

Factors Related to Rehospitalization in Patients with Congestive Heart Failure

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ABSTRACT

Introduction: Congestive Heart Failure (CHF) is a complex clinical syndrome characterized by a decline in functional capacity, often resulting in recurrent rehospitalization. The rehospitalization rate has been steadily increasing at Bakti Timah Hospital Pangkalpinang. Factors such as hypertension, non-adherence to dietary recommendations, and low quality of life contribute to rehospitalization among CHF patients.

Objective: This study aimed to identify factors associated with rehospitalization among CHF patients at Bakti Timah Hospital Pangkalpinang in 2025.

Method : This research employed a quantitative approach with a cross-sectional survey design. The population consisted of all CHF patients undergoing treatment at the hospital, with a total of 59 respondents selected using purposive sampling.

Result: The results revealed significant associations between a history of hypertension ($p=0.01$; $POR=7.031$; 95% CI: 2.222–22.254), dietary adherence ($p=0.003$; $POR=6.000$; 95% CI: 1.935–18.603), and quality of life ($p=0.017$; $POR=4.267$; 95% CI: 1.420–12.824) with rehospitalization events

Conclusion: In conclusion, a history of hypertension, dietary adherence, and quality of life are important factors influencing rehospitalization among CHF patients. Enhancing patient and family understanding of hypertension management, implementing appropriate dietary practices, and improving quality of life are expected to help reduce the rehospitalization rate

Keywords: Congestive Heart Failure, Dietary Adherence, History of Hypertension, Quality of Life, Rehospitalization

Introduction

The heart is an organ located on the left side of the chest cavity, protected by the ribs. The heart's function is to pump blood throughout the body. This function can be performed effectively if the heart muscle, valve system, and pumping rhythm are adequate. Abnormalities in any of these conditions will affect blood pumping (Satti, 2024).

Congestive Heart Failure (CHF) is a complex clinical syndrome caused by functional or structural problems in the heart. This condition is characterized by difficulty filling the ventricles and the heart's failure to pump blood effectively throughout the body. Damage to the heart's structure, functional abnormalities, and various other triggering factors contribute to the development of CHF. Most cases of CHF are caused by coronary heart disease and myocardial infarction. Other causes of CHF include hypertension, heart valve disease, myocarditis, and congenital heart defects (Kaloni et al., 2024).

According to 2020 World Health Organization (WHO) data, heart disease has been a leading cause of death over the past 20 years. This increase occurred from 2 million in 2000 to 9 million in 2019, representing an estimated 16% of the total cause of death worldwide. According to 2021 World Health Organization (WHO) data, the estimated number of patient deaths increased by 17.9 million, representing 32% of the total global death rate (38%). In 2022, the World Health Organization (WHO) listed cardiovascular disease as the number one cause of death worldwide, with 17.9 million deaths recorded annually. Heart failure accounts for 85% of deaths in patients with cardiovascular disease, caused by both heart abnormalities and complications from cardiovascular and blood vessel disease. The prevalence of these deaths is 75% in low- to middle-income countries (WHO, 2022).

According to data from the Indonesian Ministry of Health, congestive heart failure is the second leading cause of death after stroke. Data from the Indonesian Ministry of Health's Basic Health Research (Riskesdas) on the prevalence of CHF in Indonesia, based on doctor's diagnosis, is estimated at 1.5%, or approximately 1,017,290 people. The Indonesian Basic Health Research (Riskesdas) shows that Congestive Heart Failure (CHF) is the leading cause of death in Indonesia, accounting for approximately 9.7% of all heart disease cases. The highest prevalence is in West Java Province, with 186,809 cases, while the lowest is in North Kalimantan Province, with 2,733 cases. Bangka Belitung Islands Province ranks 29th in the country with 5,592 cases.

(Riskesdas, 2023). Data from the Indonesian Ministry of Health's 2018 Basic Health Research (Riskesdes) estimated the prevalence of CHF in Indonesia, based on doctor's diagnosis, at 1.5%, or approximately 1,017,290 people (Riskesdes, 2018). The 2013 Indonesian Basic Health Research (Riskesdas) showed that Congestive Heart Failure (CHF) is a leading cause of death in Indonesia, accounting for 9.7% of all heart disease cases. The highest prevalence is in West Java Province, with 186,809 cases (Riskesdes, 2013).

According to the Bangka Belitung Islands Provincial Health Office profile in 2019, there were 1,611 CHF cases. The highest number of cases occurred in Pangkalpinang City (641 patients) and Belitung Regency (387 CHF patients). In 2020, the number of CHF cases reached 1,195. The highest number of CHF cases occurred in West Bangka Regency, with 542 cases, and Pangkalpinang City, with 204 cases. In 2021, there were 1,148 cases, and Pangkalpinang City had 29 cases (Bangka Belitung Islands Provincial Health Office, 2022). Despite a decline in

prevalence in healthcare settings, CHF remains a common condition, including at Bakti Timah Hospital in Pangkalpinang.

