

## Determinants of Behavioral Compliance in Coronary Heart Disease Therapy Among Patients at Bandung Heart Clinic

Shabrina Arifia Qatrannada✉<sup>1</sup>, Bagoes Widjanarko<sup>1</sup>, Novia Handayani<sup>1</sup>

<sup>1</sup> Faculty of Public Health, Diponegoro University, Semarang, Central Java, Indonesia 50271

✉Email: [nadashabrina@gmail.com](mailto:nadashabrina@gmail.com)

### ABSTRACT

**Background:** Coronary heart disease (CHD) ranks seventh among non-communicable diseases (NCDs) in Indonesia, with a projected increase in mortality by 2030 to approximately 23,6 million. The rehabilitation of CHD, which constitutes long-term treatment, significantly depends on patient adherence. **Objective:** This study aims to investigate the determinants of patient adherence behavior at the Bandung Heart Clinic. **Methods:** It employed a cross-sectional research design, gathering data from 471 CHD patients with a history of atherosclerosis at the clinic between January and October 2022. The minimum sample size of 80 respondents, calculated using the Lemeshow formula, was increased to 150 to mitigate potential dropouts. The research instrument used was a questionnaire that had been validated and deemed reliable, except for one question regarding family support. Sampling was conducted using accidental sampling and involved interview data collection. **Results:** Bivariate data analysis, using the chi-square test, indicated significant associations between gender ( $p=0.09$ ), employment status ( $p=0.01$ ), health insurance participation ( $p=0.012$ ), healthcare accessibility ( $p=0.022$ ), family support ( $p=0.006$ ), and treatment motivation ( $p=0.22$ ) with patient adherence behavior. Additionally, female patients ( $OR=3,316$ ) patients who are members of a health insurance ( $OR=2,617$ ), patients with high treatment motivation ( $OR=1,983$ ), patients who receive support from their families ( $OR=2,476$ ) are more likely to exhibit adherence behavior compared to those who are not. **Conclusion:** In summary, it can be concluded that gender, employment status, health insurance participation, family support, and treatment motivation have significant correlations with patient adherence behavior in the context of CHD at the Bandung Heart Clinic. **Keywords:** Adherence, Coronary Heart Disease, Lawrence Green, Therapy.

### INTRODUCTION

Worldwide, in 2020, cardiovascular disease mortality reached 9.4 million, with coronary heart disease accounting for 45% of these deaths. This information is supported by international statistical data. Mortality due to this disease is projected to increase to 23.6 million by the year 2030. (Mendis et al., 2011; Wong, 2014)

Coronary Heart Disease (CHD) can be categorized as a fairly common type of cardiovascular disease. It includes disorders of the heart and blood vessels, such as stroke, rheumatic heart disease, and other related conditions. (World Health Organization, 2022)

Based on the 2018 Riskesdas data, it is reported that Coronary Heart Disease (CHD) has a doctor-diagnosed prevalence of 1.5% in the entire population of Indonesia, estimated at 1,017,290 individuals. From this data, it can be concluded that coronary

heart disease ranks seventh among Non-Communicable Diseases (NCDs) in Indonesia. West Java Province is one of the regions with a CHD incidence rate exceeding the national average in 2018, standing at 1.6% or an estimated 186,809 people, with the majority of patients residing in urban areas. (Kementerian Kesehatan RI, 2018)

According to the Guidelines for Cardiovascular Disease Management, it is explained that efforts can be made to prevent the severity of and complications in coronary heart disease (CHD) patients. Control of coronary heart disease by patients can be achieved through pharmacotherapy or medication-based therapy and lifestyle modifications. (PERKI, 2022)

The guideline also states that cardiac rehabilitation can improve the quality of life for patients. This improvement can be demonstrated through the Health-Related Quality of Life (HRQOL)

scale, where patients who consistently adhere to heart therapy have a higher quality of life compared to those who rarely or do not participate in therapy programs. According to a study, the quality of life for non-compliant CHD patients is 3.23 times lower than CHD patients who consistently undergo therapy and rehabilitation. (Nuraeni et al., 2016)

A critical aspect in the management of coronary heart disease (CHD) patients is their adherence to the treatment regimen, given that rehabilitation is part of chronic therapy. The chronic therapy process for CHD encompasses monthly medical check-ups, daily medication intake, and adopting a healthier lifestyle, including a balanced diet, regular exercise, and smoking cessation. When CHD patients do not adhere to chronic treatment, they face risks such as complications and even mortality.

