ensuring confidentiality and maintaining anonymity. This study was approved by the ethics committee under ethical clearance number No. 243/EC-KEPK FKIK UMY/VIII/2023.

3. RESULTS AND ANALYSIS

3.1. Results

3.1.1 Respondent Characteristics

This analysis employed a frequency distribution to describe respondent characteristics based on gender, educational level, age, and income. The distribution of these characteristics is presented in Table 1.

Table 1 Distribution of Characteristics of Respondents Based on Gender, Education, Income, and Age at Mitra Keluarga Bintaro Hospital, August–September 2023 (n = 36)

Variable	Frequency (n)	Percentage (%)
Gender (n, %)		
Male	21	58.3%
Female	15	41.7%
Education Level		
No formal education	3	8.3%
Elementary School	6	16.7%
Junior High School	7	19.4%
Senior High School	9	25%
Bachelor's Degree	8	22.2%
Master's Degree	3	8.3%
Income		
< Regional Minimum Wage (RMW) (< Rp.4.551.451,00)	21	58.3%
≥ Regional Minimum Wage (RMW) (≥ Rp.4.551.451,00)	15	41.7%
Age		
Middle-aged adults (45–59 years)	16	44.4%
Older adults (60–74 years) Old-old	15	41.7%
adults (75–90 years)	5	13.9%

Source: Original Data, 2023

According to Table 1, most of the individuals surveyed were male, accounting for 58.3%, while females comprised 41.7%. The respondents had diverse educational backgrounds, with most having completed senior high school (25%). The majority of respondents earned below the Regional Minimum Wage (58.3%), and most were in the middle-aged group (44.4%).

3.1.2 Description of Anxiety Levels

This analysis employed a frequency distribution to describe the anxiety levels of respondents. The distribution is shown in Table 2.

Table 2. Distribution of Participants According to Anxiety Level Frequency at Mitra Keluarga Bintaro Hospital, August–September 2023 (n = 36)

Variable	Frequency (n)	Percentage (%)
Anxiety Level (n, %)		
Moderate Anxiety	14	38.9%
Severe Anxiety	22	61.1%

Source: Original Data, 2023

Based on Table 2, the majority of respondents experienced severe anxiety (61.1%), while a smaller proportion experienced moderate anxiety (38.9%).

3.1.3 Description of Mean Arterial Pressure (MAP)

This analysis employed a frequency distribution to describe the respondents' Mean Arterial Pressure (MAP). The information is shown in Table 3.

Table 3. Allocation of Participants According to Mean Arterial Pressure (MAP) Frequency at Mitra Keluarga Bintaro Hospital, August–September 2023 (n = 36)

Variable	Frequency (n)	Percentage (%)
Mean Arterial Pressure (n, %)		
Normal (70-92 mmHg)	2	5.6%
Prehypertension (93-106 mmHg)	7	19.4%
Hypertension (> 107 mmHg)	27	75%

Source: Original Data, 2023

Based on Table 3, most patients had elevated mean arterial pressure, with 75% classified as hypertensive (MAP greater than 107 mmHg).

3.2. Discussion

3.2.1 Respondent Characteristics

Based on Table 1, the distribution by gender shows that the majority of respondents were male (58.3%), while females accounted for 41.7%. The findings of this study suggest that the majority of patients with congestive heart failure (CHF) were male. This condition may be attributed to differences in hormonal protection, particularly estrogen in women, which plays a protective role against cardiovascular diseases. Estrogen increases high-density lipoprotein (HDL) levels, which serve as a protective factor against atherosclerosis. Consequently, men are more susceptible to heart failure at around 50 years of age, whereas women tend to develop heart failure at approximately 65 years of age or after menopause [16]

According to Table 1 concerning age categories, most of the participants fell into the middle-aged category (44.4%). Age is a significant risk factor for CHF, with the risk increasing as individuals grow older. CHF patients are commonly found in middle adulthood (40–60 years), whereas Polikandrioti reported that most CHF patients were elderly (>60 years) (Putri Setianingsih & Dwi Hastuti, 2022).

Based on Table 1, respondents demonstrated diverse educational backgrounds, with the largest proportion having completed senior high school (25%). According to Notoatmojo (2010), behavior is better when it is based on knowledge rather than without knowledge. The results of this research align with the concept proposed by Listiana (2019), which states that educational level is a major factor contributing to anxiety. Lower educational levels are associated with higher anxiety levels [18]. This is additionally backed by research carried out by Chairul Huda Al Husna (2025), which found that people with higher levels of education generally possess greater knowledge, including awareness of disease prognosis, which may also contribute to increased anxiety [19]

Based on Table 1 regarding income level, 58.3% of respondents had incomes below the Regional Minimum Wage (RMW). This condition may occur because CHF patients are often unable to perform strenuous activities and experience limitations in daily activities, which subsequently affect their earning capacity. This situation can contribute to additional anxiety among CHF patients. Another research found a p-value of 0.16, which is greater than 0.05, suggesting a significant connection between financial status and anxiety levels [20]. Furthermore, research conducted by Maryam and Kurniawan (2008) found that respondents with incomes below the RMW experienced individuals with greater incomes experience lower levels of anxiety above the RMW [21].