A low-sodium diet is a dietary pattern that reduces the intake of certain salts to reduce sodium intake. If salt intake is uncontrolled, fluid retention increases, fluid volume decreases, cardiac workload increases, fluid retention increases, CHF symptoms worsen, and patients require rehospitalization. Research by Theresia et al. (2024) showed that factors associated with rehospitalization include family support in patients with congestive heart failure, with the majority being in the good category (55.9%). Treatment adherence in patients with congestive heart failure was mostly in the low category (52.9%).

Low-salt diet adherence in patients with congestive heart failure was mostly in the low category (52.9%). The incidence of re-hospitalization in patients with congestive heart failure was mostly high (64.7%). There is a significant relationship between family support (p -value = 0.006), compliance with medical therapy (p -value = 0.040), compliance with low-salt diet (p -value = 0.006) with the occurrence of rehospitalization in patients with congestive heart failure at RSUD Dr. Gunawan Mangunkusumo Se.marang, Ambarawa Regency.n.

Quality of life is an individual's perception of the individual's position in life according to the cultural context and value system he or she adheres to, in which the individual lives and its relationship to the hopes, goals, standards set and concerns of the individual. The research results of Siregar et al (2024) show that there are factors related to Rehospitalization on P-Value family support. (0.038) and quality of life (0.05), there is a significant relationship between family support and the patient's quality of life. He.art Failure. at RSU.Wulan Windy Mare.lan in 2024.

The results of a survey that was carried out on November 26 2024 at the Bakti Timah Pangkalpinang Hospital, data was obtained that from eight patients with Conge.stive. He.art Failure. There were four patients following a low salt diet with low hospitalization, while four patient-free diets with high hospitalization. As a result of interviews with patients and their families, it was found that out of eight patients, five patients said they did not know what diet foods were required and were not recommended for them.

Based on the above problems, researchers are interested in doing it research with the title "Factors Related to Rehospitalization in Congestive Heart Failure (CHF) Patients at Bakti Timah Hospital Pangkalpinang in 2025

Objective

This study aimed to identify factors associated with rehospitalization among CHF patients at Bakti Timah Hospital Pangkalpinang in 2025.

Method

This research uses a cross-sectional survey design through a short-term method. quantitative, namely research obtained by using statistical procedures or other methods of quantification (measurement), while cross-sectional surveys are research to study the dynamics of correlation between risk factors by e.f. collecting data all at once at one time (point time approach) (Notoatmodjo, 2018). This study uses a cross-sectional design by comparing factors related to the incidence of rehospitalization in patients with Congestive Heart Failure (CHF) at Bakti Timah Hospital, Pangkalpinang in 2025. This research employed a quantitative approach with a cross-sectional survey design. The population consisted of all

CHF patients undergoing treatment at the hospital, with a total of 59 respondents selected using purposive sampling.

Results

Frequency Distribution of Characteristics Based on Rehospitalization Factors of Congestive Heart Failure Patients at Bakti Timah Hospital, Pangkalpinang

Rehospitalisasi	Frequencies	%
Rehospitalisasi	34	57,6%
Nonrehospitalisasi	25	42,4
Total	59	100

The data in Table above shows that 35 respondents (57.6%) underwent rehospitalization, outnumbering 25 respondents (42.4%) who did not undergo rehospitalization.

Frequency Distribution of Characteristics Based on Patient Diet Compliance Factors at Bakti Timah Hospital, Pangkalpinang in 2025

Patient Diet Compliance	Frequencies	%
Compliance	32	54,2%
Not Compliance	27	45,8%
Total	59	100

From the data in table above, it is known that 32 respondents (54.2%) were compliant with the diet, more than the respondents who were not compliant.

The analysis of the relationship between a history of hypertension and rehospitalization in patients with congestive heart failure (CHF) revealed that 25 (75.8%) patients with a history of hypertension experienced rehospitalization. This compares with 18 (69.2%) patients without a history of hypertension who did not experience rehospitalization. The results of data analysis using the chi-square test obtained a p-value ($0.01 < \alpha$ (0.05), indicating a relationship between hypertension and rehospitalization of congestive heart failure patients at Bakti Timah Hospital, Pangkalpinang, in 2025. Further analysis yielded a prevalence of 0.031 (95% CI) (2.222-22.254). The prevalence of 0.031 is a measure used to compare the prevalence of a disease or condition between two different groups. This means that patients with a history of hypertension are 7.301 times more likely to experience rehospitalization than patients without hypertension.