In the United States, chronic treatment for CHD is guided by clinical guidelines issued by organizations like the American Heart Association, sharing similar management procedures with those in Indonesia. In 2014, the American Heart Association highlighted that non-adherence to medication or therapy is a common issue among coronary heart disease patients. (American Heart Association, 2014; Mufarokhah et al., 2016)

In another study, a doctor responsible for the cardiac rehabilitation department at a hospital in Bandung City stated that only approximately 11.35% of coronary heart disease (CHD) patients have consistently adhered to their treatment therapy in the past year. (Puspa Delima et al., 2018)

The researcher conducted a preliminary study concerning the adherence of coronary heart disease (CHD) patients at the Bandung Heart Clinic, which is the sole cardiac clinic in Bandung. The findings of this preliminary study revealed information about the consistency of CHD patient visits from July to September 2022. The high number of patients does not align with the number of visits each month. This incongruence is a clear indication of patient non-adherence to the therapy regimen.

The study draws on Lawrence Green's behavior change theory as a framework to examine the relationship between predisposing factors, enabling

factors, and reinforcing factors with the adherence behavior of coronary heart disease (CHD) patients. The research aims to explore the connection between characteristics, knowledge, healthcare accessibility, family support, the role of healthcare professionals, and treatment motivation with adherence behavior in CHD patients at the Bandung Heart Clinic.

## METHODS

This study is a quantitative research conducted with a cross-sectional approach. The research subjects are coronary heart disease (CHD) patients with a history of atherosclerosis at the Bandung Heart Clinic within the timeframe of January to October 2022, with a total population of 471 patients. The minimum sample size calculated using the Lemeshow formula is 80 respondents. Additional samples were included to account for potential dropouts and to ensure more representative data, resulting in a total of 150 respondents. Data collection was carried out using interviews based on a prepared questionnaire.

The sampling technique used was accidental sampling. The selection of respondents was guided by the clinic's administrative department based on the research respondent criteria. Data collection took place over a 15-30 minute period and was conducted while respondents were waiting for the results of an electrocardiogram (EKG) before their doctor's appointment.

Behavioral adherence data were obtained through interviews using a standardized questionnaire, the Modified Morisky Adherence Scale, which had been modified to align with the operational definitions of the study. Measurement included patient consistency in attending medical check-ups, adherence to medication, and adopting a healthier lifestyle. Knowledge, healthcare accessibility, family support, the role of healthcare professionals, and treatment motivation data were collected using prepared questionnaires.

The research questionnaire was subjected to validity and reliability testing with 30 CHD patients from the Healthy Heart Club, the Healthy Heart Foundation, and patients at Al-Islam Hospital in Bandung.

The results of the validity and reliability tests indicated that almost all questions in the adherence, knowledge, healthcare accessibility, healthcare professional roles, and treatment motivation questionnaires were valid and reliable. However, one question in the family support questionnaire was not valid and reliable but was still included in the questionnaire.

Univariate analysis to understand the data characteristics was the first data analysis process after data collection was completed. After understanding the data characteristics, bivariate analysis was conducted using the Chi-Square test, supplemented with multivariate analysis using logistic regression. This research has obtained ethical approval from the Research Ethics Committee of the Faculty of Public Health, Diponegoro University, No. 059/EA/KEPK-FKM/2023.

## RESULTS AND DISCUSSION

The characteristics of the respondents include gender, highest education level, employment status, duration of coronary heart disease (CHD), and participation in health insurance. According to Table 1, there were 150 research respondents, with the majority being male (62%), while the remaining were female (38%). Respondents with a higher education level (high school and higher) accounted for 70.7%, which is more than those with lower education (elementary and junior high school), who made up 29.3%. Meanwhile, a higher

percentage of respondents were unemployed (58.7%) compared to those who were employed (41.75%). Most of the respondents had been suffering from CHD for more than 10 years (54.7%), while the rest had been living with CHD for 10 years or less (45.3%). The majority of respondents used personal funds (65.3%) for their healthcare expenses, while 34.7% utilized health insurance.

The frequency distribution for other variables includes adherence behavior, knowledge level, healthcare accessibility, family support, healthcare professional roles, and treatment motivation. The research findings show that nearly all respondents have a high level of knowledge (70%), while a small proportion has a low level of knowledge (30%). Regarding access to healthcare services, the results indicate that 50.7% of respondents have good access, while 49.3% have poor access. In terms of family support, the majority of respondents (54%) reported receiving support from their families, while 46% of respondents reported not receiving such support. Furthermore, in terms of the role of healthcare professionals, the study shows that the majority of respondents (77.3%) consider the role of healthcare professionals as important, while 22.7% of respondents consider it less important. Concerning treatment motivation, more respondents have a high motivation for treatment (50.7%) compared to those with low motivation for treatment (49.3%).