3.2.2 Anxiety Levels

According to Table 2, most of the participants experienced severe anxiety (61.1%), while a smaller proportion experienced moderate anxiety (38.9%). According to a study conducted by Asman in 2022, anxiety in patients with chronic diseases, such as heart disease, can cause individuals to experience intense anxiety that may progress to depression. This anxiety arises from several factors, including the initial diagnosis of the disease, prolonged treatment processes, financial burdens related to medical care, and a lack of family support during treatment. In addition, anxiety may also stem from concerns about death [22].

The anxiety experienced by participants in this study emerged as a consequence of their health conditions, manifesting in symptoms such as pain, tension, fear of various possibilities, sleep disturbances, feelings of distress, muscle-related problems, sensory disturbances, shortness of breath, and difficulties related to urinary and sexual functions. These symptoms were evident among respondents during the interview sessions. The symptom of anxiety most frequently noted by participants in this study was a lack of inner tranquility, marked by regular fatigue, challenges in finding rest, and ongoing concern. Additionally,

respondents dealt with sleep disturbances, such as trouble falling asleep, recurrent awakenings throughout the night, and inadequate sleep quality. Other anxiety manifestations included physical or muscular disturbances, often marked by muscle pain and stiffness. Additional symptoms reported were chest pain, irregular heartbeats, loss of appetite, a sensation of heaviness in the head, excessive sweating, and persistent restlessness.

This study supports the findings reported by (Apriliyani, 2020), which suggests that congestive heart failure (CHF) impacts not only physical health but also mental well-being of affected individuals. Psychological disturbances commonly experienced by patients with CHF include stress, feelings of helplessness, depression, and anxiety. Similarly, [24], discovered that the majority of heart failure patients in their research experienced feelings of anxiety. Anxiety is a condition that affects the autonomic nervous system, leading to both specific and generalized anxiety responses as well as stress reactions. Various hemodynamic changes occur as a result of anxiety, including alterations in blood pressure, respiratory rate, cold sweating, increased heart rate, and urinary tract disturbances. A study reported that one day before surgery, patients' average heart rate, blood pressure, and respiratory rate increased in parallel with rising anxiety levels regarding the upcoming procedure [25]

When health conditions deteriorate and symptoms become more severe, stress begins to emerge, and if prolonged, it could negatively affect patients' mental well-being. According to the results of this research, the scientists determined that the anxiety felt by participants was primarily caused by fear related to their disease condition. Participants recognized the heart as a vital organ and expressed concern about their declining physical condition and the ongoing treatment process. Some participants also reported that repeated hospitalizations and the high cost of treatment were significant triggers of the anxiety they experienced.

3.2.3 Mean Arterial Pressure

According to Table 3, most patients had elevated mean arterial pressure (MAP), with 75% classified as hypertensive (MAP greater than 107 mmHg). According to a study conducted by Salsabila and Nugroho in 2021, individuals with heart failure experience various physical changes, including reduced cardiac output manifested by oliguria, tachycardia, and palpitations, as well as pallor and weakened peripheral pulses. Pulmonary congestion leads to physical changes such as dyspnea, crackles, and tachypnea. Other observable physical changes include persistent edema, jugular vein distension, and abdominal distension [26].

The impact of heart failure significantly affects daily activities. This condition is caused by an increased heart rate as a reaction to activation of the sympathetic nervous system. Blood pressure in individuals with heart failure also increases due to compensatory arterial vasoconstriction in response to decreased cardiac output. These compensatory mechanisms aimed at maintaining cardiac output may have negative effects, increasing cardiac workload and worsening the heart failure condition. Measurement of vital signs is a crucial non-invasive method for nurses. As part of the healthcare team, nurses must be able to analyze vital sign data to provide appropriate strategies for individuals with heart failure [27].

In older adults, vascular elasticity decreases, causing blood vessels to become stiffer and less capable of regulating blood pressure. This condition results in increased systolic blood pressure because the vessel walls are no longer able to contract with adequate elasticity, which may also lead to elevated diastolic pressure (Fadlilah et al., 2020). A research conducted by Dumalang et al. (2022) revealed differences in systolic blood pressure, while contrasting outcomes were noted in diastolic blood pressure. The research indicated a reduction in systolic blood pressure when transitioning from a supine to a sitting position, along with an increase in diastolic blood pressure during the same positional change. Therefore, in this study, systolic blood pressure tended to be high while diastolic blood pressure was low, and vice versa [29].

4. CONCLUSION

According to the findings of this research, it can be inferred that the respondent characteristics showed that 41.7% were female and 58.3% were male. The respondents had diverse educational backgrounds, with the highest proportion having completed senior high school (25%). A total of 58.3% of respondents had incomes below the Regional Minimum Wage (RMW), and most of the participants were in the middle-aged group (44.4%). The findings regarding anxiety levels indicated that most respondents experienced severe anxiety (61.1%), while a smaller proportion experienced moderate anxiety (38.9%). In addition, most patients had elevated mean arterial pressure (MAP), with 75% classified as hypertensive (MAP greater than 107 mmHg). As a recommendation, this research is anticipated to act as a resource for upcoming investigations, especially experimental studies that target interventions aimed at lowering anxiety levels in patients suffering from congestive heart failure (CHF).

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