The analysis of the relationship between dietary adherence and rehospitalization in patients with congestive heart failure (CHF) revealed that 24 (75.0%) patients with dietary adherence experienced rehospitalization. 18 (66.7%) patients with non-adherence experienced no rehospitalization.

The results of data analysis using the chi-square test yielded a p-value ($0.003 < \alpha$ (0.05), indicating a relationship between the factors

Diet Compliance and Rehospitalization of Congestive Heart Failure Patients at Bakti Timah Hospital, Pangkalpinang, in 2025. Further analysis yielded a Prevalence Odd Ratio (POR) of 6,000 (95% CI: 1,935-18,603). The Prevalence Odd Ratio (POR) is a measure used to compare the prevalence of a disease or condition between two different groups. This means that patients who adhere to a diet are 6,000 times more likely to experience rehospitalization than non-compliant patients.

The analysis of the relationship between Quality of Life and rehospitalization in Congestive Heart Failure (CHF) patients revealed that 24 (70.6%) patients experienced rehospitalization with high quality of life.

Compared to those with low quality of life, 16 people (64.0%) did not experience rehospitalization. The results of data analysis using the chi-square test obtained a p-value ($0.017 < \alpha$ (0.05), which means there is a relationship between the Quality of Life factor and Rehospitalization of Congestive Heart Failure Patients at Bakti Timah Hospital, Pangkalpinang in 2025. Further analysis obtained the results of the Prevalence Od Ratio (POR) = 4,267 (CI 95% (1,420-12,824). The Prevalence Od Ratio (prevalence ratio) is a measure used to measure the comparison between the prevalence of a disease or condition between two different groups. This means that patients with low quality of life have a tendency of 4,267 times to experience rehospitalization compared to patients with high quality of life.

Discussion

A person with a history of hypertension is someone who has experienced or is currently experiencing high blood pressure (hypertension). Hypertension is a condition in which a person's systolic blood pressure is greater than or equal to 140 mmHg and/or diastolic blood pressure is greater than or equal to 90 mmHg. A person with a history of hypertension may have previously been or is currently undergoing treatment, or may also be unaware of their hypertension (Ministry of Health of the Republic of Indonesia, 2022). Based on the research results, the results of data analysis using the chi-square test obtained a p-value ($0.01 < \alpha$ (0.05), which means there is a relationship between the Hypertension factor and Rehospitalization of Congestive Heart Failure Patients at Bakti Timah Hospital Pangkalpinang in 2025. Further analysis obtained the results of the Prevalence Od Ratio (POR) = 7,031 (CI 95% (2,222-22,254).

The Prevalence Od Ratio (prevalence ratio) is a measure used to measure the comparison between the prevalence of a disease or condition between two different groups. which means that patients who have a history of hypertension have a tendency of 7,301 times to undergo rehospitalization compared to patients without hypertension. This study is in line with research conducted by (Priandani., Et al, 2023). The results of statistical test data analysis with chi-square obtained a value ($p = 0.001 < \alpha$ (0.05), this shows there is a relationship between hypertension with the incidence of CHF in patients at the cardiac clinic at Depati Hamzah Regional Hospital, Pangkalpinang City in 2023. Further analysis found an OR of 4.000 (95% CI 1.733-9.233). Therefore, it can be concluded that patients with hypertension are 4.000 times more likely to suffer from CHF compared to patients without hypertension. This is in line with research conducted by (Ridho, et al., 2022). Based on the results of the bivariate

statistical test, a p-value of 0.042 was obtained, indicating a significant association between the frequency of rehospitalizations and a history of hypertension and congestive heart failure. A study by (Prabowo, et al., 2022) reported a significant association between the frequency of rehospitalizations and a history of hypertension and congestive heart failure at Indramayu Regency Hospital (p-value = 0.042).

From research conducted by (Priandani, et al., 2023) with P-value = 0.001, (Ridho., Et al. 2022) with p-value = 0.042, and (Prabowo., Et al. 2022) with p-value = 0.042 in line with the research conducted by researchers with the results of the chi-square test p-value = $0.01 < \alpha$ (0.05), researchers can conclude that a history of hypertension in a person will have an influence on the person himself for the occurrence of a disease. A person who has a history of hypertension has a greater chance of causing rehospitalization of patients with CHF compared to people who do not have a history of hypertension.

Conclusion

This study found a significant association between a history of hypertension and rehospitalization among patients with congestive heart failure at Bakti Timah Hospital, Pangkalpinang, in 2025. Dietary adherence and quality of life were also significantly associated with rehospitalization. Among the variables examined, a history of hypertension was the strongest factor associated with rehospitalization (POR = 7.031). These findings highlight the importance of effective hypertension management, adherence to dietary recommendations, and interventions to improve patients' quality of life in reducing the risk of rehospitalization among patients with congestive heart failure.

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