Table 1. Relationship Between Respondent Characteristics, Knowledge Level, Healthcare Accessibility, Family Support, Healthcare Professional Roles, and Treatment Motivation with Adherence Behavior.

Variable	Adherence Behavior in Therapy				p-value
	Compliance				
	Adherent		Non-Adherent		
	f	%	f	%	
<b>Gender</b>					
Man	41	43,2%	51	56,8%	0,009
Woman	53	79,1%	14	20,9%	
<b>Highest Education Level</b>					
Lower Education	59	55,7%	47	44,3%	0,100
Higher Education	18	40,9%	26	59,1%	
<b>Employment Status</b>					
Not Working	56	63,6%	32	36,4%	0,001
Work	21	33,9%	41	66,1%	
<b>Duration of CHD</b>					
≤ 10 Years	35	51,5%	33	48,5%	0,997
> 10 Years	42	51,2%	40	48,8%	
<b>Health Insurance Participation</b>					



Health Insurance	34	65,4%	18	34,6%	0,012
Personal Expenses	43	43,9%	55	56,1%	
<b>Knowledge Level</b>					
High Knowledge	55	52,4%	50	47,6%	0,695
Low Knowledge	22	48,9%	23	51,1%	
<b>Health Care Accessibility</b>					
Good Access Affordability	46	60,5%	30	39,5%	0,022
Poor Access Affordability	31	41,9%	43	58,1%	
<b>Family Support</b>					
Family Support	50	61,5%	30	39,5%	0,006
Less Supportive Families	31	41,9%	43	58,1%	
<b>Healthcare Professional Roles</b>					
The Role of High Health Workers	61	52,6%	55	47,4%	0,572
The Role of Health Workers is Low	16	47,1%	18	52,9%	
<b>Treatment Motivation</b>					
High Treatment Motivation	46	60,5%	30	39,5%	0,022
Low Treatment Motivation	31	41,9%	43	58,1%	

Based on the data presented in Table 1, the chi-square test results reveal that factors related to the adherence behavior of coronary heart disease (CHD) patients are gender, employment status, health insurance participation, healthcare

accessibility, family support, and treatment motivation. Factors unrelated to adherence behavior in CHD patients are the highest education level, duration of CHD, knowledge level, and the role of healthcare professionals.

Table 2. Multivariate Analysis Results Using Logistic Regression.

Variable	B	SE	Wald	df	Sig	Exp(B)	95% CI for Exp (B)	
							Lower	Upper
Gender	1,199	0,387	9,583	1	0,002	3,316	1,552	7,082
Insurance	0,962	0,394	5,947	1	0,015	2,617	1,208	5,669
Treatment Motivation	0,684	0,361	3,593	1	0,05	1,983	0,977	4,024
Family Support	0,907	1,168	6,305	1	0,012	2,476	1,220	5,024

Table 2 presents the results of the multivariate logistic regression model. Based on these results, gender, health insurance participation, treatment motivation, and family support influence the adherence behavior of coronary heart disease (CHD) patients with p-values of 0.002, 0.015, 0.05, and 0.012, respectively. Additionally, female patients are 3.3 times more likely to exhibit adherence behavior compared to those who are not. Patients who are members of a health insurance scheme are 2.6 times more likely to engage in adherence behavior compared to those without health insurance. Patients with high treatment motivation are 1.98 times more likely to exhibit adherence behavior compared to patients with low treatment motivation. Those who

receive support from their families are 2.4 times more likely to be engaged compared to those who feel unsupported.

#### Gender

When it comes to maintaining health, women often tend to be more attentive to their health compared to men. The Ministry of Health of the Republic of Indonesia has stated that this is because of women's inherent nature to be more health-conscious compared to men (Kementerian Kesehatan RI, 2018). Furthermore, sickness behavior patterns can also be influenced by gender. Women tend to self-treat more frequently when feeling unwell compared to men. This strengthens the statement that there will likely be more female patients who are diligent in adhering to therapy compared to male patients.

This research clearly indicates that gender is one of the variables associated with patient adherence behavior, as evident from the chi-square test results with a p-value of 0.009 and logistic regression with an odds ratio (OR) of 3.3. This study aligns with the research conducted by Alzaru (2022), which found a correlation between gender and adherence behavior with a p-value of less than 0.05 (Al-Zaru et al., 2022). However, there are studies with different findings, such as the research by Hazrati-Meimaneh (2020), which showed that both male and female respondents displayed a similar awareness of adhering to treatment (Hazrati-Meimaneh et al., 2020).

Based on the field research results, female respondents tend to be more compliant in both medication and non-medication therapy. In this study, it was found that only 15.8% of female respondents were employed. According to the initial hypothesis, employed CHD patients might have limited time to focus on their health and prioritize their work. The data suggests that female patients attending the cardiac clinic are influenced by the availability of time and opportunities, where women are more likely to have the time and opportunity to visit the cardiac clinic compared to men. Additionally, female respondents tend not to have high-risk factors compared to males. Most women had never smoked, either before or after being diagnosed with CHD. This may explain why female respondents find it easier to avoid smoking behavior as they were not active smokers before being diagnosed.

#### **Highest Education Level**

The highest level of education attained can be defined as an individual's most recent formal education. The level of education is associated with the adherence of CHD patients to their therapy. Research subjects who tend to have higher levels of knowledge mostly exhibit adherence to therapy and rehabilitation.

In this study, it is explained that the highest level of education does not correlate with the adherence behavior of CHD patients. This research aligns with the study by Maytasari (2020),

which found no correlation between the level of education and adherence behavior in taking medication, with a p-value of 0.693 ( $p > 0.05$ ) based on the Chi-Square test (Maytasari & Sartika, 2020). However, Heryati (2014) suggested that individuals with higher levels of education tend to have broader knowledge compared to those with lower levels of education because education forms the foundation for successful treatment. (Heryati, 2014). Ferreira (2019) also stated that low education levels in patients constitute the highest-ranked obstacle according to the World Heart Federation survey, with 89% of survey respondents in agreement (Ferreira et al., 2019).

Based on the data obtained in the field, the lack of significant differences may be influenced by the employment status of highly educated respondents. According to the analysis, 63.2% of highly educated respondents are employed. The busyness and pressure of work are often cited as reasons for a patient not paying much attention to their health. Some respondents even prioritize their work over their own health. Additionally, it can be concluded that both highly educated and less educated respondents equally want to recover from their illness, so the level of education does not have a significant relationship with treatment adherence.

#### **Employment Status**

Employment is a necessary part of life to support oneself and one's family. Tedious and repetitive means of earning a living are not a source of pleasure. People with busy and demanding daily schedules typically have less time for medical treatment.

In the bivariate analysis, employment status appeared to be related to adherence behavior, but after retesting through logistic regression, it was found that employment status is not a significant factor. Research by Tambuwun (2021) suggests that employed patients tend to have limited free time to visit available healthcare services (Tambuwun et al., 2021). Keenan (2017) described the same factors in a review of secondary prevention in patients with coronary artery disease (Keenan, 2017). On the



other hand, Violita (2015) states that the primary reason for respondents' non-adherence to treatment is not necessarily their busy schedules but rather their fear of consuming a large quantity of medication (Violita et al., 2015).

Based on the field research, employment can consume a lot of time, and as a result, some respondents mentioned challenges in finding time for therapy, including monthly medical check-ups and adopting a healthier lifestyle. The pressures experienced during work can also be one of the reasons why respondents find it difficult to avoid smoking and consuming coffee.

#### **Duration of CHD**

The level of compliance among Indonesian patients with coronary heart disease (PJK) in therapy and control is quite low. Adherence to therapy tends to decrease as individuals have been suffering from PJK for a longer period. This is because most patients may become weary of treatment. (Ketut Gama & et al, 2014)

The duration of suffering from PJK is one of the variables that is not related to patient adherence behavior. Research by Pratiwi (2020) states that there is no significant relationship between the duration of the disease and adherence behavior because other dominant factors are suspected to be at play. (Pratiwi et al., 2020) However, a study by Al-Noumani (2023) indicates that prolonged disease duration reduces adherence levels. This could be closely related to long-term therapy and taking more medication more frequently. (Al-Noumani et al., 2023)

The management of chronic PJK is lifelong, but when the condition improves, doctors may adjust the medication dosage or reduce the frequency of medical check-ups. Based on the field research, the lack of a significant difference in adherence may be influenced by the respondents' self-motivation. The analysis showed that 48.8% of respondents who have been undergoing treatment for more than 10 years still maintain high levels of motivation.

The rehabilitation process can be tedious for patients who have been

undergoing treatment for more than 10 years. However, in reality, there are still many respondents who have been receiving treatment for more than 10 years and continue to exhibit high adherence behavior. Motivation within an individual can be a strong driving force to continue doing what is needed to achieve desired goals. In this context, the duration of suffering from coronary heart disease is not significantly related to adherence behavior because any potential boredom that may arise after years of treatment does not affect the strong motivation that comes from within an individual.

#### **Health Insurance Participation**

The participation of respondents in health insurance, which helps provide funds if they suffer from health disorders or diseases, was shown to have a relationship with patient adherence behavior. This was demonstrated through the chi-square test with a p-value of 0.012, and an odds ratio (OR) of 2.6 was obtained through logistic regression analysis.

Research by Emiliana (2021) states that health insurance can support individuals in adopting healthy behaviors and adhering to treatment regimens. (Emiliana et al., 2021) However, this contradicts research by Marsha (2021), which suggests that even when respondents do not have health insurance, they tend to be adherent to their treatment. (Gladis Makatindu et al., 2021)

Based on the field research, health insurance can be one of the reasons why patients with coronary heart disease tend to be more adherent in their treatment. This is because insurance covers the cost, allowing the majority of respondents to make the most of this opportunity to maintain their health.

#### **Knowledge Level**

The level of knowledge can influence patient adherence to treatment because the better a patient understands their disease, the more likely they are to adhere to treatment and rehabilitation. This is because patients who are knowledgeable about their condition tend to be more vigilant

and concerned about complications and the potential severity that may occur if they do not take good care of themselves.

In this study, knowledge was found to be a factor that is not related to patient adherence behavior. West (2020) stated that knowledge and adherence are not significantly correlated (West et al., 2020). However, Fitria & Mutia (2016) emphasized that knowledge is necessary to obtain information that supports health and can improve motivation in life. (Fitria & Mutia, 2016)

Based on the data collected in the field, the majority of respondents had good knowledge of coronary heart disease, its impact, and the stages of rehabilitation. In theory, the better an individual's knowledge, the better their health behavior should be. However, despite having a high level of knowledge, many respondents were not adherent to their treatment. This suggests that even respondents with high levels of knowledge do not guarantee their adherence to treatment. Some of the reasons obtained in the field include respondents stating that they sometimes already know about the dangers and restrictions for coronary heart disease patients, but it is still difficult to avoid habits such as smoking because they feel it has become a necessity. Other reasons include having busy schedules and high mobility, which often lead to forgetting to take daily medications.

#### **Health Care Accessibility**

The utilization of healthcare facilities, particularly the distance and travel time to healthcare facilities like clinics, can significantly affect treatment adherence. The term "accessibility" in this research refers to factors such as distance, travel time, and the ease of transportation in reaching healthcare services. Patient adherence to therapy can be influenced by the accessibility of healthcare services. Research has shown a relationship between access to healthcare facilities and adherence to treatment.

Accessibility was found to have a significant relationship based on the results of the chi-square test ( $p=0.022$ ). However, after being tested using logistic regression, this variable was determined to have no significant influence. A study by Gladis et al. (2021) suggested that healthcare services with good accessibility were associated with better adherence levels (Gladis Makatindu et al., 2021). In contrast, Pratiwi et al. (2020) found different results, indicating that this factor did not have a significant relationship compared to other factors, such as predisposing factors like motivation to adhere to treatment (Pratiwi et al., 2020)

Bandung Heart Clinic is located in the heart of Bandung City on Jl. Buah Batu. There are various transportation options available to reach the Bandung Heart Clinic, including public minivans (angkot) and online motorcycle taxis (ojek online). Based on additional field data, the accessibility of healthcare services can be one of the reasons why patients with coronary heart disease are more adherent to their treatment. The availability of both public and private transportation for monthly medical check-ups, along with relatively short travel times and good road access, can encourage better adherence to treatment. Furthermore, respondents with good accessibility to healthcare services tend to pay more attention to their lifestyle because they can afford healthcare expenses, including choosing safer food for coronary heart disease patients

#### **Family Support**

Coronary heart disease (PJK) is a condition that may require lifelong treatment. Support from individuals in one's surroundings, such as family and friends, can play a crucial role in adhering to therapy. Generally, individuals with coronary heart disease need emotional support and attention from their surroundings, making it easier for them to follow medical advice

In this study, family support emerged as a significant factor in patient adherence to coronary heart disease treatment, as evidenced by both the chi-square and logistic

regression tests with  $p=0.006$  and  $OR=2.4$ . In line with the research conducted by Liang (2022), family support for patients with coronary heart disease (CHD) is associated with the well-being of the patients and plays a crucial role in patient adherence to treatment (Liang et al., 2022).

Based on additional field data, family support can be one of the reasons why patients with coronary heart disease are more adherent to their treatment. The presence of someone who consistently supports the treatment process can instill new motivation in patients. Rehabilitation for coronary heart disease is a long-term treatment process. On the other hand, individuals diagnosed with this condition often experience stress and unfounded fears. Therefore, having someone reassuring, reminding, and accompanying the patient throughout the treatment process can be a powerful motivator for patients to pay more attention to their health, including the therapy they are undergoing

#### **Healthcare Professional Roles**

The involvement of healthcare professionals (doctors, nurses, pharmacists) in motivating patients with coronary heart disease during their treatment is crucial. Support from competent healthcare professionals is another aspect that can influence patient adherence. Good service from healthcare staff can lead to positive behavior. On the other hand, the friendly attitude of healthcare professionals who quickly help and provide explanations about the prescribed medications and the importance of regular medication can positively affect patient behavior.

In this study, the role of healthcare professionals was found not to have a significant relationship with patient adherence to treatment. Pratiwi (2020) explained that there is no correlation between the role of healthcare professionals and treatment adherence, possibly due to other more influential factors (Pratiwi et al., 2020). However, Jaarsma (2021) stated that although there are guidelines for self-care, healthcare professionals still

need to provide specific recommendations such as nutritional intake, medication adherence, psychological status, smoking habits, symptom monitoring, and many more (Jaarsma et al., 2021).

Based on data obtained in the field, most respondents felt greatly helped by the active role of healthcare professionals in providing information and motivation. Some respondents even decided to continue their treatment at the clinic because they felt comfortable with the attending doctor and the integrated healthcare system. However, in reality, many respondents still do not adhere to their treatment, even though they acknowledge that the role of healthcare professionals at the Bandung Heart Clinic is good. Some factors that can influence this include time constraints for respondents in completing their monthly medical check-ups.

#### **Treatment Motivation**

Motivation for treatment from within an individual significantly influences their health behavior. Patients with high treatment motivation tend to be more compliant with their doctor's advice, diligent in following their treatment regimen, and never miss their daily medications.

In this study, treatment motivation was found to be one of the factors significantly influencing patient behavior, as evidenced by the chi-square test results with  $p=0.022$  and confirmed by logistic regression results with an OR value of 1.9. This aligns with the research by Widianingrum (2018), which explains that patient motivation is influenced by both internal and external factors and can significantly affect patient adherence. (Widianingrum, 2018) However, a study by Purnamasari & Meutia (2023) describes that patients tend to lack the desire to control their disease, leading to reluctance to follow medical or non-medical treatment, resulting in a negative relationship (Purnamasari & Meutia, 2023).

Based on additional data obtained in the field, treatment motivation can be one of the reasons why coronary heart disease patients are more



adherent to their treatment. The emergence of self-motivation becomes the foundation for consistency in maintaining their health. The long rehabilitation process often triggers feelings of boredom, whether in taking daily medications, undergoing medical check-ups, or even in adopting a healthy lifestyle. Having self-motivation indirectly has a positive impact on patients because they tend to have a constant goal of being healthier than the day before. Therefore, patients with high treatment motivation are more consistent in following both medical and non-medical treatment regimens.

## CONCLUSION

This research indicates a significant relationship between gender, employment status, health insurance participation, healthcare access, family support, and treatment motivation with the adherence behavior of coronary heart disease patients, especially at Bandung Heart Clinic.

Based on these findings, healthcare providers can consider expanding the availability of medical check-ups during weekends or evenings since the majority of respondents face time constraints in their monthly check-ups. Additionally, healthcare providers can establish post-hospital health promotion programs aimed at monitoring patient adherence to medication and healthy lifestyles. Family support and treatment motivation are significant factors related to adherence behavior. Therefore, these programs can involve forming communities or organizing regular activities for coronary heart disease patients. This would undoubtedly help improve patient consistency in adhering to both medical and non-medical treatment. This program would benefit patients and enhance the clinic's reputation as a comprehensive healthcare facility.

Employment status is a significant factor because most employed patients tend to have time constraints in maintaining their health. This should be a concern for other institutions to

continue monitoring their employees' health by granting permission for monthly medical check-ups.

Future research can focus on comparing the adherence of coronary heart disease patients undergoing treatment in specialized cardiac clinics/hospitals with those treated in general clinics/hospitals. This would provide a more comprehensive picture of the factors related to patient adherence to treatment.

## REFERENCES

- Al-Noumani, H., Alharrasi, M., Lazarus, E. R., & Panchatcharam, S. M. (2023). Factors predicting medication adherence among Omani patients with chronic diseases through a multicenter cross-sectional study. *Scientific Reports*, 13(1), 7067. <https://doi.org/10.1038/s41598-023-34393-4>
- Al-Zaru, I. M., Shahrour, G., Masha'al, D., & Hayajneh, A. A. (2022). Depression and adherence to healthy lifestyle behaviors among patients with coronary artery diseases in Jordan. *Heliyon*, 8(7), e09752. <https://doi.org/10.1016/j.heliyon.2022.e09752>
- American Heart Association. (2014). Guidelines for the management of patients with unstable angina/non ST-elevation myocardial infarction-executive summary. *Journal American College of Cardiology*, 63(22), 57-185.
- Emiliana, N., Fauziah, M., Hasanah, I., & Rahma Fadlilah, D. (2021). Analisis Kepatuhan Kontrol Berobat Pasien Hipertensi Rawat Jalan Pada Pengunjung Puskesmas Pisangan Tahun 2019. *Jurnal Kajian Dan Pengembangan Kesehatan Masyarakat*, 1(2), 119-132.
- Febrika Purnamasari, E., & Meutia, R. (2023). The Relationship Of Attitude and Motivation to Drug Compliance in Hypertension Patients at Advent Hospital Medan. *Jambura Journal of Health Science and Research*, 5(2), 541-549. <https://ejurnal.ung.ac.id/index.php/jjhsr/index>
- Ferreira, J. P., Kraus, S., Mitchell, S., Perel, P., Piñeiro, D., Chioncel, O., Colque, R., De Boer, R. A., Gomez-Mesa, J. E., Grancelli, H., Lam, C. S. P., Martinez-

- Rubio, A., McMurray, J. J. V., Mebazaa, A., Panjath, G., Piña, I. L., Sani, M., Sim, D., Walsh, M., ... Sliwa, K. (2019). World Heart Federation Roadmap for Heart Failure. *Global Heart*, 14(3), 197. <https://doi.org/10.1016/j.gheart.2019.07.004>
- Gladis Makatindu, M., Nurmansyah, M., Bidjuni, H., & Program Studi Ilmu Keperawatan Fakultas Kedokteran Universitas Sam Ratulangi, M. (2021). Identifikasi Faktor Pendukung yang Berhubungan dengan Kepatuhan Minum Obat pada Penderita Hipertensi di Puskesmas Talelu Kabupaten Minahasa Utara. *Jurnal Keperawatan*, 9(1), 19-26.
- Hazrati-Meimaneh, Z., Amini-Tehrani, M., Pourabbasi, A., Gharlipour, Z., Rahimi, F., Ranjbar-Shams, P., Nasli-Esfahani, E., & Zamanian, H. (2020). The impact of personality traits on medication adherence and self-care in patients with type 2 diabetes mellitus: The moderating role of gender and age. *Journal of Psychosomatic Research*, 136. <https://doi.org/10.1016/j.jpsychores.2020.110178>
- Heryati, G. S. (2014). Faktor-Faktor yang Berhubungan dengan Kepatuhan Diet Diabetes Mellitus pada Pasien DM. *Jurnal Keperawatan*, 1(3), 97-107.
- Jaarsma, T., Hill, L., Bayes-Genis, A., La Rocca, H. B., Castiello, T., Čelutkienė, J., Marques-Sule, E., Plymen, C. M., Piper, S. E., Riegel, B., Rutten, F. H., Ben Gal, T., Bauersachs, J., Coats, A. J. S., Chioncel, O., Lopatin, Y., Lund, L. H., Lainscak, M., Moura, B., ... Strömberg, A. (2021). Self-care of heart failure patients: practical management recommendations from the Heart Failure Association of the European Society of Cardiology. *European Journal of Heart Failure*, 23(1), 157-174. <https://doi.org/10.1002/ejhf.2008>
- Keenan, J. (2017). Improving adherence to medication for secondary cardiovascular disease prevention. *European Journal of Preventive Cardiology*, 24(3\_suppl), 29-35. <https://doi.org/10.1177/2047487317708145>
- Kementerian Kesehatan RI. (2018). Laporan Nasional Riskesdas Tahun 2018.
- Kementerian Kesehatan RI. (2018). Laporan Provinsi Jawa Barat : RISKESDAS 2018.
- Ketut Gama, & et al. (2014). Faktor penyebab ketidakpatuhan control hipertensi.
- Liang, L.-X., Liu, Y., Shi, Y.-J., Jiang, T.-T., Zhang, H.-R., Liu, B.-H., Xu, P.-Z., & Shi, T.-Y. (2022). Family care and subjective well-being of coronary heart disease patients after percutaneous coronary intervention: Mediating effects of coping strategies. *International Journal of Nursing Sciences*, 9(1), 79-85. <https://doi.org/10.1016/j.ijnss.2021.09.006>
- Maytasari, S., & Sartika, R. A. D. (2020). Family, Social, and Health Workers Support with Compliance Behaviour to Patients with Hypertension in Bogor, Indonesia. *Jurnal PROMKES*, 8(2), 146. <https://doi.org/10.20473/jpk.V8.I2.2020.146-153>
- Mendis, Shanthi., Puska, P., Norrving, Bo., World Health Organization., World Heart Federation., & World Stroke Organization. (2011). Global atlas on cardiovascular disease prevention and control. World Health Organization in collaboration with the World Heart Federation and the World Stroke Organization.
- Mufarokhah, H., Putra, S. T., & Dewi, Y. S. (2016). Self Management Program Meningkatkan Koping, Niat dan Kepatuhan Berobat Pasien PJK. *Jurnal Ners*, 11(1), 56-62.
- Nur Fitria, C., & Mutia, A. (2016). Hubungan Tingkat Pengetahuan tentang Tuberkulosis dengan Kepatuhan Minum Obat di Puskesmas. *JIKK*, 7(1), 41-45.
- Nuraeni, A., Mirwanti, R., Anna, A., Prawesti, A., & Emaliyawati, E. (2016). Faktor yang Memengaruhi Kualitas Hidup Pasien dengan Penyakit Jantung Koroner. *Fakultas Keperawatan Universitas Padjadjaran*, 4(2), 107-116.
- PERKI. (2022). Pedoman Tata Laksana Penyakit Kardiovaskuler. PERKI dan Tabloid Profesi Kardiovaskuler.
- Pratiwi, W., Harfiani, E., & Hadiwiwarjo, Y. (2020). Faktor-Faktor Yang Berhubungan Dengan Kepatuhan Dalam Menjalani Pengobatan Pada Penderita Hipertensi Di Klinik Pratama GKI Jabar Jakarta Pusat. *Seminar Nasional Riset Kedokteran*, 27-40.

- Puspa Delima, P., Sriati, A., & Nur, A. (2018). Illness Cognition pada Pasien dengan Penyakit Jantung Koroner. *JNC*, 1(1).
- Tambuwun, A. A., Kandou, G. D., Nelwan, J. E., Kesehatan, F., Universitas, M., & Manado, S. R. (2021). Hubungan Karakteristik Individu dengan Kepatuhan Berobat pada Penderita Hipertensi di Puskesmas Wori Kabupaten Utara Minahasa Utara. *Jurnal KESMAS*, 10(4).
- Violita, F., Leida, I., Thaha, M., & Dwinata, I. (2015). Factors Associated with Medication Adherence of Patients with Hypertension in Segeri's Health Center.
- West, L. M., Stewart, D., & Cordina, M. (2020). Mixed-methods approach to determine adherence, knowledge and behavioral determinants associated with medication wastage. *Research in Social and Administrative Pharmacy*, 16(5), 654-662.
- <https://doi.org/10.1016/j.sapharm.2019.08.003>
- Widianingrum, T. (2018). Hubungan Pengetahuan dan Motivasi dengan Kepatuhan Minum Obat Anti Tuberkulosis pada Pasien TB di Wilayah Kerja Puskesmas Perak Timur Surabaya. Universitas Airlangga.
- Wong, N. D. (2014). Epidemiological studies of CHD and the evolution of preventive cardiology. In *Nature Reviews Cardiology* (Vol. 11, Issue 5, pp. 276-289). Nature Publishing Group. <https://doi.org/10.1038/nrcardio.2014.26>
- World Health Organization. (2022). Cardiovascular Disease. [https://www.who.int/health-topics/Cardiovascular-Diseases#tab=tab\\_2](https://www.who.int/health-topics/Cardiovascular-Diseases#tab=tab_2).